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INTERNAL FIRE RESISTING AND/OR SMOKE CONTROL SINGLE AND DOUBLE LEAF DOORSETS MADE OF SPECIAL STEEL-FRAME PROFILES

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

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1 SCOPE OF THE EAD

1.1 Description of the construction product

Internal fire resisting and/or smoke control single and double leaf doorsets made of special steel-frame profiles are the subject of this EAD.

The products involve those which are pedestrian doorsets and used manually, opening and self-closing under the usual operating mode. They can also be kept open temporarily for usage purposes but close in the event of fire, smoke or malfunction or through manual release.

The product shall be realised:

- using special steel-frame or stainless-steel-frame profiles
- with building hardware,
- with or without any side panel(s), flush over panel(s) and/or transom panel(s) (with or without glazing) and contained within a single perimeter frame for inclusion in a single aperture,
- with or without any vision panel(s) in the door leaf or leave(s),
- with seals (e.g. for smoke control, fire resistance, draught or acoustic),
- with a three-sided permanently elastic seal (sealing tightly).

Internal fire resisting and/or smoke control single and double leaf doorsets made of special steel-frame profiles can also be installed at levels other than the floor level (i.e. at increased heights) provided that the relevant test certificates exist. The fire door in the area of the frame of the leaf/the leaves shall be designed with a four-sided permanently elastic seal to prevent smoke from penetrating. The lower edge of the leaf/the leaves and the frame shall be designed like the upper edge. A permanently elastic middle rebate seal shall be installed additionally in the event of double leaf fire doors.

The products are in principle covered by the relevant technical specifications EN 16034¹ and EN 14351-2, but EN 14351-2 is not harmonised and can only be used in combination with the harmonised standard EN 16034. So the products are not fully covered by harmonised technical specifications.

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

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

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

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

1.2.1 Intended use

Internal fire resisting and/or smoke control single and double leaf doorsets made of special steel-frame profiles are used as closures or for escape routes.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the products for the intended use of 25 years when installed

¹

All undated references to standards are to be understood as references to the dated versions listed in clause 4

in the works (provided that the product has been appropriately installed (see 1.1)) These provisions are based on the current state of the art and the available knowledge and experience.

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

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

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

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of internal fire resisting and/or smoke control single and double leaf doorsets made of special steel-frame profiles is assessed in relation to the essential characteristics.

Table 1 Essential characteristics of the product

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 2: Safety in case of fire			
1	Reaction to fire of components Reaction to fire of the doorset	2.2.1	Class
2	Resistance to fire	2.2.2	Class
3	Smoke control	2.2.3	Class
Basic Works Requirement 4: Safety and accessibility in use			
4	Self-closing	2.2.4	Class
5	Ability to release	2.2.5	Description
6	Durability of the ability to release	2.2.6	Description
7	Durability of self-closing against degradation (cycling testing)	2.2.7	Class
8	Durability of self-closing against ageing (corrosion)	2.2.8	Description
9	Impact resistance	2.2.9	Class
Basic Works Requirement 5: Protection against noise			
10	Direct airborne sound insulation index	2.2.10	Grade

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

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

If for any components covered by harmonised standards or European Technical Assessments the manufacturer of the component has included the performance regarding the relevant essential characteristic in the Declaration of Performance, retesting of that component for issuing the ETA under the current EAD is not required.

2.2.1 Reaction to fire

2.2.1.1 Reaction to fire of components

Reaction to fire is the response of the doorset components to a fire to which they are exposed under specified conditions.

The components shall be tested, using the test method(s) and relevant for the corresponding reaction to fire class according to EN 13501-1. The components shall be classified according to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

The materials to be considered belonging to class A1 without test are listed in the Commission Decision 96/603/EC as amended by Commission Decisions 2000/605/EC and 2003/424/EC.

The relevant components are:

- special steel-frame or stainless-steel-frame profiles
- infill (e.g. panels) or non-combustible material (mineral wool);
- sealing and gasket between infill and profile (standard flammable material).

Hardware components and gasket between frame and door leaf are not a relevant component due to negligible influence for reaction to fire performance (compression of the seal and overlapping of the rebate).

Components covered by their own product standard (e.g. glass products) do not need to be re-tested.

2.2.1.2 Reaction to fire of the doorset

The doorset shall be tested, using the test method(s) and relevant for the corresponding reaction to fire class according to EN 13501-1. The doorset shall be classified according to Commission Delegated Regulation (EU) No 2016/364 in connection with EN 13501-1.

For the classification:

- a) for Class E of doorsets the relevant components (as specified in 2.2.1.1) shall be tested. The overall result for the product resulting from the single flame test is determined by the component with the least favourable performance.
- b) for Classes D to A2 of doorsets two alternative routes are possible:
 - 1) the classification shall either be based on the testing of the product; or
 - 2) the classification shall be based on test results of the individual components. The worst classification of the profile, coating or infill/door leaf determines the classification of the whole product.

2.2.2 Resistance to fire

The doorset shall be tested, using the test method relevant for the corresponding fire resistance class in accordance with EN 1634-1 in accordance with EN 16034 (chapter 4.1 and 5.1) plus Annex A of this EAD. They shall be classified according to EN 13501-2.

2.2.3 Smoke control

The doorset shall be tested, using the test method relevant for the corresponding smoke control class in accordance with EN 1634-3 in accordance with EN 16034 (chapter 4.2 and 5.2) plus Annex B of this EAD and results shall be classified in accordance with EN 13501-2.

2.2.4 Self-closing

Self-closing is the ability of an open doorset to close fully into its frame and shall be tested in accordance with EN 16034 (chapter 4.4 and A.2.2). Results shall be classified in accordance with EN 13501-2.

2.2.5 Ability to release

The ability to release test shall be carried out on one sample which is submitted to fire resistance testing in accordance with EN 1634-1 or smoke control testing in accordance with EN 1634-3.

In order to release the doorset and enable the reliable closing of a doorset in the event of fire and/or smoke or failure of the power supply, the hold-open device shall be tested in accordance with EN 16034 (chapter 4.3 and 5.3) and test results shall be expressed as “released”.

2.2.6 Durability of the ability to release

The durability of the ability to release is verified in accordance with EN 16034 (chapter 5.4.1). The result shall be expressed as “release maintained”.

2.2.7 Durability of self-closing against degradation (cycling testing)

The test methods for cycling testing are given in EN 1191 in accordance with EN 16034 (chapter 4.5.2.1 and 5.4.2) plus Annex C of this EAD.

2.2.8 Durability of self-closing against ageing (corrosion)

The durability of self-closing is considered to be achieved if the building hardware used in the doorset complies with the relevant clauses of the building hardware product standards as listed in EN 16034 (chapter 4.5.2.2).

The durability of self-closing against ageing (corrosion) of the doorset shall be expressed as “achieved”.

2.2.9 Impact resistance

Impact resistance of glazed doors with injury risk is the ability of a doorset to keep in place glazed parts.

The test shall be carried out and expressed in accordance with EN 13049. For some uses (e.g. asymmetric structure), the test shall be carried out from both sides.

2.2.10 Direct airborne sound insulation index

Direct airborne sound insulation is the ability of doorsets to insulate against direct airborne noise.

The acoustic performance of the doorset, the weighted sound reduction index and the spectrum adaptation terms R_w (C; Ctr) of operable doorsets shall be determined by test in accordance with EN ISO 10140-1 and 2 (reference method) and given in accordance with EN ISO 717-1.

2.3 Cascading determination of the product type results

For some internal fire resisting and/or smoke control single and double leaf doorsets made of special steel-frame profiles, there are companies (often called “system houses”) which supply or ensure the supply of some or all of the components to an assembler on the basis of an agreement³. The assembler then manufactures the finished product (referred to below as the “assembler”) in his factory - see also EN 16034 (chapter 6.2.4).

³ Such an agreement can take a form of licence, contract or any other type of written consent and should contain clear provisions with regard to responsibility and liability of the component producer (system house) on the one hand and the assembler of the finished product on the other hand.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System of assessment and verification of constancy of performance to be applied

For the products covered by this EAD the applicable European legal act is Commission Decision 1999/93/EC as amended by Commission Decision (2011/246/EU).

The system is 1.

3.2 Tasks of the manufacturer

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

Table 2 Control plan for the manufacturer; cornerstones

No	Subject/type of control (product, raw/constituent material, component - indicating characteristic concerned)	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Factory production control (FPC) [including testing of samples taken at the factory in accordance with a prescribed test plan]					
1	Incoming material/components	DoP / product information	Control Plan	1	Every delivery
2	Reaction to fire Components not covered by a harmo- nised specification classified class E-B as per EN 13501-1	Manufac- turers method	Control Plan	1	Every day/delivery
	Reaction to fire Components not covered by a harmo- nised specification classified class A1, A2 as per EN 13501-1	EN ISO 1182 and EN ISO 1716	Either loss on ignition or calorific potential	1	Every day/delivery
3	Parameters related to essential characteristic of Table 1 relevant for the intended use which are declared	EN 16034 chapter 6.3	compliance with EN 16034 chapter 6.3	1	Every delivery
4	Essential characteristic of Table 1 relevant for the intended use which are declared	EN 16034 chapter 6.2	compliance with EN 16034 chapter 6.2	1	- at the beginning of a production series - at large production series → every day of production - at small series and single-unit production → every 30 th product

Furthermore, in this regard concerning the selection of test samples during the factory production control separate tests are required in following cases:

- significant components (which can affect its performance to the standard) are of different design or material,
- devices have different numbers of linkages,
- the model has been modified.

Please note that prototype samples are acceptable, if made from production tooling and using production assembly equipment is used.

Note: This clause is in conjunction with clause 2.3 and necessary for all the manufacturer.

3.3 Tasks of the notified body

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

Table 3 Control plan for the notified body; cornerstones

No	Subject/type of control (product, raw/constituent material, component - indicating characteristic concerned)	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Initial inspection of the manufacturing plant and of factory production control					
1	Initial inspection of manufacturing plant and of FPC	Parameters related to essential characteristics of Table 1, as relevant for the intended use, which are declared, namely: Resistance to fire E, I Smoke leakage S Ability to release (only for the related hardware) Self-closing C Documentation of the FPC.	EN 16034 chapter 6.3.4	3	when starting the production or a new product line
Continuous surveillance, assessment and evaluation of factory production control					
3	Continuous surveillance, assessment and evaluation of FPC	Parameters related to essential characteristics of Table 1, relevant for the intended use which are declared, namely: Resistance to fire Smoke control Ability to release Self-closing Documentation of the FPC.	EN 16034 chapter 6.3.5		once a year

4 REFERENCE DOCUMENTS

EN 16034:2014-12	Pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resisting and/or smoke control characteristics
EN 15269-1:2010-07	Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 1: General requirements
EN 15269-5:2014-09	
EN 15269-5:2016-12	Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 5: Fire resistance of hinged and pivoted metal framed glazed doorsets and openable windows
EN 15269-20:2009-12	Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 20: Smoke control for hinged and pivoted steel, timber and metal framed glazed doorsets
EN 17020-4:2016-08	Extended application of test results on durability of self-closing for fire resistance and/or smoke control doorsets and openable windows - Part 4: Durability of self-closing of fire resistance hinged and pivoted metal framed glazed doorsets and openable windows
EN 14351-2:2019-01	Windows and doors - Product standard, performance - Part 2: Internal pedestrian doorsets
EN 1634-1:2018-04	Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware - Part 1: Fire resistance tests for doors, shutters and openable windows
EN 1634-2:2009-05	Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware - Part 2: Fire resistance characterisation test for elements of building hardware
EN 1634-3:2005-01	Fire resistance tests for door and shutter assemblies - Part 3: Smoke control doors and shutters
EN 1191:2013-04	Windows and doors - Resistance to repeated opening and closing - Test method
EN 12150-2:2005-01	Glass in building - Thermally toughened soda lime silicate safety glass - Part 2: Evaluation of conformity
EN 12600:2003-04	Glass in building - Pendulum test - Impact test method and classification for flat glass
EN 13049:2003-08	Windows - Soft and heavy body impact - Test method, safety requirements and classification
EN 14179-2:2005-08	Glass in building - Heat soaked thermally toughened soda lime silicate safety glass - Part 2: Evaluation of conformity/product standard
EN 14449:2017-12	Glass in building - Laminated glass and laminated safety glass - Evaluation of conformity/product standard
EN ISO 717-1:2006-11	Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation (ISO 717-1)
EN ISO 10140-1:2014-09	Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rules for specific products (ISO 10140-1)
EN 950:1999-11	Door leaves - Determination of the resistance to hard body impact

EN 13501-1:2010-01	Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
EN 13501-2:2016-12	Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services
EN ISO 1182:2010-10 EN ISO 1716:2020-11	Reaction to fire tests for products – Non-combustibility test Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value)
EN 15254-4:2013-10	Extended application of results from fire resistance tests – Non-loadbearing walls – Part 4: Glazed constructions
EN 1363-1:2012-10	Fire resistance tests – Part 1: General Requirements
EN 572-9:2005-01	Glass in building – Basic soda lime silicate glass products – Part 9: Evaluation of conformity/Product standard
EN 1748-2:2005-01	Glass in building – Special basic products – Glass ceramic - Part 2-2: Evaluation of conformity/Product standard
EN 13024-2:2005-01	Glass in building – Thermally toughened borosilicate safety glass – Part 2: Evaluation of conformity/Product standard
EN 12209:2016-10	Building hardware – Mechanically operated locks and locking plates – Requirements and test methods
prEN 15685:2019-10	Building hardware – Requirements and test methods – Multipoint locks, latches and locking plates – Characteristics and test methods
EN 14846:2008-11	Building hardware – Locks and latches – Electromechanically operated locks and striking plates - Requirements and test methods
EN 179:2008-04	Building hardware – Emergency exit devices operated by a lever handle or push pad, for use on escape routes – Requirements and test methods
EN 1125:2008-04	Building hardware – Panic exit devices operated by a horizontal bar, for use on escape routes – Requirements and test methods
EN 1154:2003-04	Building hardware – Controlled door closing devices – Requirements and test methods
EN 1935:2002-05	Building hardware – Single axis hinges – Requirements and test methods

Annex A – Extended application fire resistance

A1. General

Annex A covers single and double leaf, hinged and pivoted, steel based doorsets and prescribes the methodology for extending the application of test results obtained from fire resistance test(s) conducted in accordance with EN 1634-1.

Before there can be any consideration for extended application, the doorset will need to have been tested in accordance with EN 1634-1 to achieve a test result which could generate a classification in accordance with EN 13501-2 at least equal to the classification subsequently required from extended application considerations.

Subject to the completion of the appropriate test or tests, the extended application may cover all or some of the following examples:

- integrity/insulation (EI₁ or EI₂) classification
- doorsets;
- door leaf;
- wall/ceiling fixed elements (frame/suspension system);
- glazing for door leaf, side, transom and flush over panels;
- items of building hardware;
- decorative finishes;
- intumescent, smoke, draught or acoustic seals;
- alternative supporting construction(s).

Extended application are possible provided that the standard tests have been carried out on single and double leaf fire doors (open outwards and inwards) using the maximum dimensions.

A2. Determination of the field of extended application

Before there can be any consideration for extended application, a representative doorset shall have been tested and classified in accordance with EN1634-1 and EN 13501-2 respectively in order to establish a classification for the doorset.

A review of the doorset construction parameters can indicate that one or more characteristics may be improved by a particular parameter variation. All evaluations shall be made on the basis of retaining the classifications obtainable from testing to EN 1634-1, including those lower than the test duration. However, this shall never lead to an increased classification for any specific parameter beyond that achieved during any one test unless specifically identified in the relevant Construction Parameter Variation tables.

If, when following the extended application procedure, any part of the classified product cannot be covered by the extended application rules, that part shall be omitted from the subsequent extended application report and classification report.

Identify the variations from the original test specimen(s) which are required to be covered by an extended application report.

Locate the variations in the appropriate parameter variation by reference to columns (1) and (2) of table A.

Review the type of classification to be retained from column (3) and establish from the contents of column (4) whether any extended application is available beyond the direct application rules in EN 1634-1 without the need for further testing.

Where this is deemed possible, it can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (4) of table A.

Where the variations required can only be achieved from additional testing, the additional test can be made on a similar specimen type i.e. a doorset of the same or more onerous configuration where the

leaf construction is fundamentally the same as tested. Alternatively, column (5) identifies an option for alternative testing and relevant test parameters.

A3. Procedure for maximum field of extended application

It is possible to provide an extended field of application from a single test. However, if a manufacturer intends to produce a range of doors incorporating single doors and also double doors, with or without side, transom or flush over panels, with or without glazing, with or without louvres or ventilation grilles, with alternative elements of building hardware, etc., it is recommended that careful consideration be given to the complete range of doorset designs and options in order to minimise the testing required before testing commences.

Establish all the parameter variations which are required to be part of the product range.

Determine which are the most important specification requirements and incorporate as many as possible into the specimen(s) for the first tests in the series.

Conduct the first fire resistance test or a series of tests and then establish which of the original desired parameter variations have not been covered by the fire resistance tests, including direct application possibilities.

Identify these parameter variations in table A and establish if any extended application is possible without further testing.

Record this for the extended application report together with any restrictions and rules given in column (4) in table A.

Evaluate which, if any, of the desired parameter variations have not been covered by the field of direct application or the initial field of extended application derived from chapter 3.

Determine if the product range is to include only single leaf doorsets or if the range is to also include double leaf configurations. Where only single doorsets are to be part of the product range, the outstanding construction parameter variations shall only be incorporated into specimens for the single leaf doorsets. Where single leaf and double leaf doorsets are to be included in the product range, the outstanding construction parameter variations for the extended application of single leaf doorsets may be incorporated into either repeated single leaf doorset tests or, in the weakest option, as defined in column (5) of the table in table A, double leaf doorset configurations.

Select the required outstanding parameter variations from column (1) and column (2) of table A and observe from column (5) in table A which are the most appropriate, weakest specimen options for further testing.

If the complete selection of required parameter variations has not been covered by the tests as listed above, then an appropriate test or tests may be repeated with the additional product variations incorporated.

A4. Analysis of test results

In order to maximise the extended field of application, it is important that the test reports shall record details of any premature integrity and/or insulation failure also record details of any distortion to evaluate low, medium and high distortion (see table A).

Where a series of tests have been conducted, the field of extended application shall be based on the lowest performance achieved from the complete series of tests unless premature failure has been attributed to one or more specific construction parameter variations.

Where it has been possible to identify specific parameter failures, the extended application for all other construction parameter variations can be based on the performance achieved after isolating the premature failure(s).

Prepare an extended application report in accordance with the requirements of EN 15269-1:2010, Clause 6 based on the results of evaluations in accordance with the above.

The classification report shall be determined from the results of the extended application report and presented in accordance with EN 13501-2.

A5. Construction parameter variations

Table A is designed to be used by experts competent in the field of fire resistance testing of hinged and pivoted steel doorsets.

The table shall only be used to assess a field of extended application when at least one positive fire resistance test to EN 1634-1 has generated a classification according to EN 13501-2.

The first two columns identify possible variations to the construction details of the specimen tested.

The influence of variation on performance characteristic is identified from column (3) as integrity, insulation or radiation (E, I or W respectively). For some parameters, it is necessary to evaluate whether the specimen displayed a high, medium or low level of distortion during the test. Where this is the case, the following levels shall be used to establish high, medium and low distortion doorsets as measured using the maximum relative movement at any position between the edge of the door leaf and door frame or between the meeting edges of door leaves or the relative movement of the framing members for panelled systems. The measurements shall be taken from the start of the test at any time during the complete required classification period. The deflections shall be measured at the positions given in EN 1634-1:

- low < 40 % of effective rebate depth;
- medium $\geq 40\%$ and $\leq 85\%$ of effective rebate depth;
- high $> 85\%$ of effective rebate depth.

The effect of the change in each parameter is evaluated for each characteristic in column (3) under E for effects on integrity, I for effects on insulation (whether an I₁ or I₂) and W for the effects on radiation.

These evaluations lead to the judgement of the possibility of extending the field of application, the results of which are given in column (4). In certain cases in column (4), it is a requirement to achieve Category B, the requirements for which are given in EN 1634-1.

Where additional tests are deemed to be necessary, the type of specimen approved for incorporation of the changed parameter is defined in column (5). Where it is possible to use information from tests performed on one configuration for evidence on a different configuration, this allowance has been made in order to reduce the overall number of tests required for extended application evaluation e.g. single action doorsets to double action doorsets.

Where an additional test is required in column (5), the test is a full scale test with the specimen opening outwards (away from the furnace) unless otherwise specified.

In order to maximise the possible field of application from a minimum number of tests, the parameter changes have been spread over a series of test specimens. The recommended tests for each parameter depends on the classification required and the preferred direction of testing as indicated in column (5).

Where more than a single parameter variation is required, the influence on other variations shall also be taken into account.

The following tables and the following figures were taken from DIN EN 15269-5 in extracts. The structure corresponds to the norm.

Table A — Construction parameter variations

Key symbols in column 3 (which is informative only):

- > - higher performance anticipated
- < - lower performance anticipated
- = - no significant change in performance anticipated
- _ - equal or higher performance anticipated
- _ - equal or lower performance anticipated
- > / = / < - the influence on performance could be worse, equal or better hence variations not possible unless specific, limited conditions are identified

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A Door leaf						
For double leaf doorsets, both leaves shall be of the same basic construction.						
A.1.1 Number of leaves — See Figure A.1	Single leaf from double leaf test	≤	≥	≥	Not possible without an additional test	Additional test single leaf doorset with glazing bead in fire side
A.1.2 Number of leaves	Doubleleaf from single leaf test	≤	≤	≤	Not possible without an additional test	Additional test (s) double leaf doorset open outwards and inwards for doors with insulated profiles with glazing bead in fire side Open outwards for doors with un-insulated profiles with glazing bead in fire side
A.1.3 Intumescent seals between frame and door leaf / leaves - See Figure A.2a	Location towards the frame rebate	> / = / <	> / = / <	> / = / <	Not possible without an additional test	Additional test single leaf or double leaf doorset (open outwards)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.1.4 Intumescent seals between frame and door leaf / leaves – See Figure A.2b	Location away from the frame rebate	> / = / <	> / = / <	> / = / <	Not possible without an additional test	Additional test single leaf or double leaf doorset (open outwards)
A.1.5 Intumescent seals between meeting edges of the door leaves - See Figure A.3a	Location	> / = / <	> / = / <	> / = / <	Not possible without additional test (s)	Additional test (s) double leaf doorset open outwards for E and EW doors For EI-steel doors: one test, with fire on opposite side of the operated direction. - See Figure A.3b
A.1.6 Non intumescent seals between frame and door leaf / leaves (draught / smoke / acoustic etc.) - (Reaction to fire class A1) e.g. ceramic products (fitted in leaf or frame) - See Figure A.4	Location	=	=	=	Any movement possible providing no modifications of the construction are required otherwise not possible without an additional test	Additional test single or double leaf doorset if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset
A.1.7 Non intumescent seals between meeting edges of the door leaves (draught / smoke / acoustic etc.) - (Reaction to fire class A1)	Location	> / = / <	> / = / <	> / = / <	No movement possible without an additional test	Additional test double leaf doorset
A.1.8 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – < Reaction to fire class A1 (fitted in leaf or frame) - See Figure A.4a	Location	> / = / <	> / = / <	> / = / <	No movement possible without an additional test	Additional test (s) double leaf doorset open outwards for E and W doors For EI-steel doors: one test, with fire on opposite side of the operated direction - See Figure A.4b

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.1.9 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) - (Reaction to fire class A1), e.g. ceramic products (fitted in leaf or frame) - See Figure A.5a	Add	=	=	=	Possible for doors without intumescent seals and providing the gap between door leaf and door frame is not increased otherwise not possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset
A.1.10 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) - (Reaction to fire class A1), e.g. ceramic products (fitted in leaf or frame) - See Figure A.6	Remove	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.1.11 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – < Reaction to fire class A1 (fitted in leaf or frame) - See Figure A.5a	Add	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset. Fireside opposite the position where the seal is added- See Figure A.5b
A.1.12 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc. – < Reaction to fire class A1 (fitted in leaf or frame) – See Figure A.6	Remove	> / = / <	> / = / <	> / = / <	Not possible without an additional test	Additional test single or double leaf doorset, if the seal is positioned between the meeting edges of the door leaves the additional test shall be a double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.1.20 Rebate (door leaves to frames) - See Figure A.10	Add	≤	≤	≥	<p>Insulated profiles: Not possible without an additional test unless the original test had additional thermocouples positioned on the profile maximum 100 mm and/or 25 mm from the edge of the notional rebate (i.e. 100-x) where x means the width of the added rebate and dimension y shall not be reduced, otherwise not possible without an additional test</p> <p>Un-insulated profiles: Not possible without an additional test</p>	Additional test single doorset for single doors, double doorset for double doors
A.1.21 Rebate (meeting edges) - See Figure A.11	Add (one rebate)	≤	≤	≤	<p>Insulated profiles: Not possible without an additional test unless the original test had additional thermocouples positioned on the profile maximum 100 mm and/or 25 mm from the edge of the notional rebate (i.e. 100-x) where x means the width of the added rebate and dimension y shall not be reduced. Otherwise not possible without an additional test</p> <p>Un-insulated profiles: Not possible without an additional test</p>	Additional test single leaf doorset for single doorsets, double leaf doorset for double leaf doorsets (added rebate away from the fire)

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)			Additional evidence required (5)	
		E	I	W					
A.1.22 Rebate (door leaves to frames and meeting edges) - See Figure A.12	Remove	≤	≤	≤	Not possible without an additional test			Additional test single or double leaf doorset (open inwards)	
A.1.23 Latched condition for single and double leaf doorsets	Change in latching condition	>/ = / <	=	=	Possible in line with the following relationship:			Additional test to include the required latching condition	
						tested without a lock	tested with a latch/lock But unlatched	tested with a latch/lock latched	
					extension to: without a lock/latch	—	possible	not possible	
					extension to: lock with lock/latch but unlocked/unlatched	not possible for EI doors possible for E or EW doors if latch/lock is all metal construction	—	not possible	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension				Additional evidence required
(1)	(2)	(3)			(4)				(5)
		E	I	W					
					extension to: with a lock/latch, latched	not possible for EI doors possible for E or EW doors if latch/lock Is all metal construction	possible	—	
A.1.24 Latching / locking	Remove from door leaf tested with latching/locking	≤	≤	≥	Not possible without an additional test				For single leaf doorsets additional test single leaf doorset (open inwards for EI doors, open outwards for E or W doors) for double leaf doorsets additional test double leaf doorset (open inwards for EI doors, open outwards for E or W doors)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.2 Size variations						
A.2.1 Size (area, width, height) all distortions	Decrease	≥	≤	≥	E and EW unlimited reduction is Possible EI: possible to decrease to a minimum dimension of the glass as it is mentioned in rule F.1.4 otherwise not possible without an additional test	For single leaf doorsets additional test single leaf or double leaf doorset, for double leaf doorsets additional test double leaf doorset
A.2.2 Height – all distortions	Increase	≤	=	≤	Possible for doorsets have achieved category B up to 15 % or possible for doorsets which have achieved category B and medium and low distortion up to 20 % providing overlap of door leaf to frame header is not reduced and distance between top hinge and top of door leaf is equal to or less than tested and additional for EW a thermal emission calculation in accordance with EN 15254 – 4 within the 15 KW limit (Rule F.1.3 applies) otherwise not possible without an additional test	For single leaf doorsets additional test single leaf or double leaf doorset, for double leaf doorsets additional test double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.2.3 Width - all distortions	Increase	≤	=	≤	<p>Possible for doorsets which have achieved category B up to 15 % or possible for doorsets which have achieved category B and medium and low distortion up to 20 % providing overlap of door leaf to frame jamb is not reduced and additional (for EW) thermal emission calculation in accordance with EN 15254-4 within the 15 KW limit rule F.1.3 applies</p> <p>Otherwise not possible without an additional test</p>	<p>For single leaf doorsets additional test single leaf or double leaf doorset, for double leaf doorsets additional test double leaf doorset (open outwards)</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.2.4 Area - all distortions	Increase	≤	=	≤	<p>Possible for doorsets which have achieved category B up to 20 %</p> <p>or possible for doorsets which have achieved category B and medium and low distortion up to 21 %</p> <p>providing overlap of door leaf to frame header is not reduced and distance between top hinge and top of the door leaf is equal to or less than tested)</p> <p>and additional (for EW) a thermal emission calculation in accordance with EN 15254-4 within the 15 KW limit Rule F.1.3 applies</p> <p>Otherwise not possible without an additional test</p>	Additional test see A.2.2 and/or A.2.3
A.3. Materials and constructions						
A.3.1 Density of infill of profile or core-material in the panel (organic or Reaction to fire class A1) – all distortions	Increase	>/ = / <	≥	≥	<p>Possible by a maximum of 15 % (nominal value) of each core material of the door leaf above 15 % not possible without an additional test</p>	Additional test single or double leaf doorset
A.3.2 Density of infill of profile of core material (organic or Reaction to fire class A1) – all distortions	Decrease	>/ = / <	≤	≤	<p>E possible to reduce with 50 % EI, EW not possible without an additional test</p>	Additional test single or double leaf doorset

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A.3.3 Type of infill of profile of core material (single thickness or in combination of different layers)	Change of supplier / manufacturer of identical material with identical composition and properties	=	=	=	Possible	
A.3.4 Type of core material (single thickness or in combination of different layers)	Alternative composition	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test single or double leaf doorset
A.3.5 Amount of adhesive / m ² – organic based (<Reaction to fire class A1)	Increase	≤	=	=	Not possible without an additional test	Additional test single or double leaf doorset
A.3.6 Amount of adhesive / m ² – organic based (<Reaction to fire class A1)	Decrease	> =	=	=	Possible	
A.3.7 Amount of adhesive / m ² – inorganic based (Reaction to fire class A1)	Increase	=	=	=	Possible	
A.3.8 amount of adhesive / m ² – inorganic based (Reaction to fire class A1)	Decrease	=	=	=	Not possible without an additional test	Additional test single or double leaf doorset
A.3.9 Type of adhesive	Change of manufacturer for identical composition	=	=	=	Possible for identical chemical composition, otherwise not possible without an additional test	Additional test single or double leaf doorset
A.3.10 Type of adhesive	Alternative composition	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.3.11 Additional overlapping edge at the bottom of the door leaf - See Figure A.13a	Add	\geq	\leq	$> / = / <$	Possible providing the tested overlapping edge at the top of the leaf is added at the bottom of the leaf and providing a fourth frame member is added Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.3.12 Overlapping edge at the bottom of the door leaf - See Figure A.13b	Remove	\leq	\geq	$> / = / <$	Possible providing the gap between the bottom of the door leaf and the floor remains the same as the original test specimen and in line with direct application Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.3.14 Dimension of intumescent seals (leaf or frame fitted) - See Figure A.14a	Increase	$> / = / <$	$> / = / <$	$> / = / <$	Not possible without an additional test	Additional test single or double leaf doorset
A.3.15 Dimension of intumescent seals (leaf or frame fitted) - See Figure A.14b	Decrease	\leq	\leq	\leq	Not possible without an additional test	Additional test single or double leaf doorset
A.3.16 Type of intumescent seals (leaf or frame fitted)	Change of supplier / manufacturer	$> / = / <$	$> / = / <$	$> / = / <$	Possible but only for identical composition Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.3.17 Type of intumescent seals (leaf or frame fitted)	Alternative material	$> / = / <$	$> / = / <$	$> / = / <$	Not possible without an additional test	Additional test single or double leaf doorset
A.3.18 Dimension of draught / smoke seals (Reaction to fire class A1); e.g. ceramic products (leaf or frame fitted) - See Figure A.15a	Increase	\geq	$=$	$=$	Possible providing the gap between door leaf and door frame is not increased Otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.3.19 Dimension of draught / smoke seals (Reaction to fire class A1); e.g. ceramic products (leaf or frame fitted) - See Figure A.15b	Decrease	≤	=	=	Not possible without an additional test	Additional test single or double leaf doorset
A.3.20 Dimension of draught / smoke seals (<Reaction to fire class A1) (leaf or frame fitted) – See Figure A.16a	Increase	≤	≤	≤	Not possible without an additional test.	Additional test single or double leaf doorset
A.3.21 Dimension of draught / smoke seals (<Reaction to fire class A1) (leaf or frame fitted) - See Figure A.16b	Decrease	≥	≥	≥	Possible in any cross sectional dimension providing the same material and the same manufacturer Otherwise not possible without an additional test	
A.3.22 Type of draught / smoke seals (leaf or frame fitted)	Change of supplier / manufacturer	>/ = / <	=	=	Possible for Reaction to fire class A1 material or for identical chemical composition Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.3.23 Type of draught / smoke seals (leaf or frame fitted)	Alternative material (changing to higher Reaction to fire class)	=	=	=	Possible	
A.3.24 Type of draught / smoke seals (leaf or frame fitted)	Alternative material (changing to an equal or a lower Reaction to fire class)	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A4. Decorative and / or protective finishes						
A.4.1 Paints without contribution to fire resistance (on leaf or frame)	Addition	=	=	=	Possible in line with direct application beyond the field of direct application rules not possible without an additional test	Additional test single or double leaf doorset
A.4.2 Paints without contribution to fire resistance (on leaf or frame)	Interchange	=	=	=	Possible	
A.4.3 Thickness of paints with positive contribution to fire resistance (on leaf or frame)	Increase	≥	≥	≥	Possible up to a maximum of 25 % in mass per m ² Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.4 Thickness of paints with positive contribution to fire resistance (on leaf or frame)	Decrease	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset
A.4.5 type of paints with positive contribution to fire resistance (on leaf or frame)	change of supplier / manufacturer	>/ = / <	>/ = / <	=	Possible but only for identical composition Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.6 Type of paints with positive contribution to fire resistance (on leaf or frame)	Alternative material	>/ = / <	>/ = / <	>/ = / <	Not possible without an additional test	Additional test single or double leaf doorset
A.4.7 Decorative laminates and timber veneers on the face (on leaf) - See Figure A.17	Add	>/ = / <	≥	≥	Possible in line with direct application Otherwise not possible without additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.4.8 Decorative laminates and timber veneers on the face (on leaf) - See Figure A.18	Remove	≥	≤	≤	E Possible EI, EW Possible for category B door providing that the thickness of a laminate is less or equal to 1,5 mm Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.12 Types and thickness of decorative laminates and timber veneers on the face (on leaf or frame)	Change material content, increase, decrease	>/=/<	>/=/<	>/=/<	Possible in line with direct application beyond the field of direct application rules not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.4.15 Types of decorative laminates and timber veneers on the face (on leaf)	Colour, pattern	=	=	=	Possible in line with direct application otherwise not possible without additional test	Additional test single or double leaf doorset
A.4.16 Protective elements – face fixed (kick plates/push plates/armour plates) - See Figure A.21	Add	>/=/<	>/=/<	>/=/<	Not possible if the protective elements cover any part of the glass otherwise possible only for metal elements for one piece up to 800 mm from the base of the leaf providing no thicker than 1,5 mm or limited to maximum two pieces per face at 250 mm in width or height (for E and EW doors the elements shall be Reaction to fire class A1). For acceptable fixing methods see rule 4.18. "Attachment technique for elements added to doors" otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.17 Protective elements – face fixed (kick plates/push plates/armour plates)	Remove	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.4.18 Attachment technique for elements added to doors	Selection (adhesive/ rivet/screw)	=	=	=	<p>E, EI, EW only selection of Reaction to fire class A1 material for fixings possible and for EI doors providing no through connection</p> <p>EI all selections possible within the area where thermocouples shall be placed and providing no through connection</p> <p>Otherwise not possible without an additional test</p>	Additional test single or double leaf doorset
A.4.19 Mouldings/profiles - See Figure A.22	Add	≤	=	≤	<p>E, EI, EW Possible only for mouldings/profiles which will not change the structural rigidity of the leaf and providing no break through to the opposite face</p> <p>E, EW possible only for inorganic material</p> <p>Otherwise not possible without an additional test</p>	Additional test single or double leaf doorset
A.4.20 Mouldings/profiles - See Figure A.22	Remove	≥	≤	≤	<p>E Possible providing the removal will not change the structural rigidity of the leaf</p> <p>EI, EW Not possible without an additional test</p>	Additional test single or double leaf doorset
A.5 Profiles in doorleaf (see Figure A.23 for explanation of width and depth of the profile)						
A.5.1. Cross section of profile of the door leaf (including transoms and mullions) based on high distortion	Increase depth	>/ = / <	>	≥	Not possible without an additional test	Additional test can be single or double leaf doorset; with glazing bead in fire side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
A.5.2. Cross section of profile of the door leaf (including transoms and mullions) based on medium and low distortion	Increase depth	>/ = / <	≥	≥	<p>Possible to increase the depth to a maximum of 25 % by increasing the shells and/or the insulation-connectors providing:</p> <ul style="list-style-type: none"> – The overlap rebate depth (See Figure A.24) of the frame- profile is increased with the same percentage – If the thickness of one of the outer shell is increased, then the other shell is increased with the same percentage - See Figure A.25 – The insulation-connectors can be increased in thickness with the same percentage according to the following rule: profile can be cut according to cut C, and all cutted materials shall be filled in with more of the same material. See Figure A.25 <p style="text-align: center;">otherwise not possible without an additional test</p>	additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A.5.3. Cross section of profile of the door leaf	Decrease depth	>/ = / <	≤	≤	Not possible without an additional test	Additional test can be single for single leaf doorsets or double leaf for double leaf doorsets; with glazing bead in fire side
A.5.3. a Type of Infill material	Change of supplier/ manufacture of material with identical composition and properties				Possible	
A.5.3. b Type of Infill material	Alternative material				Not possible without an additional test	
A.5.3. c Thickness of Infill material - See Figure A.26	Increase				Possible	
A.5.3. d Thickness of Infill material - See Figure A.26	Decrease				Not Possible	
A.5.4. Cross section of profile of the door leaf based on high distortion	Increase width	<	<	<	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
<p>A.5.5 Cross section of profile of the door leaf (including transoms and mullions) Based on Medium and Low distortion</p>	<p>Increase width</p>	<p>< =</p>	<p>=</p>	<p>< =</p>	<p>The dimensions of the profile can only be increased according to the following rule:</p> <ul style="list-style-type: none"> - profile can be cut according cut B, - See Figure A.27 - all cutted materials must be filled in with more of the same material; - See Figure A.27 <p>E, EW and EI1:</p> <p>Possible to increase the width of the vertical side profiles, and the horizontal top profile (together or separately) up to 100 % to a maximum of profile-width of 120 mm.</p> <p>Possible to increase the width of profile in the bottom of the door leaf, and transoms and mullions up to 300 % until a maximum of 300mm</p> <p>EI2</p> <p>Possible to increase the width of the vertical side profiles, and the horizontal top profile (together or separately) up to 100 % to a maximum profile width of 120 mm</p> <p>It is obliged to measure the temperature on the profile; the increase with 100 % is only allowed when the maximum temperature rise is not higher than 180°C (measured according to EN 1363-1).</p> <p>Possible to increase the width of profile in the bottom of the door leaf, and transoms and mullions up to 300 % to a maximum of 300 mm.</p> <p>Otherwise not possible without an additional test.</p>	<p>Additional test can be single or double leaf doorset with glazing bead in fire side</p>

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A.5.6 Cross section of profile of the door leaf	Decrease width	=	< =	=	<p>EI2: Reduction from a width smaller than 115 mm is allowed with a maximum of 40 % to a minimum of 30 mm</p> <p>E and EW doors: a decrease of 40 % down to a minimum of 30 mm is allowed</p> <p>E1 with overrun B: a decrease of 40 % down to a minimum of 30 mm is allowed</p> <p>For E, EW, EI1 and EI2 applies rule F.1.3</p> <p>Otherwise not possible without an additional test</p>	<p>$\triangle A_1$ Additional test can be single or double leaf doorset with glazing bead in fire side. $\triangle A_1$</p>
A.5.7 Thickness of the metal wall of the profile (including transoms and mullions)	Increase	>	>	<	<p>An increase of 0,5 mm to a maximum thickness of 2 mm is allowed, Otherwise not possible without an additional test</p>	<p>Additional test can be Single or double leaf doorset with glazing bead in fire side</p>
A.5.8 Thickness of the metal wall of the profile	decrease	<	<	>	<p>Not possible without an additional test</p>	<p>Additional test can be Single or double leaf doorset with glazing bead in fire side</p>
A.5.9 Horizontal rails in door leaf	add	=	=	<	<p>Possible if rail is tested in a leaf in the same construction providing the same glass-retention system is used</p> <p>Otherwise not possible without additional test</p>	<p>Additional test can be single or double leaf doorset with glazing bead in fire side</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
A.5.10 Horizontal rails	remove	=	=	=	<p>Possible provided the height of the glass is not bigger than the biggest tested glass-height (glass tested in the highest position in the same construction, rules for extension of glass height is allowed)</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.11a Vertical stiles	add	=	=	<	<p>Possible if the stile is tested in a leaf in the same construction providing the same glass-retention system is used</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.11b Vertical stile	Remove	> =	=	=	<p>Possible provided the width of the glass is not bigger than the biggest tested glass-width (glass tested in the same construction, rules for extension of glass is allowed)</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.12 Position of horizontal rail	Moving upwards				<p>Possible providing the height of the glass is not bigger than the biggest tested in the same construction rules for extension of glass height is allowed)</p>	

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A.5.13. Position of horizontal rail	Moving downwards				Possible providing the height of the glass is not bigger than the biggest tested in the same construction in the highest position. rules for extension of glass is allowed)	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.14. Position of vertical stile	Moving away from the hinges	<	=	=	Not possible without an additional test	
A.5.15. Position of vertical stile	Moving to the hinge side	>	=	=	Possible providing the width of the glass is not bigger than tested in the same construction	
A.5.16. Horizontal rails	Changing the angle				<p>Changing the angle of rails in any direction is allowed for E, EW and EI doorsets if worst case as shown in See Figure A.28 is tested</p> <p>If worst-case (See Figure A.28) is not tested, then turning of the rail is only allowed for EI doorsets within the following conditions:</p> <p>Connection with vertical side profile of the door-leaf cannot be within 200 mm of the inner corner of the doorleaf $A > 200$ mm. See Figure A.29</p> <p>Resulting height of the glass cannot be higher than tested in the same construction</p> <p>Otherwise not possible without additional test</p> <p>Rule F.1.15 and F.1.16 apply</p>	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
A.5.17. Vertical stiles	Changing the angle				<p>Changing the angle of stiles in any direction is allowed for E, EW and EI doorsets if worst case as shown in Figure A.28 is tested</p> <p>If worst-case (Figure A.28) is not tested, then turning of the stile is allowed for EI doorsets within the following conditions:</p> <ol style="list-style-type: none"> 1. Connection with horizontal top- or bottom-profile of the doorleaf can only be closer to the hinge-side and cannot be within 200 mm of the inner corner; A > 200 mm. See Figure A.30 2. Resulting width of the glass cannot be wider than tested in the same construction <p>Otherwise not possible without additional test</p> <p>Rule F 1.15 and F.1.16 apply</p>	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.18. Other changes of rails and stiles	Bended, shaped, etc.	> = <	> = <	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
A.5.19 Shapes of door-leaf	Other than rectangular	> = <	> = <	> = <	Not possible without additional test	Additional test: single door for single doors; double door for double doors glazing bead in fire side
A.5.20 Type of steel	Mild to stainless	> = <	> / = / <	> / = / <	Not possible without an additional test	Additional test: double leaf door for double leaf doors single leaf door for single and double leaf doors
A.5.21 Type of steel	Stainless to mild	> = <	> / = / <	> / = / <	Possible for door sets which have achieved category B Otherwise not possible without an additional test	Additional test: double leaf door for double leaf doors single leaf door for single and double leaf doors
B. Door Frame						
B.1. General						
For intumescent / draught / smoke seals refer to sections A.1.						
B.1.1 Threshold / Sill / Frame member to bottom of door frame	Add	≥	≥	≥	Possible for threshold / sill made of metal or A1 materials or frame member of identical construction like the upper member of the doorframe providing the doorleaf is adapted in the same way Otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.1.2 Threshold / Sill / Frame member to bottom of door frame	Remove	≤	≤	≤	Possible providing the gap between the bottom of the door leaf and the floor level remains the same as the original test specimen and in line with direct application Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.1.3 Distance between frame of hatch, or door, or openable window and floor level - See Figure A.31	Variation	>/ = / <	>/ = / <	>/ = / <	Possible to position in all locations providing tested to simulate a finished floor level 1,5 m below the doorset i.e. with 8,5 Pa at the base of the doorset For test furnaces in which the pressure can be adjusted: The test specimen can be placed in any position as long as a pressure of 8,5 Pa is applied to the base of the doorset during the test. For test furnaces in which the pressure cannot be adjusted: The test specimen can be positioned at any height as long as the finished floor level in the test is between 1,5 m and 2,5 m below the door and a pressure of at least 8,5 Pa is applied to the base of the doorset during the test. Otherwise not possible without an additional test	Tested to simulate a finished floor level 1,5 m below the doorset i.e. with 8,5 Pa at the base of the doorset single for single or double leaf doorset for single and double leaf doorset. (open outwards)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.1.4 Height of door set above floor	Variation	>/=/<	>/=/<	>/=/<	Possible to a higher position of 0,3 m above the notional floor maximum. Variation of more than 0,3 m possible providing the top edge of the door set was tested with a pressure of +20 Pa and providing a fourth frame member of identical construction like the upper member is added at the bottom, Otherwise not possible without an additional test	Additional test with suspension system on the fire side with a pressure of +20 Pa at the top edge or tested in the maximum height of door set above floor
B.2. Materials and constructions rules related to open profiles in perimeter frame						
B.2.1 Overall dimensions and shape - See Figure A.32	Increase	≥	≥	≥	Possible providing that the cross section detail at the overlap/rebate position (shown in bold in Figure A.32) is retained or the overlap dimension is increased Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.2.2 Overall dimensions and shape - See Figure A.33	Decrease	≤	≤	≤	Not possible without an additional test	Additional test single or double leaf doorset
B 2.2.a cross - section dimensions and shape - See Figure A.34	Open profile to closed profile	=	=	>/=/<	E, EW: possible E11 and E12: not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.2.3 Type of infill material	Change of supplier / manufacturer of material with identical composition and properties	>/=/ <	>/=/ <	>/=/ <	Possible	

B.2.4 Type of infill material

Test with	allows this material						
	No infill	Mineral wool	Gypsum board	Gypsum plaster	Mortal	Concrete	PU Foam
No infill	Yes	No for EI doors Yes for E and EW doors	No for EI doors Yes for E and EW doors	No for EI doors Yes for E and EW doors	No for EI doors Yes for E and EW doors	No for EI doors Yes for E and EW doors	No
Mineral wool	No	Yes *)	Yes	Yes	Yes	Yes	No
Gypsum board	No	No	Yes *)	Yes	Yes	Yes	No
Gypsum plaster	No	No	No	Yes *)	Yes	Yes	No
Mortal	No	No	No	Yes	Yes *)	Yes	No
Concrete	No	No	No	No	No	Yes *)	No
PU Foam	No	No	Yes	Yes	Yes	Yes	Yes

Notes on the table: Mineral wool = glass, ceramic or stone wool of the same or a better fire behavior class.

*) The density can be increased, but not decreased.

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
B.2.5 Thickness of metal - See Figure A.35	Increase	≥	=	=	possible in line with direct application or possible to a maximum of 50 % providing original test satisfied B overrun Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.2.6 Thickness of metal	Decrease	≤	=	=	Not possible without an additional test	Additional test single or double leaf doorset
B.2.7 Type of metal	Change of basic material (e.g. alu to Steel or steel to alu)	>/=/<	>/=/<	>/=/<	Not possible	Additional test single or double leaf doorset
B.2.8 Type of steel	Mild to stainless	>/=/<	>/=/<	>/=/<	Possible only for latched door leaves which have achieved category B and providing that the material thickness shall not be increased Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.2.9 Type of steel	Stainless to mild	>	=	=	Possible providing that the material thickness shall not be decreased but may be increased up to a maximum of 25 % Otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
B.3. Materials and constructions; rules related to closed profiles in perimeter of doorset (=frame)						
B.3.1 cross - section dimensions and shape	Increase depth and/or width	≥	≥	≥	Possible providing that the cross section detail at the overlap / rebate position (shown in bold in Figure A.24) is retained or the overlap dimension is increased otherwise not possible without an additional test	Additional test single or double leaf doorset
B.3.2 cross - section dimensions and shape -	Decrease depth and/or width	≤	≤	≤	Not possible without an additional test	Additional test can be single or double leaf doorset
B.3.3 cross - section dimensions and shape - See Figure A.34	Closed profile to open profile	=	=	< = >	Possible providing the amount of fixings to the wall is not reduced otherwise not possible without an additional test	Additional test can be single or double leaf doorset
B.3.4 Extra profile – See Figure A.36	Add	<	<	<	Not possible without an additional test	Additional test can be single or double leaf doorset with the extra profile at the side where the extra profile is wanted.

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
B.3.5 Extra profile	Remove	=	=	=	<p>E EW Possible</p> <p>EI: possible if overrun B is achieved and the temperature rise is measured on the door frame profile during the test according to EN 1634–1 rules for thermocouples positioning</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset
B.3.6 Extra profile	Increase width	=	=	> / = / <	<p>Possible to increase up to 100 % up to an increase of 50 mm and</p> <p>EI: Possible providing the profile satisfies the criteria for Maximum temperature rise for perimeter frame</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset
B.3.7 Extra profile – See Figure A.37	Decrease width	=	=	> / = / <	<p>E EW Possible</p> <p>EI: possible if overrun B is achieved and the temperature rise is measured on the door frame profile during the test according to EN 1634–1 rules for thermocouples positioning</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.3.8 Type of steel	Mild to stainless	>/=/<	>/=/<	>/=/<	Possible only for latched door leaves which have achieved category B and providing that the material thickness shall not be increased Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.3.9 Type of steel	Stainless to mild	=	=	=	Possible providing that the material thickness shall not be decreased but may be increased up to a maximum of 25 % Otherwise not possible without an additional test	Additional test single or double leaf doorset
B.4 Vertical and horizontal mullions in side- and top-lights, excluding perimeter-profiles (perimeter profiles are addressed in the rules B.2.1. until B.3.9). See Figure A.38 for explanation.						
B.4.1. Cross section of profile	Increase depth	>/=/<	≥	≥	Possible to increase the depth to a maximum of 25 % by increasing the shells and/or the isolation-connectors providing: - If the thickness of one of the outer shell is increased, then the other shell is increased with the same percentage - See Figure A.25 - The isolation-connectors can be increased in thickness with the same percentage according to the following rule: profile can be cut according to cut C, and all cutted materials shall be filled in with more of the same material - See Figure A.25	Additional test can be single leaf doorset with glazing bead in fire side, with sidelight at locking-side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
					<ul style="list-style-type: none"> - For side and top-profiles associated with the doorleave, (profile C in Figure A.38) for low and medium distortion possible if the overlap/rebate position (See Figure A.24 a and b) of the doorleaf-profile is increased with the same percentage - Otherwise not possible without an additional test 	
B.4.2 Cross section of profile	Decrease depth	>/ = / <	≤	≤	Not possible without an additional test	Additional test can be single leaf doorset with glazing bead in fire side, with sidelight at locking-side

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
B.4.3.a Type of Infill material	Change of supplier/ manufacture of material with identical composition and properties				Possible	
B.4.3.b Type of Infill material	Alternative material				Not possible without an additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
B.4.3.c Thickness of Infill material - See Figure A.26	Increase				Possible	
B.4.3.d Thickness of Infill material - See Figure A.26	Decrease				Not Possible	
B.4.5 Cross section of profile of the side or toplight	Increase width	≤	=	≤	<p>The dimensions of the profile can only be increased as follows:</p> <p>The dimensions of the profile can only be increased according to the following rule:</p> <ul style="list-style-type: none"> - profile can be cut according cut B, See Figure A.27 - all cutted materials shall be filled in with more of the same material; See Figure A.27 	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
					<p style="text-align: center;">E EW and EI1</p> <p>For low and medium distortion possible to increase the width of the vertical and horizontal profiles (together or separately) associated with the doorleave (C-profiles, see Figure A.38) up to 100 % to a maximum of profile- width of 120 mm.</p> <p>Possible to increase the width of all other up to 300 % until a maximum of 300 mm</p> <p style="text-align: center;">EI-2:</p> <p>For low and medium distortion possible to increase the width of the vertical and horizontal side profiles associated with the doorleave (together or separately) up to 100 % to a maximum profile- width of 120 mm</p> <p>For EI-2: it is obliged to measure the temperature on the profile (on the mid-span of the relevant profiles); the increase with 100 % is only allowed when the maximum measured temperature rise is not higher than 180 °C (measured according to EN 1363-1)</p> <p>Possible to increase the width of all other profiles up to 300 % to a maximum of 300 mm.</p> <p>Otherwise not possible without an additional test</p>	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.4.6 Cross section of profile of side or top-light	Decrease width	≥	≤	≥	<p>E and EW doors: a decrease of 40 % down to a minimum of 30 mm is allowed</p> <p>EI2 doors with overrun B for profiles not associate x with the doorleaf (profile D in Figure A.38): a decrease of 40 % down to a minimum of 30 mm is allowed. Possible for vertical profiles associated with the doorleaf (profile C in Figure A.38) to reduce from width smaller than 115 mm is allowed with a maximum of 40 % to a minimum of 30 mm</p> <p>EI1: with overrun B a decrease of 40 % down to a minimum of 30 mm is allowed</p> <p>Otherwise not possible without an additional test</p>	Additional test can be single or double leaf doorset with glazing bead in fire side
B.4.7 Thickness of the metal wall of the profile	Increase	>	>	<	<p>An increase of 0,5 mm to a maximum thickness of 2 mm is allowed</p> <p>Otherwise not possible without an additional test</p>	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
B.4.8 Thickness of the metal wall of the profile	decrease	<	<	>	Not possible without an additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
B.4.9 Horizontal and vertical mullions in each sidelight	add	=	=	=	<p>Providing at least one mullion is tested in a doorset given in Annex B then:</p> <p>Maximum of three horizontal mullions are allowed. Providing the minimum height of the glass is bigger than 20 % of its width; for EI providing that the visible height of the glass remains minimum 250 mm Maximum of one vertical mullion is allowed providing that the remaining visible width of the glass associated with the frame is at least 250 mm</p> <p>Maximum of three horizontal mullions are allowed. Providing the minimum height of the glass is bigger than 20 % of its width; for EI providing that the visible height of the glass remains minimum 250 mm Maximum of one vertical mullion is allowed providing that the remaining visible width of the glass associated with the frame is at least 250 mm</p> <p>Otherwise not possible without an additional test</p>	Additional test can be single or double leaf doorset with side-light(s)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.4.10 Horizontal and vertical mullions in each Sidelight	remove	>/ = / <	>	=	<p>Vertical mullions: possible provided the area and width of the glass is not bigger than the biggest glass tested (glass tested in the same construction, rules for extension of glass width as in rule F.1.3 is allowed)</p> <p>Horizontal mullions: Possible provided the area and height of the glass is not bigger than the biggest glass tested (glass tested in the same construction, rules for extension of glass height as in rule F.1.3 is allowed) and horizontal mullion is tested in bottom half of the sidelight</p> <p>Otherwise not possible without an additional test</p>	Additional test tests the glass in the required dimension in a comparable construction.
B.4.11 Horizontal mullions in Sidelight	Moving upwards and downwards	=	=	=	<p>Possible providing the height of the glass is not bigger than the biggest tested in the same construction, and the height is not smaller than 20 % of its width Rules for extension of glass height as in rule F.1.3 apply</p> <p>Otherwise not possible without an additional test</p>	

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
B.4.12 Vertical mullions in Sidelight	Moving	<	=	=	<p>Possible providing that the remaining visible glass associated with the frame is at least 250 mm</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset with Sidelight
B.4.13 Horizontal and vertical mullions in Toplight	add	=	=	<	<p>Providing at least one mullion is tested in a doorset given in Annex B then:</p> <p>Maximum of three vertical mullions are allowed providing that the remaining visible width of the glass associated with the frame is at least 250 mm</p> <p>One or more horizontal mullion are allowed providing the minimum height of the glass is bigger than 20 % of its width; for EI providing that the visible height of the glass remains minimum 250 mm</p> <p>Rule F.1.3 applies.</p> <p>Otherwise not possible without an additional test</p>	Additional test can be single or double leaf doorset with toplight

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
B.4.14 Horizontal and vertical mullions in Toplight	remove	>/ = / <			<p>Vertical mullions: not possible without additional test</p> <p>Horizontal mullions: Possible provided the area and height of the glass is not bigger than the biggest glass tested (glass tested in the same construction, rules for extension of glass height as in rule F.1.7 and F.1.8 apply)</p> <p>Otherwise not possible without additional test</p>	<p>A₁ Additional test tests the glass in the required dimension in a comparable construction. A₁</p>
B.4.15 Horizontal mullions in Toplight	Moving up and downwards	<			<p>Possible providing the height of the glass is not bigger than the biggest tested in the same construction, and the height is not smaller than 20 % of its width Rules for extension of glass height as in rule F.1.7 and F.1.8 apply</p> <p>Otherwise not possible without an additional test</p>	<p>A₁ Additional test can be single or double leaf doorset with topline. A₁</p>
B.4.16 Vertical mullions in Toplight	Moving sideways	=	=	=	<p>Possible providing that the remaining visible width of the glass associated with the frame is at least 250 mm</p> <p>Otherwise not possible without an additional test.</p>	<p>Additional test can be single or double leaf doorset with topline.</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
C. Building Hardware						
<p>This document references EN 1634–2 where appropriate as the means to extend the parameters of building hardware. In general, this document provides additional guidance over and above that contained in EN 1634–2. It is a requirement of this document that all items of building hardware are in accordance with the relevant product standard including the requirements of the relevant supporting standards and that the door assembly onto which the building hardware will be fitted is appropriate to the intended durability of self-closing class (C Classification). Building hardware shall be suitable for use on fire doorsets and the suitability shall be demonstrated as specified in the component product standard.</p> <p>For the purpose of this standard, when the suitability for use on fire doorsets is demonstrated by a successful full scale fire test to EN 1634–1 or a small scale fire test to EN 1634–2 the test specimen shall be representative of the intended doorsets construction and for the required classification period.</p>						
C.1. General						
C.1.1 Latches / locks and strike plates	Alternative	>/ = / <	>/ = / <	=	Possible providing that the alternative lock is of the same type (internally mounted/morticed or surface mounted), complies with the relevant product standard, is suitable for use on the original doorset and has passed a full	Further test to include the maximum required size of lock/strike plate and, if this can be identified, in the most onerous exposure condition

Annex A

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
					<p>size fire test according to EN 1634-1 or a small scale fire test to EN 1634-2. Each of the linear dimensions shall be no larger than tested successfully in the original doorset, and the latch bolt shall have a similar or greater engagement. Additionally, for internal locks, the amount of material removed from the door leaf shall be as tested in the original doorset or less. Any additional component should be metal and the distance between the intumescent protection, if fitted, and the lock forend or the strike plate shall remain as tested.</p> <p>Otherwise not possible without an additional test.</p>	<p>Additional test can be in accordance with EN 1634-1 or EN 1634-2</p>
C.1.2 Number of latches / locks and strike plates - See Figure A.39	Increase	>/=/<	>/=/<	>/=/<	<p>Possible if there is available fire resistance test evidence for the doorset of a representative type when fitted with a latch/lock of similar type and size, then see C.1.1. If no evidence exists, not possible without additional testing</p>	<p>Further test to include a lock assembly at the desired position and, if this can be identified, in the most onerous exposure condition</p> <p>Additional test can be in accordance with EN 1634-1 or EN 1634-2</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
C.1.3 Number of latches / locks and strike plates - See Figure A.40	Decrease	≤	≤	=	Not possible without an additional full scale test unless originally tested with latch bolt (s) withdrawn. See rule A.1.23 Otherwise not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset. For double doors additional full scale test shall be double leaf doorset
C.1.4 Locking system	Exchange single latch / lock to multipoint locking system	≥	≤	=	E and EW Possible for internal or surface mounted systems providing the central lock is the same as original or providing the full system has been successfully tested in a full scale test EI Possible for surface mounted systems providing the full system has been successfully tested in a full scale test Otherwise not possible without an additional test Not possible for internal systems without an additional test	For single doors additional full scale test can be single or double leaf doorset (opening inwards or outwards) For double doors additional full scale test shall be double leaf doorset (opening outwards)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
C.1.5 Locking system	Exchange multipoint locking system to single latch / lock	≤	≤	=	<p>Possible providing the locking system has been tested in a full scale test with only the central latch in an engaged position and all others in disengaged condition and any connecting rods are not fixed to the door leaf</p> <p>Otherwise not possible without an additional test</p>	<p>For single doors additional full scale test can be single or double leaf doorset (opening inwards)</p> <p>For double doors additional full scale test shall be double leaf doorset (opening inwards)</p>
C.1.6 Position of single latch/lock and strike plate - See Figure A.41	Alternative height	≤	≤	≤	<p>Possible 300mm variation for category B doors and possible variation 200 mm for category A</p> <p>Otherwise not possible without an additional test</p>	<p>For single doors additional full scale test can be single or double leaf doorset.</p> <p>For double doors additional full scale test shall be double leaf doorset</p>
C.1.7 Position of multiple latches/locks and strike plates - See Figure A.42	Alternative height	=	=	=	<p>Distance from top of door leaf to top latch and from bottom of doorleaf to bottom latch cannot be increased</p> <p>Possible variation of intermediate lock/latch only, plus or minus 200 mm</p> <p>Alternative position is possible provided that the product was tested unlatched</p> <p>Otherwise not possible without an additional test</p>	<p>For single doors additional full scale test can be single or double leaf doorset.</p> <p>For double doors additional full scale test shall be double leaf doorset</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
C.1.8 Latches/locks and strike plates of the same type	Change of Supplier / manufacturer	>/ = / <	=	=	Possible providing the component has been tested in a full scale or small scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.9 Latches / locks and strike plates of the same type	Alternative material	>/ = / <	=	=	Possible to interchange between mild steel and stainless steel or possible providing the component has been tested in a full scale or small scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.10 Latches / locks - See Figure A.43a	Exchange internal for external	>/ = / <	≥	=	For aluminium doors not possible without additional test For steel doors possible providing the component has been successfully tested in a full scale or small scale test and there is no breakthrough of the fixings to the opposite face and the original position is appropriately infilled and covered. Otherwise not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset. For double doors additional full scale test shall be double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
C.1.11 Latches / locks - See Figure A.43b	Exchange external for internal	>/ = / <	≤	=	Not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset. For double doors additional full scale test shall be double leaf doorset
C.1.12 Function of latches/locks (e.g. from normal use to panic use or vice versa)	Alternatives	>/ = / <	=	=	Possible providing any alternative component is from the same product family Otherwise not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset. For double doors additional full scale test shall be double leaf doorset
C.1.13 Face mounted operating device (e.g. handles, knobs, panic bars, push or touch pads)	Add or Exchange operating devices retaining latch/lock	=	=	=	Possible for metal components or possible for non-metallic face mounted components providing the components have been subjected to a full scale test and with any break through being limited to screw fixings and their covering Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.14 Face mounted operating device (e.g. handles, knobs, panic bars, push or touch pads)	Remove	=	=	=	Possible to remove face mounted components providing the lock / latch assembly remains as tested and operable and any remaining holes adequately covered Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.15 Panic exit device or emergency exit device	Exchange internal for external	>/ = / <	≥	=	Not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset For double doors additional full scale test shall be double leaf doorset
C.1.16 Panic exit device or emergency exit device	Exchange external for internal	>/ = / <	≤	=	Not possible without an additional test	For single doors additional full scale test can be single or double leaf doorset For double doors additional full scale test shall be double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.17 Panic exit device or emergency exit device of the same type	Change of Supplier / manufacturer	>/ = / <	=	=	Possible providing the component has been tested in a full scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset (opening inwards or outwards)
C.1.18 Dimension of hinges	Increase	≥	=	=	Possible to increase any dimension up to a maximum of 50 % providing any intumescent seal and the position and type of fixing shall remain as tested Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset. or small scale test according EN 1634-2
C.1.19 Dimension of hinges	Decrease	≤	=	=	not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.20 Dimension of dog bolts - See Figure A.44a	Increase	≥	≥	≥	Possible to increase any dimension up to a maximum of 50 % providing any inumescent seal and the shape remains unchanged Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.21 Dimension of dog bolts - See Figure A.44b	Decrease	≤	≤	≤	Not possible without an additional full scale test	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
C.1.22 Bolts (flush, internal and surface mounted)	Add	>/=/<	>/=/<	=	<p>Possible to add surface mounted bolts for single and double leaf doorsets</p> <p>E, EW Possible to add internal mounted bolts for single and double leaf doorsets</p> <p>EI Possible to add internal mounted bolts for secondary leaf on double leaf doorsets</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset (opening inwards or outwards)
C.1.23 Bolts (flush, internal and surface mounted)	Remove	>/=/<	>/=/<	=	<p>Possible if tested with the bolt withdrawn</p> <p>Otherwise not possible without an additional test</p>	<p>For single doors additional full scale test can be single or double leaf doorset</p> <p>For double doors additional full scale test shall be double leaf doorset</p>
C.1.24 Bolts (flush, internal and surface mounted)	Alternative	>/=/<	>/=/<	=	<p>Possible providing the component has been tested in a full scale or small scale test</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
C.1.25 Bolts (flush, internal and surface mounted)	Change of supplier/ manufacturer	>/ = / <	=	=	Possible	-
C.1.26 Number of hinges/dog bolts - See Figure A.45	Increase	≥	≥	≥	Possible	
C.1.27 Number of hinges/dog bolts - See Figure A.46	Decrease	≤	≤	≤	Not possible without an additional full scale test	Additional full scale test can be single or double leaf doorset
C.1.28 Hinges/dog bolts of the same type	Change of supplier/ manufacturer	=	=	=	Possible	
C.1.29 Type of hinges - See Figure A.47	Alternative material/type	>/ = / <	=	=	Possible providing the component has been tested in a full scale or small scale test and providing any intumescent seal, the position and type of fixing shall remain as tested Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.30 Type of dog bolts - See Figure A.48	Alternative material/type/ shape	>/ = / <	>/ = / <	>/ = / <	Possible providing the component has been tested in a full scale or small scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.31 Distance from top of upper hinge to top of door - See Figure A.49 based on all distortions	Increase	≤	=	=	Not possible without an additional test	Additional full scale test can be single or double leaf doorset

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
C.1.32 Distance from top of upper hinge to top of door - See Figure A.49	Decrease	≥	=	=	Possible	
C.1.33 Distance from bottom of lower hinge to bottom of door - See Figure A.50	Increase	≤	=	=	Not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.34 Distance from bottom of lower hinge to bottom of door - See Figure A.50	Decrease	≥	=	=	Possible	
C.1.35 Distances between top and bottom hinges and intermediate movement restrictors (i.e. hinges or dog bolts) - See Figure A.51	Increase	≤	=	=	Possible in line with direct application	
C.1.36 Distances between top and bottom hinges and intermediate movement restrictors (i.e. hinges or dog bolts) - See Figure A.51	Decrease	≥	=	=	Possible subject to complying with C.1.31 - C.1.34 or if the leaf height is decreased appropriately	
C.1.37 Fixing technique for hinges (door leaf, frame)	Alternative (welding or riveting or screwing)	>/ = / <	=	=	Possible providing the alternative fixing technique has been tested in a full scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.38 Armature of an electrically powered separate hold open device	Addition/ alternative	=	=	=	<p>Possible providing that the component is face mounted, made of metal or Reaction to fire class A1 material and that any break through is limited to screw fixings and their covering</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset
C.1.39 Electrically powered hold open device	Exchange original concealed for alternative face mounted	>/ = / <	≥	=	<p>Possible providing that the alternative unit complies with the EN 1155, is suitable for use on the original doorset and no voids remain in the doorset</p> <p>The cable shall be external or, if it is internal, it shall require the same preparation in the door leaf and in the frame as tested in the original doorset. The intumescent protection, if fitted, shall remain the same as tested</p> <p>Otherwise not possible without an additional test</p>	Further test is to include the required item tested in accordance with EN 1634-1 or EN 1634-2 on a representative doorset construction
C.1.40 Electrically powered hold open device	Exchange original face mounted for alternative concealed	>/ = / <		=	Not possible without an additional test	Further test is to include the required item tested in accordance with EN 1634-1 or EN 1634-2 on a representative doorset construction

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.41 Electrically powered hold open device	Change of manufacturer/alternative	>/=/<	>/=/<	=	<p>Possible providing that the alternative and the original door devices are of the same type, internal or surface mounted, the alternative device complies with the EN 1155 and is suitable for use on the original doorset. For concealed items, the size of the alternative item cannot be greater than tested in the original doorset and the material removed from the door shall be as tested or less</p> <p>The cable shall be external or, if it is internal, it shall require the same preparation in the door leaf and in the frame as tested in the original doorset. The intumescent protection, if fitted, shall remain the same as tested</p> <p>Otherwise not possible without an additional test</p>	Further test is to include the required item tested in accordance with EN 1634-1 or EN 1634-2 on a representative doorset construction
C.1.42 Face fixed closer or automatic drive (face fixed to face fixed, mounted on the closing or opening side of the doorset) – See Figure A.52	Alternative fitting positions in accordance with table below	-	-	-	<p>Possible providing the closer/drive has been tested in a full scale test in unactivated condition and is in accordance with the table below</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional evidence required
(1)	(2)	(3)	(4)	(5)
		E I W		

For EI1 and EI2				
Tested	Allows			
A	A	B only EI1	C	D only EI1
B		B	C	D
C	-	-	C	-
D	-	-	C	D

E and EW for steel-profiles				
Test with closer/ drive in non-fire side to use this table				
A	A	B 1) Only possible if closer was tested on closed profile and if the same extra isolation of closer is used	C	D Only possible if closer was tested on closed profile and if the same extra isolation of closer is used
B		B	C	D
C			C	D
D			C	D

E and EW for alu-profiles				
test with closer/drive in non- fire side to use this table.				
A	A	B Only possible if closer was tested on closed profile and if the same extra isolation of closer is used	C	D Only possible if closer was tested on closed profile and if the same extra isolation of closer is used
B		B		
C		B	C	D
D		B		D

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
C.1.43 Face fixed closer or automatic drive	Alternative	=	=	=	Possible providing the alternative closer/drive has been tested in a full scale or small scale test Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.44 Concealed closer or automatic drive (mounted in the door leaf or the frame)	Alternative manufacturer / supplier/type	=	=	=	Possible providing the closer /drive has been tested in a full scale or small scale test with the door leaf opening outwards, and that the size of the cut- out is not increased from that tested. If tested with EI doors only, the result is only applicable to EI doors but if tested on E doors the result is applicable to EI, EW and E doors Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset
C.1.45 Concealed closer / drive	Change of location (door leaf to frame or vice versa)	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test can be single or double leaf doorset
C.1.46 closer / automatic drive - See Figure A.53	Change of location (concealed for face mounted or vice versa)	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.47 Power cable and protective conduits for electric locks (fitted in the door leaf or frame) - See Figure A.54	Add	=	=	=	<p>Possible to add power cable and conduit providing the positioning of such cable or conduit shall not detract from the rigidity of the profiles and the conduit inside the door leaf and frame is made of metal</p> <p>Where the door leaf and the frame are connected via a cable transfer device it also shall be metal and any cut out in the door leaf and frame should not reduce the intumescent seal, if any</p> <p>Where the cable is outside the leaf and frame the conduit shall be of metal and have a diameter not greater than 16mm</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset
C.1.48 Power cable and protective conduits for electric locks (fitted in the door leaf or frame)	Alternative	=	=	=	<p>Possible providing for E, EW and EI2: Alternative conduits placed in the rebate shall be of the same design and be placed in the same position. Intumescent seals may not be additionally affected</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.49 Additional items of spy holes/key tubes - See Figure A.55	Add	=	=	=	Possible providing that the component has been tested in either a full scale or small scale test in a similar panel construction Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.50 Alarm contacts and proximity switches	Add	=	=	=	Possible	
C.1.51 Alarm contacts and proximity switches	Alternative	=	=	=	Possible	
C.1.52 Door signs (Reaction to fire class A1)	Add	=	=	=	Possible providing that any break through is limited to screw fixings and their covering and that the fixings do not break both sides Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.53 Door signs (<Reaction to fire class A1)	Add	=	=	=	Possible for EI doorsets only providing that the fixing do not break both sides and the location is at least 25 mm for EI1 and 100 mm fo EI2 from the edge of the door leaf Otherwise not possible without additional test.	Additional full scale test can be single or double leaf doorset or small scale test according EN 1634-2
C.1.54 Pivots with single action accessories (shoe and top centre) with or without floor / transom mounted closing devices	Exchange from hinges	< =	< =	< =	Not possible without an additional test	Additional test to include the specific closer and accessories

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
C.1.55 Pivots with single action accessories (shoe and top centre) with or without floor / transom mounted closing devices	Exchange to hinges				Possible providing the hinges, including fixing technique and hinge positions, have been successfully tested on a similar doorset and providing a previously proven closing device is added	
C.1.56 Threshold 'drop' seal/automatic seal	Add	>/=/<	>/=/<	=	Not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according to EN 1634-2 both including the required seal type
C.1.57 Threshold 'drop' seal/automatic seal	Remove	>/=/<	>/=/<	=	Not possible without an additional test	Additional full scale test can be single or double leaf doorset or small scale test according to EN 1634-2 both including the required threshold condition
C.1.58 Threshold seal	Alternative	>/=/<	>/=/<	=	Possible to exchange a tested threshold seal, for another one, tested in a doorset of the same or more onerous configuration where the leaf construction is fundamentally the same as tested Otherwise additional test required	Additional full scale test can be single or double leaf doorset including the required seal type

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
D. Support / attachment - door leaf to framing						
D.1. General						
D1.1. Gap dimensions (door leaf to frame)	Increase / decrease	≤	≤	≤	Possible in line with direct application beyond the field of direct application rules not possible without an additional test	Additional test can be single or double leaf doorset (worst case direction)
<p>E. Side / transom panels and over panels</p> <p><i>Existing direct application rules for size variations, side and transom panels, door leaves and frames are also applicable for variations in side, transom panels and over panels.</i></p> <p><i>The maximum tested height of doorset with side panels and/or over panels, can only be increased in line with the direct application rules.</i></p> <p><i>The maximum tested width of doorset with side panels and/or over panels, may be increased in by applying the following rules.</i></p>						
E.1. Side, over and transom panel arrangements						
<p><i>Before there can be any consideration for the variation in side and over panel arrangements the doorset shall have been tested in accordance with EN 1634–1 to achieve a test result which could generate a classification in accordance with EN 13501–2 at least equal to the classification subsequently required from extended application considerations.</i></p> <p>The rules in the table below can only be applied:</p> <ul style="list-style-type: none"> – For single doorset if a single doorset without side/transom panels has also been tested and could be classified in accordance with EN 1634–1 and EN 13501–2 respectively in order to establish a classification for the doorset. – For double doors: if a double doorset without side/transom panels has also been tested and could be classified in accordance with EN 1634–1 and EN 13501–2 respectively in order to establish a classification for the doorset. <p><i>If the original doorset test was conducted only on a single doorset without side/transom panels or flush over panels then only the single door arrangements from the following variations will be permissible. If the original doorset test was conducted only on a double doorset without side/transom panels or flush over panels then only the double door arrangements from the following variations will be permissible. Variations outside the arrangements in figures together with the table below are possible if the proposed alternative arrangement is covered by variations permitted in other parts of this standard. If not covered, an additional test will be necessary.</i></p>						

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
E.1.1 Side/transom panel arrangement - See Annex B	Additional or Variations of alternative arrangements in accordance with the table below	≤	≤	≤	A successful test on an arrangement indicated in the left hand column of the table below would allow the variations in arrangement indicated by numbers '1' or '2' in the same row assuming the fixing/ retention method of the paneling system is retained Otherwise not possible without additional, specific test	Test using test specimens according Annex B
E.1.3 Fixed flush over panel arrangement instead of hinged Panel	Alternative	> =	> =	> =	Possible	

Construction parameter		Variation		Influence of variation on performance characteristic			Possibility of extension					Additional evidence required																							
(1)		(2)		(3)			(4)					(5)																							
				E	I	W	Allows																												
Tested		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29					
1		1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2				
2		-	1	-	1	1	1	-	1	1	1	1	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
3		1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2				
4		-	1	-	1	1	1	-	1	1	1	1	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
5		-	1	-	1	1	1	-	1	1	1	1	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
6		-	-	-	-	-	1	-	1	1	1	1	1	-	-	-	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
7		-	-	-	-	-	-	1	1	1	-	-	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2				
8		-	-	-	-	-	-	-	1	1	-	-	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
9		-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-					
10		-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-					
11		-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-					
12		-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-					
13		-	-	-	-	-	-	1	1	1	-	-	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2				
14		-	-	-	-	-	-	-	1	1	-	-	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
15		-	-	-	-	-	-	-	1	1	-	-	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
16		-	-	-	-	-	-	-	1	1	-	-	1	-	-	-	2	-	-	-	-	2	2	2	2	2	1	1	1	2	2				
17		-	-	-	-	-	-	1	1	1	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2			
18		-	-	-	-	-	-	-	1	1	-	-	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				
19		-	-	-	-	-	-	1	1	1	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2				
20		-	-	-	-	-	-	-	1	1	-	-	1	-	2	2	2	-	2	-	2	2	2	2	2	2	1	1	1	2	2				

Construction parameter		Variation		Influence of variation on performance characteristic			Possibility of extension					Additional evidence required																	
(1)		(2)		(3)			(4)					(5)																	
				E	I	W																							
Tested	Allows																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
21	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
25	-	1	-	-	-	1	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	-	1	1	2	2
26	-	1	-	-	-	1	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	1	-	1	2	2
27	-	1	-	-	-	1	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	1	1	-	2	2
28	-	1	-	-	-	1	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	1	1	-	-	-
29		-	-	-	-	1	-	1	1	1	1	1	-	-	-	-	-	-	-	-	-	2	2	2	1	1	1	2	

Model 26 until 29 can also be reached by testing model 1 and non-load bearing glazed partition tested according to EN 1364-1, where the biggest glass is tested in the same profile system and the same glass.

Key symbols:

- 1 means possible only if the fire test was conducted also on single doorset without side- and transom panel
- 2 means possible only if the fire test was conducted also on a double doorset without side and transom panels
- means not possible

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
<p>E.2. General</p> <p><i>For variations of intumescent / draught / smoke seals the rules defined in section A.1 are applicable for side / transom panels and over panels. For variations of ventilation grilles (louvres) the rules defined in A.1. are applicable for side / transom panels and over panels. For variations of rebates to panel edges the rules defined in A.1. are applicable for side / transom panels and over panels.</i></p>						
<p>E.3. Size variations of side, transom and/or over-panels</p>						
E.3.1 Size (area, width, height) – all distortions	Decrease	≥	≥	≥	<p>E and EW unlimited reduction is Possible</p> <p>EI: possible to decrease to a minimum dimension of the glass as it is mentioned in rule F.1.4</p> <p>Otherwise not possible without an additional test</p>	
E.3.2 Size (area, width, height) – all distortions	Increase	≤	=	≤	<p>Possible for doorsets have achieved category B up to 20 %</p> <p>providing additional (for EW) a thermal emission calculation in accordance with EN 15254–4 within the 15 KW limit.</p> <p>Otherwise not possible without an additional test</p>	<p>Additional test can be larger panel arrangement incorporating single or double leaf doorset</p>

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
F. Glazing for door leaf / leaves or side / transom and flush over panels						
F. 1 General						
<p>Glass panels on their own do not have a classification. The fire resistance classification is derived from testing in specific edge framing techniques. Where fire resistance classification is referred to in this section, these may be determined by alternative testing of glass panels of the same or larger height and/or width to those tested by the particular door test(s). Where “similar edge fixing technique” is referred to, this means that the technique used in the original door test should be replicated exactly in terms of the retention detail or that the technique may be modified to accommodate a technique proven in an alternative test to determine fire performance characteristics.</p>						
F.1.1 Thickness of glass – See Figure A.56a	Increase	≥	≥	≥	<p>Possible to exchange one thickness of fire-resistant glass for another with the Same (or better) fire resistance performance provided that it can be demonstrated that the new glass of the thickness required is within the same glass product family (same manufacturer) and has a similar edge fixing technique only modified to Accommodate the alternative thickness and that the alternative thickness does not add more than 25% to the weight of the door leaf</p> <p>Otherwise not possible without an additional test</p> <p>Glass Product Family is defined in 3.7 of EN 15254–4.</p>	<p>Additional test can be single or double leaf doorset (open outwards), glazing beads inside the furnace</p>

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
F.1.2 Thickness of glass – See Figure A.56b	Decrease	> / = / <	> / = / <	> / = / <	<p>Possible to exchange one thickness of fire-resistant glass for another with the same (or better) fire resistance performance provided that it can be demonstrated that the new glass of the thickness required is within the same glass product family (same manufacturer) and has a similar edge fixing technique only modified to accommodate the alternative thickness</p> <p>Otherwise not possible without an additional test</p> <p>Glass Product Family is defined in 3.7 of EN 15254-4</p>	Additional test can be single or double leaf doorset (open outwards)
F.1.3 Dimensions of each glass pane	Increase	≤	≤	> / = / <	<p>Possible to increase the size and change the aspect ratio in line with EN 15254-4</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset
F.1.4 Dimensions of each glass pane	Decrease	≥	≥	> / = / <	<p>Possible for E and EW doors</p> <p>For EI-doors possible to reduce until width x height = 250 x 250 mm</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
F.1.5 Type of glass	Change of glass type				<p>Possible to exchange one type of fire-resistant glass for another with the same (or better) fire resistance classification provided that it can be demonstrated that both glasses are within the same glass product family (same manufacturer) and have at least the same or increased nominal thickness.</p> <p>For glass covered by the product standards EN 572-9, EN 1748-2 and EN 13024-2 possible to exchange one type of fire-resistant glass for another with the same (or better) fire resistance classification provided that it can be demonstrated that the new glass is within the same glass Product Standard and has a similar edge fixing technique.</p> <p>Otherwisenot possible without an additional test</p>	Additional test can be single or double leaf doorset (open outwards)
F.1.6 edge fixing technique and materials	Alternative	> / = / <	> / = / <	> / = / <	Not possible without an additional test	Additional test can be single or double leaf doorset (open outwards)

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		E	I	W		
(1)	(2)	(3)			(4)	(5)
F.1.7 Shape of glazing bead – See Figure A.57	alternative	>/=/<	>/=/<	>/=/<	<p>EI doors: Possible from U-form to angle-form Possible for different U-forms as long as the height stays the same</p> <p>E and EW: Possible if height of side 1 (See Figure A.57) is kept the same</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset, beads in non-fire-side,
F.1.8 Depth of glazing bead and/or flange	Increase	=	=	>/=/<	Possible	
F.1.9 Depth of glazing bead and/or flange	decrease	=	=	>/=/<	<p>Possible for un-insulated glazing bead</p> <p>For insulated glazing beads and/or flanges possible if the depth of the infill material is not reduced.</p> <p>Otherwise not possible without additional test</p>	Additional test can be single or double leaf doorset, beads in non-fire-side
F.1.10 Height of the glazing bead and /or flange	increase				<p>EI-1-doors: possible</p> <p>EI2, E and EW-doors: not possible without additional test</p>	Additional test can be single or double leaf doorset, beads in fire-side
F.1.11 Height of the glazing bead and /or flangelick	decrease				Not possible without an additional test	Additional test can be single or double leaf doorset, beads in fire-side
F.1.12 Fixing of glazing bead	alternative				<p>Clipped beads can be replaced by screw fixed or riveted</p> <p>Otherwise not possible without an additional test</p>	Additional test can be single or double leaf doorset, beads in fire-side

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
F.1.13 Glazing bead – change of material	alternative				Stainless steel to mild possible, aluminium to steel possible, Otherwise not possible without additional test	Additional test can be single or double leaf doorset, beads in fire-side
F.1.14 Decorative capping - See Figure A.58	Add or exchange	> / = / <	=	=	E11: possible providing the edge fixing technique is not affected E, EW E12: Possible providing the edge fixing technique is not affected and the capping is Reaction to fire class A1 Otherwise not possible without an additional test	Additional test can be single or double leaf doorset (open outwards)
F.1.15 Shape of glazing	alternative				Possible in compliance with EN 15254-4 Otherwise not possible without an additional test	
F.1.16 Corner of the glass-panel	Change from 90° corners				Possible to go wider angles, up to 180°. Sharper angles possible in accordance to EN 15254-4 Otherwise not possible without an additional test	Additional test can be single or double leaf doorset (open outwards) with sharper angle

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
F.1.17 Classification of the glass	Change to lower classification				<p>Changing to glass with a lower classification will lead to a lower classification of the doorset according to the following rules</p> <p>Changing classification of a classified range of doorsets, by changing only the glass of the tested doorset with glass of a lower classification (e.g. from EI60 to EI30, or from EI60 to EW60, or from EI60 to E30 or from EW60 to EW30) is not possible without additional test;</p>	Additional test can be single or double leaf doorset, beads in fire- side
F.1.18 Glazing gaskets (<Reaction to fire class A1) – thickness (uncompressed)	Decrease	>	=	=	Possible up to a maximum of 50 % providing the pressure on the glass is not reduced	
F.1.19 Glazing gaskets (<Reaction to fire class A1) –thickness(uncompressed)	Increase	=	=	=	<p>Possible up to a maximum of 20 %</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset
F.1.20 Glazing gaskets (<Reaction to fire class A1) – cross-section shape	change	=	=	=	<p>Possible providing the cross- sectional area is not decreased more than 50 % or not increased higher than 20 %</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset
F.1.21 Glazing gaskets (<Reaction to fire class A1) – material	Change	> / = / <	> / = / <	> / = / <	Not possible without an additional test	Additional full scale test can be single or double leaf doorset
F.1.22 Glazing gaskets (Reaction to fire class A1) – thickness (uncompressed)	Decrease	=	=	=	<p>Possible up to a maximum of 20 % providing the pressure on the glass is not reduced</p> <p>Otherwise not possible without an additional test</p>	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
F.1.23 Glazing gaskets (Reaction to fire class A1) – thickness (uncompressed)	Increase	>	=	=	Possible	
F.1.24 Glazing gaskets (Reaction to fire class A1) – cross-sectional shape	change	=	=	=	Possible providing the cross-sectional area is increased or not decreased higher than 20 % Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset
F.1.25 Glazing gaskets (Reaction to fire class A1) – material	Change	=	=	=	Possible	
G. Non-glass-panels						
G.1 Dimensions of each non glass panel	Increase	≤	≤	> / = / <	Maximum increase 20 % in height and width EW: Providing an additional thermal emission calculation within the 15 KW limit is available	
G.2 Dimensions of each non glass panel	Decrease	≥	≥	> / = / <	Possible to reduce until minimum width of 250 mm and/or a minimum height of 250 mm, with the exception of the panel in the bottom of the door which may be reduced to a minimum height of 200 mm Otherwise not possible without an additional test	Additional full scale test can be single or double leaf doorset

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
G.3 Fixing of the non-glass panel	Interchange				Possible only from rivet to screws and vice versa providing same material and dimension is used, Otherwise not possible without an additional test	For panels in doorleaf: For steel single and double doors with and without side and transom or overpanels test single door with a panel in a rigid construction For aluminium single and double doors: For Doors with and without side and overpanels test single door with side and overpanels For doors without side and overpanels test single door with a panel without side and overpanels in a rigid construction For panels in side/ top-lights: Door with side and top-lights, with non-glass panels all side and top-lights, and glass in the doorleaf. Rule E.1.1 applies

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
G.4 Thickness of non-glass-panel	increase	≤	≤	≤	<p>Panels fixed with glazing beads: Possible to increase the core material with 25 %</p> <p>Panels with other fixings: It is possible to increase the core material proportional with the depth of the profile. Rule A.5.1 and A.5.2 apply</p> <p>Otherwise not possible without additional test</p>	See G.3
G.5 Thickness of non-glass-panel	decrease	<	<	<	Not possible without additional test	See G.3
G.6 Thickness of coversheets of non-glass-panels	Decrease	< =	=	=	<p>Possible to decrease by 25 % until with minimum thickness of 0,5 mm</p> <p>Otherwise not possible without additional test</p>	See G.3
G.7 Coversheets of non glass panels fixed with glazing beads	Add	>	>	>	<p>Possible for coversheets made of aluminium or glass providing that non glass panel has been successfully tested without coversheet in the same construction</p> <p>Otherwise not possible without an additional test</p>	See G.3
G.8 Coversheets of non glass panels fixed with glazing beads	Remove	<	> / = / <	> / = / <	Not possible without an additional test	See G.3
G.9 Coversheets of non glass panels fixed with glazing beads – material change	Change from steel to aluminium	>	=	>	Possible providing that non glass panel has been successfully tested without coversheet in the same construction	See G.3
G.10 Coversheets of non-glass panels fixed with glazing beads – material change	Change from aluminium to steel	<	=	<	Not possible without an additional test	See G.3

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
G.11 Coversheets of non-glass panels fixed with glazing beads – material change	Change from mild to stainless steel	<	=	<	Not possible without an additional test	See G.3
G.12 Coversheets of non-glass panels fixed with glazing beads – material change	Change stainless steel to mild	>	=	>	Possible	
<p>G 13 Materials and construction</p> <p>For further "Materials and Construction" parameters refer to sections A.3 If additional tests shall be conducted the specimen shall incorporate appropriate side, over and transom panel Arrangements</p> <p>For variations of intumescent / draught / smoke seals the rules defined in section A.1 are applicable for side / transom panels and flush over panels.</p>						
<p>G 14 Decorative and / or protective finishes / intumescent / draught / smoke seals</p> <p>For further "Decorative and / or protective finishes" parameters refer to sections A.4.</p> <p>For variations of intumescent / draught / smoke seals the rules defined in section A.1 are applicable for side / transom panels and flush over panels.</p>						
G. 15 Glass panel to non-glass panel	interchange				Possible providing the doorset is successfully tested in two versions: 1) With full glass-panels 2) With full non-glass-panels And the difference in maximum deflection of the profile between version 1 and 2 is smaller than 40 % of the effective rebate depth-2 Otherwise not possible without additional test	See G.3

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
G.16 Glass-panel to non-glass-panel in doorleaf	interchange	>/=/<	>/=/<	>/=/<	Possible in additional with G.15 Otherwise not possible without additional test	See G.3
G.17 Non-glass doorleaf panel to glass in panel	interchange	>/=/<	>/=/<	>/=/<	Possible in additional with rule G.15 Otherwise not possible without additional test	See G.3
G.18 Non-glass-panel in doorleaf	Remove	>/=/<	≥	≥	Possible in line with rules for removing glass pane	
G.19 Change location in vertical position of non-glass-panel	move	≤	≤	≤	Possible in line with rule G.15, Possible moving the rail adjacent to the non-glass panel 20 cm up or downwards, Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.20 Change location in horizontal direction of Non-glass-panel	move	>/=/<	>/=/<	>/=/<	Not possible without additional test.	Additional test single or double leaf doorset
H Supporting construction and attachment (technique) of door frame or side / transom panels / flush over panels						
H1 General						
H.1.1 Supporting construction	Flexible to rigid	>/=/<	>/=/<	>/=/<	Not possible without an additional test	Additional test can be single or double leaf doorset
H.1.2 Supporting construction	Rigid to flexible	>/=/<	>/=/<	>/=/<	Doorsets made of un-insulated profiles possible Doorsets made of insulated profiles not possible without an additional test	Additional test can be single or double leaf doorset
H.1.3 Supporting construction	Flexible to associated supporting construction	>/=/<	>/=/<	>/=/<	Not possible without additional test	Additional test can be single or double leaf door in the associated construction.

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
		(1)	(2)	(3)		
		E	I	W		
H.1.4 Supporting construction	Rigid to associated supporting construction	>/=/<	>/=/<	>/=/<	Not possible without additional test	Additional test can be single leaf door in the associated construction
H.1.5 Supporting construction	associated to flexible supporting construction	>/=/<	>/=/<	>/=/<	Not possible without additional test	Additional test can be single or double leaf doorset in flexible construction
H.1.6 Supporting construction	associated to Rigid supporting construction	>/=/<	>/=/<	>/=/<	Not possible without additional test	Additional test can be single or double leaf Doorset in rigid construction
H.1.7 Supporting construction	Associated A to associated B supporting construction	>/=/<	>/=/<	>/=/<	Not possible without additional test	Additional test can be single or double leaf doorset in associated construction
H.1.8 Attachment technique	Alternative built-in frame anchor to plug and screw and vice versa	>/=/<	>/=/<	>/=/<	Possible providing the fixings are appropriate to the construction and have been successfully tested in similar supporting construction and the distance between the fixings is not increased Otherwise not possible without an additional test	Additional test can be single or double leaf doorset
H.1.9 Type of fixings	Alternative manufacturer / supplier	=	=	=	Possible	

Construction parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)			Possibility of extension (4)	Additional evidence required (5)
		E	I	W		
H.1.10 Type of fixings	Alternative material	≤	≤	≤	Possible to interchange between alternative fixing material providing centre distances are not increased and providing the critical components have a melting point higher than 850 °C. Where it is proven that the critical components have been successfully tested with a melting point lower than 850 °C, these may be interchanged with similar components Otherwise not possible without an additional test	Additional test can be single or double leaf doorset
H.1.11 Number and size of fixings	Increase	≥	≥	≥	Possible	
H.1.12 Number and size of fixings	Decrease	≤	≤	≤	Not possible without an additional test	Additional test can be single or double leaf doorset with or without a side and/or transom panel in the same type of supporting construction
H.1.13 Distance between fixings	Increase	≤	≤	≤	Possible in line with direct application rules (15 % limit for size variations) when "B" category has been achieved Otherwise not possible without an additional test	Additional test can be single or double leaf doorset with or without a side and/or transom panel
H.1.14 Distance between fixings	Decrease	≥	≥	≥	Possible	
H.1.15 Fixing to floor - See Figure A.59	Cleated to sunk	≥	≥	≥	Possible	
H.1.16 Fixing to floor - See Figure A.60	Sunk to cleated	≤	≤	≤	Not possible without an additional test	Additional test can be single or double leaf doorset with or without a side and/or transom panel

Construction parameter	Variation	Influence of variation on performance characteristic			Possibility of extension	Additional evidence required
(1)	(2)	(3)			(4)	(5)
		E	I	W		
H.1.17 Gap between door leaf and Floor – See Figure A.61	Increase	≤	≥	≥	Possible up to 50 % increase in the tested gap size but limited to a maximum of 25 mm total gap size	Additional real scale test can be single or double leaf doorset.
H.1.18 Gap between door leaf and Floor – See Figure A.62	Decrease	≥	≥	≥	Possible	

Figures referred to in Annex A

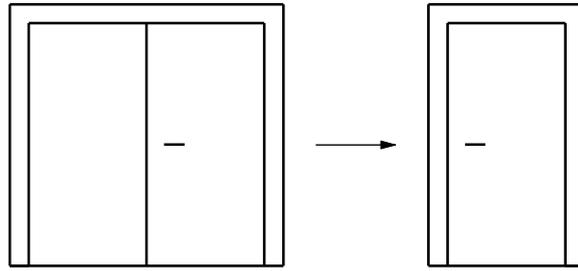


Figure A.1 – Number of leaves

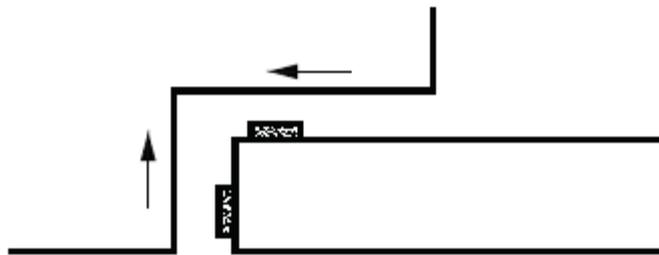


Figure A.2a - Intumescent seals between frame and door leaf / leaves

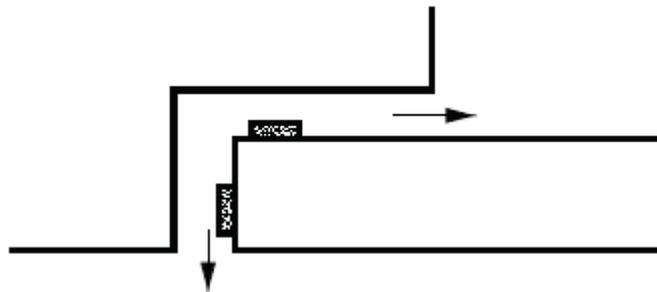


Figure A.2ab - Intumescent seals between frame and door leaf/leaves

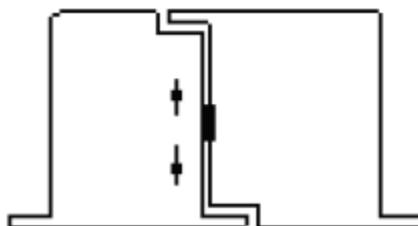


Figure A.3a – Intumescent seals between meeting edges of door leaves – Location

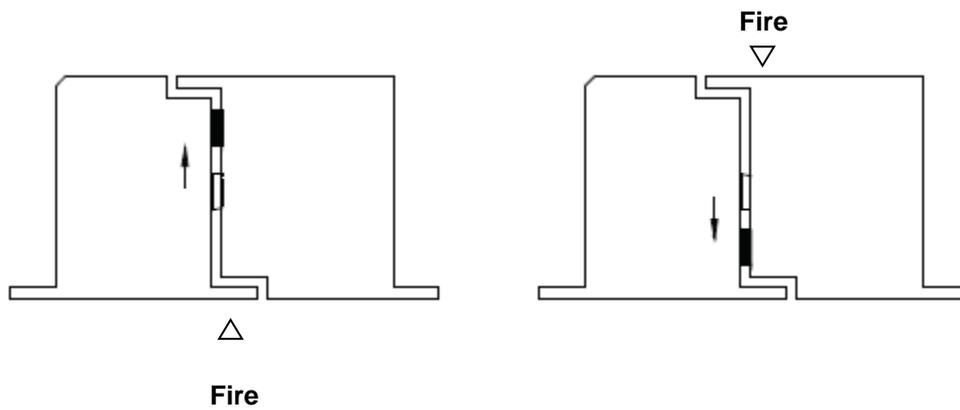


Figure A.3b - Intumescent seals between meeting edges of door leaves - Additional test for EI-steeldoors with changed location

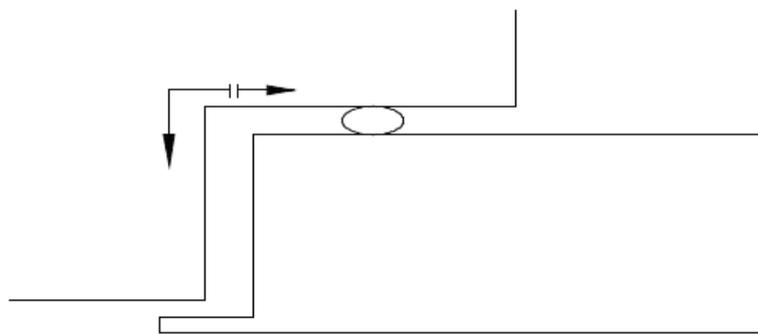
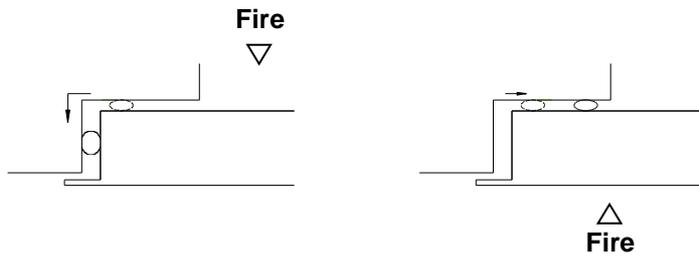
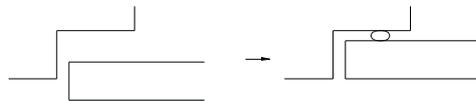


Figure A.4a - Non intumescent seals between frame and door leaf/leaves, (fitted in leaf or frame) - Location



**Figure A.4b - Non intumescent seals between frame and door leaf/leaves,
(fitted in leaf or frame) - Additional test for EI-steeldoors with changed location**



**Figure A.5a - Non intumescent seals between frame and door leaf/leaves,
(fitted in leaf or frame) - Add**

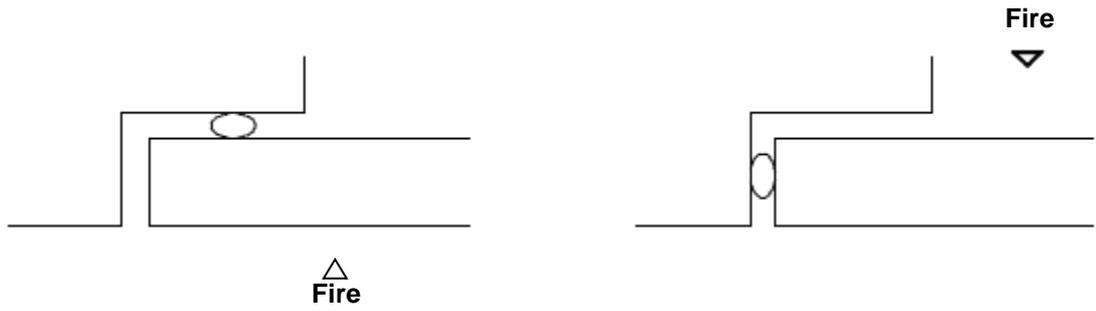


Figure A.5b - Non intumescent seals between frame and door leaf/leaves, (fitted in leaf or frame) - Additional test with added seal

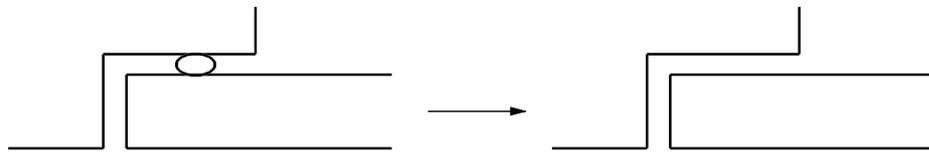


Figure A.6 - Non intumescent seals between frame and door leaf/leaves, (fitted in leaf or frame) - Remove

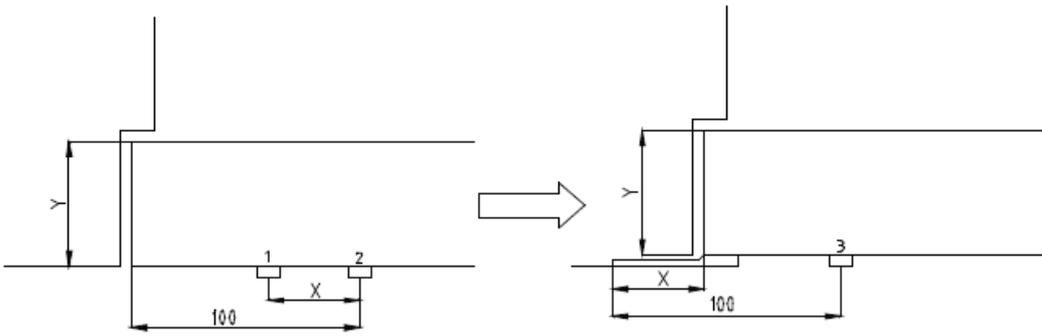


Figure A.10 – Rebate (door leaves to frames) – Add

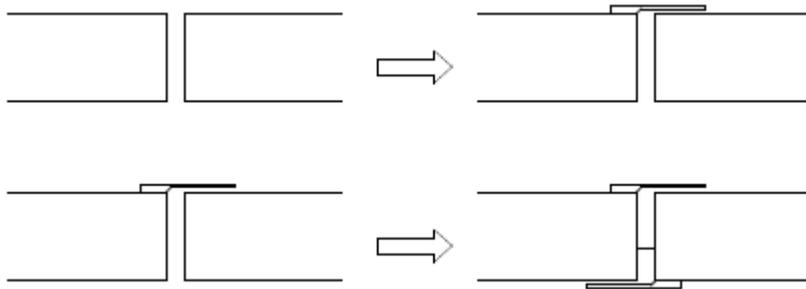


Figure A.11 – Rebate (meeting edges) - Add (one rebate)

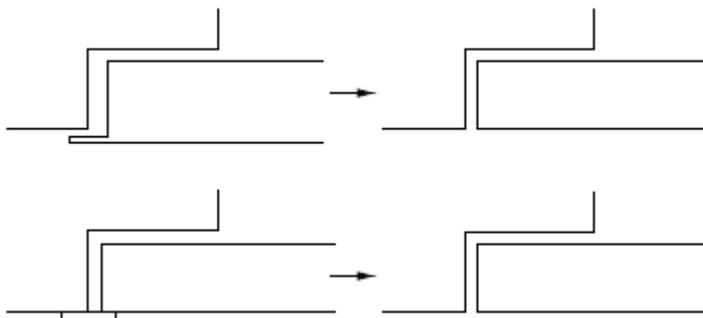


Figure A.12 – Rebate (door leaves to frames) - Remove

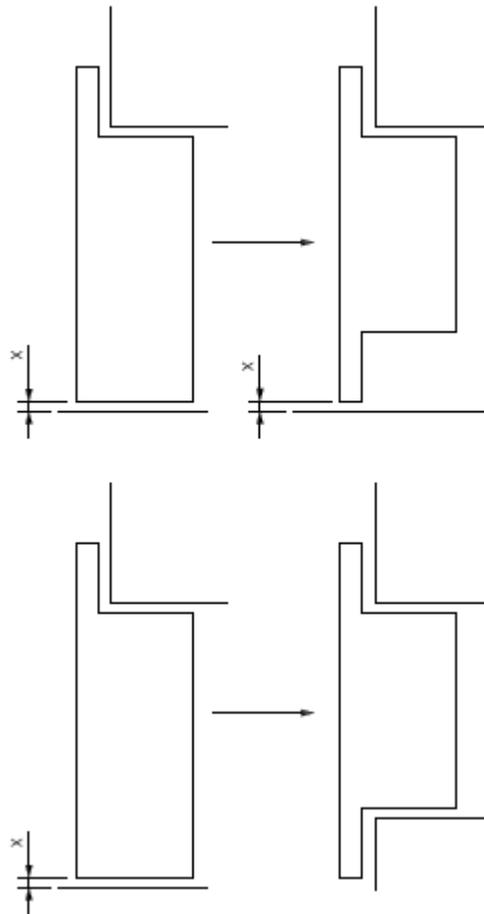


Figure A.13a – Additional overlapping edge at the bottom of the door leaf – Add

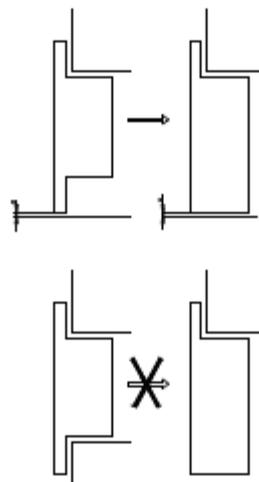


Figure A.13b – Additional overlapping edge at the bottom of the door leaf - Remove

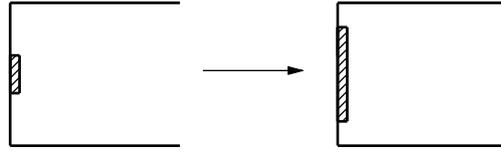


Figure A.14a – Dimension of intumescent seals (leaf or frame fitted) - Increase

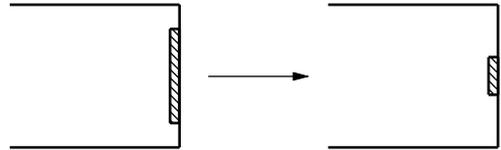
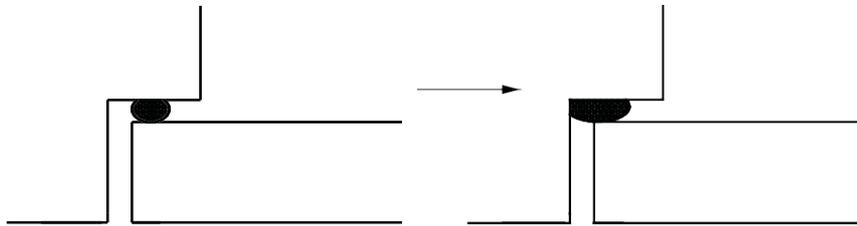
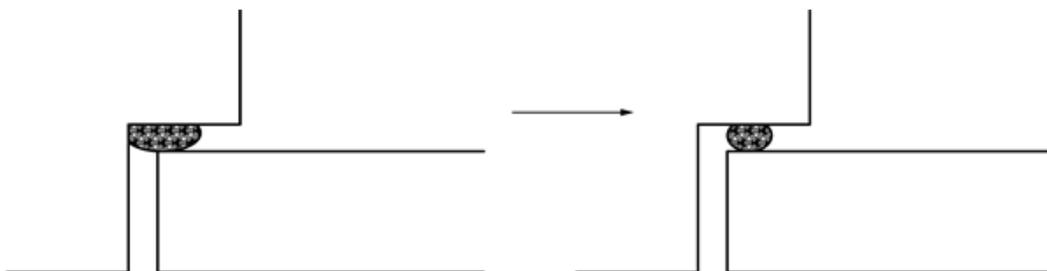


Figure A.14b – Dimension of intumescent seals (leaf or frame fitted) - Decrease



**Figure A.15a - Dimension of draught/smoke seals (Reaction to fire class A1) -
leaf or frame fitted - Increase**



**Figure A.15b - Dimension of draught / smoke seals (Reaction to fire class A1) -
leaf or frame fitted - Decrease**

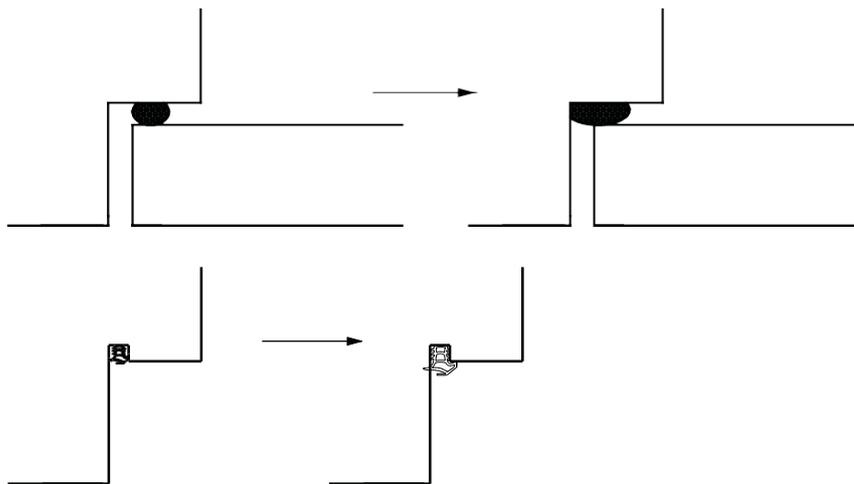


Figure A.16a - Dimension of draught/smoke seals (<Reaction to fire class A1) - leaf or frame fitted - Increase (2 examples shown)

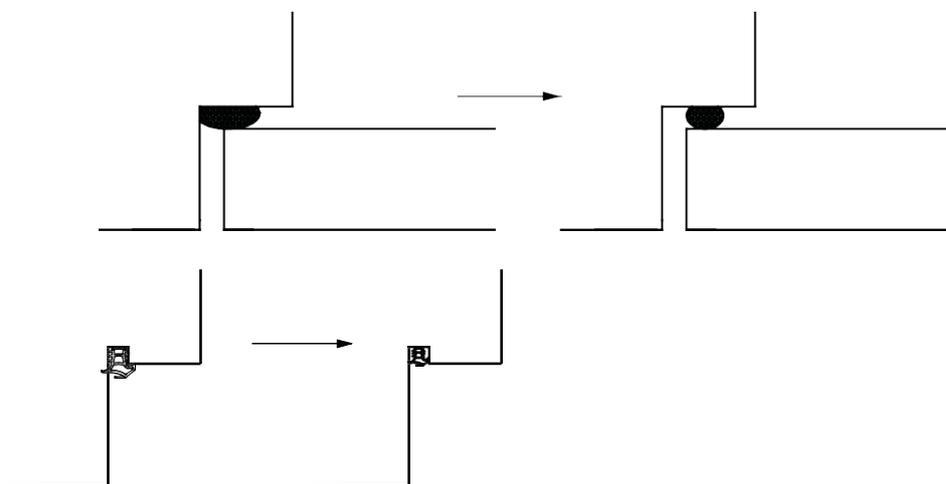


Figure A.16b - Dimension of draught / smoke seals (<Reaction to fire class A1) - leaf or frame fitted - Decrease (2 examples shown)

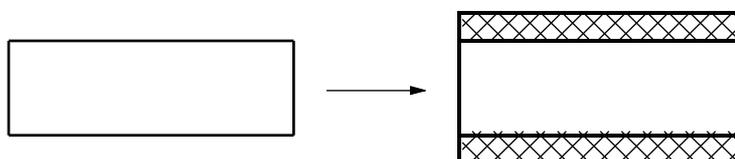


Figure A.17 – Decorative laminates and timber veneers on the face (on leaf) - Add

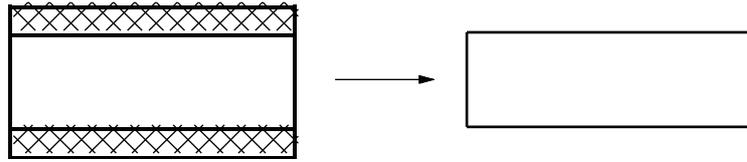


Figure A.18 - Decorative laminates and timber veneers on the face (on leaf) - Remove

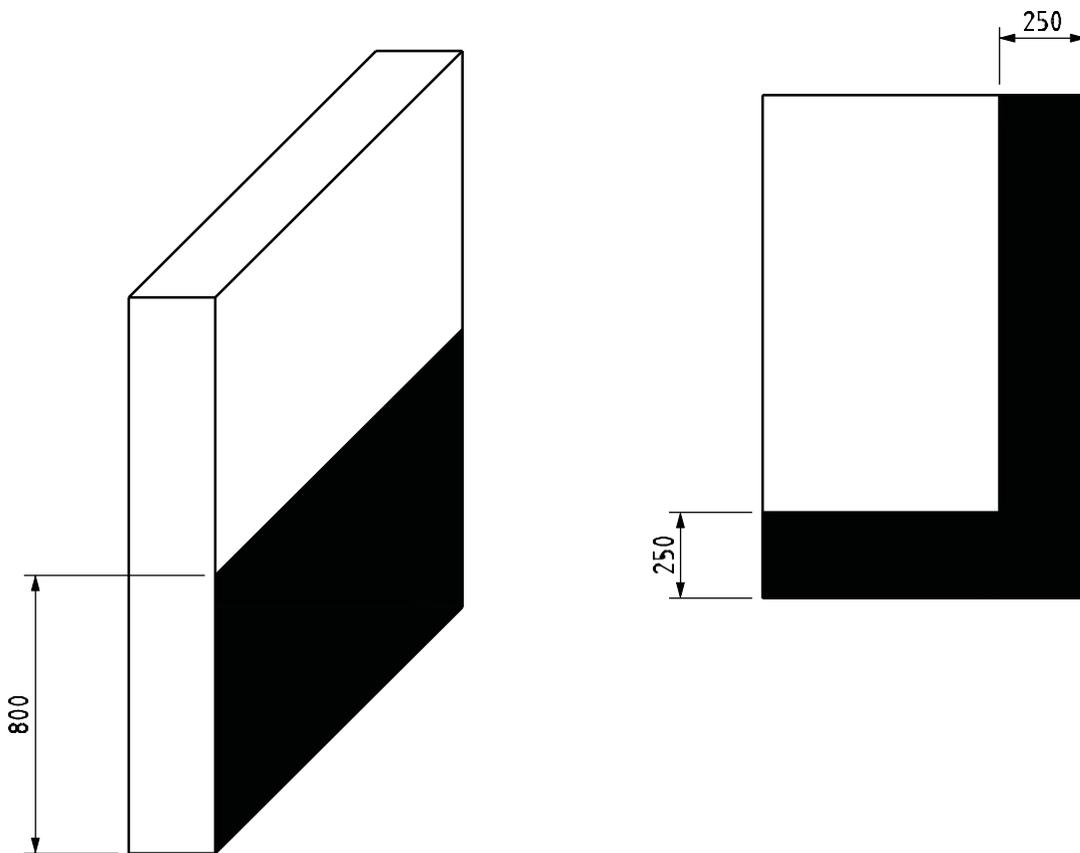


Figure A.21 – Protective elements - face fixed (kick plates / push plates / armour plates) - Add

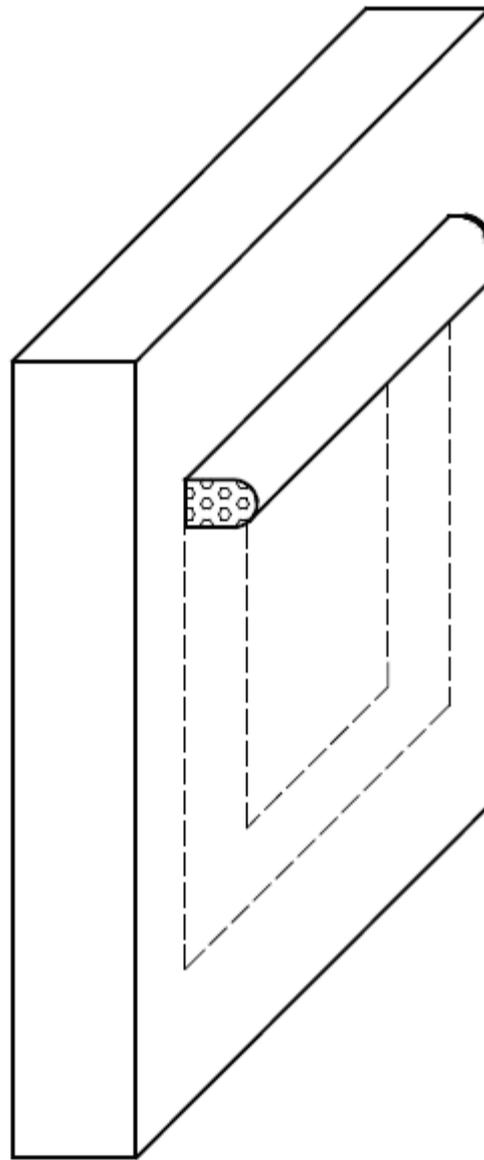


Figure A.22 – Mouldings / profiles (Add / Remove)



Figure A.23 – Width and depth of a profile

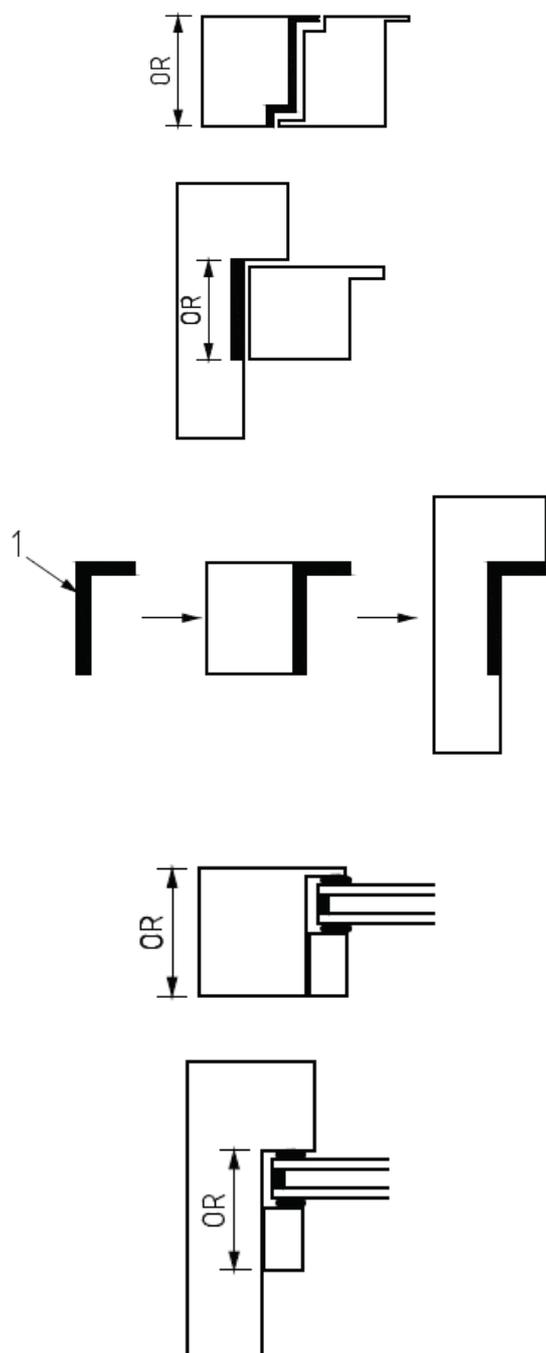


Figure A.24 - Examples of overlap rebate (OR)

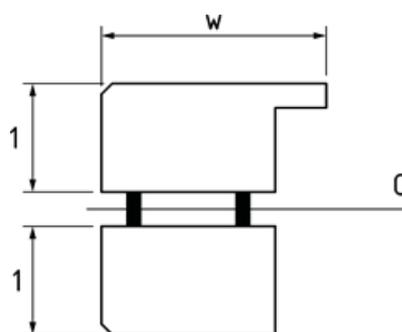


Figure A.25 – Thickness of shell - cut "C"

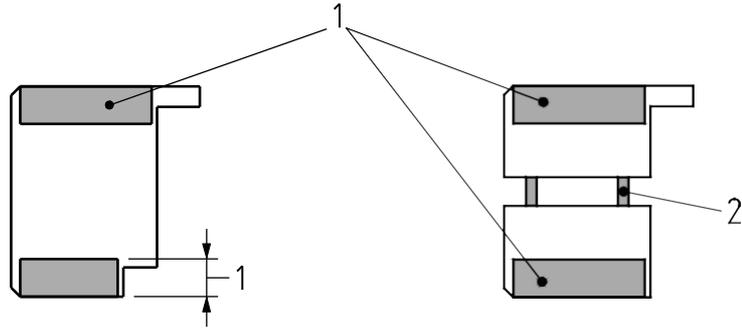


Figure A.26 – Infill material

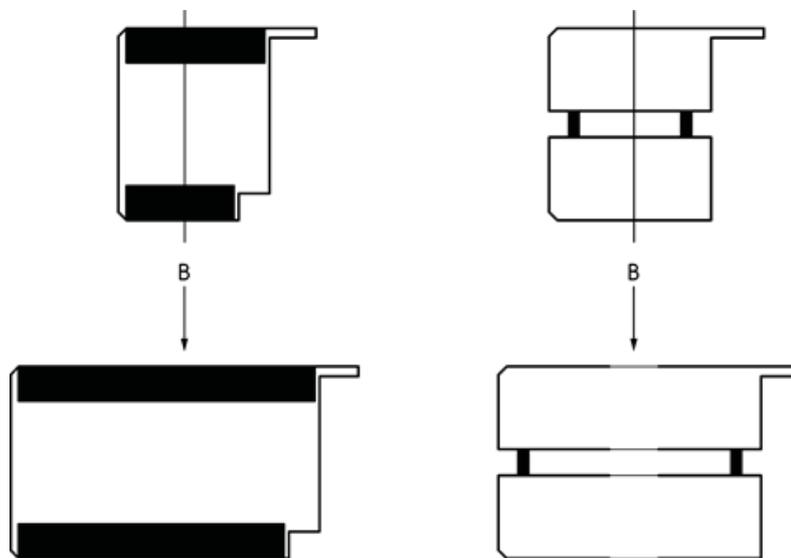


Figure A.27 – Cross section of profile - Increase width

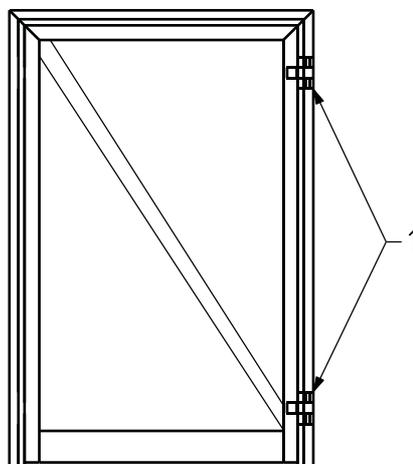


Figure A.28 – Rails in door leaf - worst case

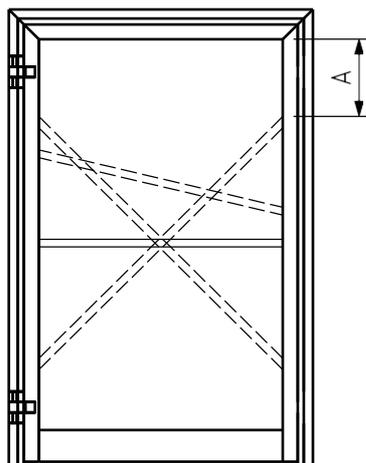


Figure A.29 – Rails in door leaf -changing angle

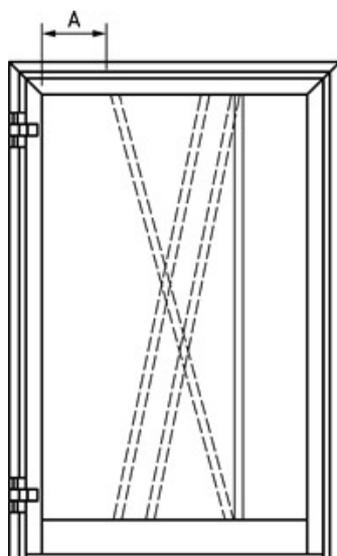


Figure A.30 – Stiles in door leaf -changing angle

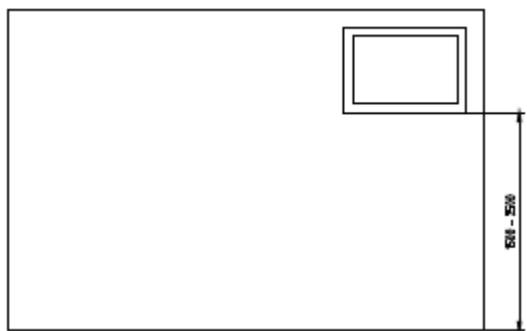


Figure A.31 – Height of hatch door frame above floor (variation)

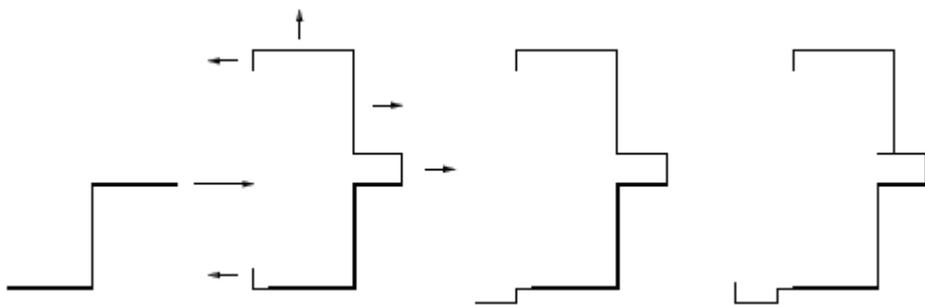


Figure A.32 – Overall dimensions and shape (increase)

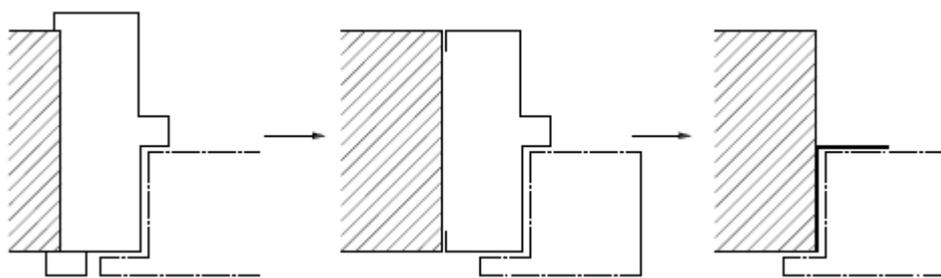
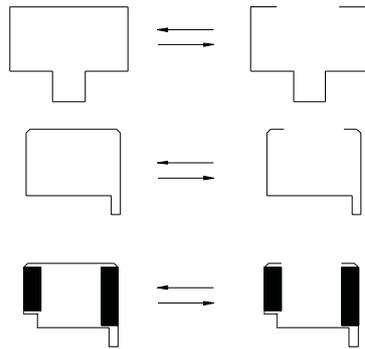


Figure A.33 – Overall dimensions and shape (decrease)



**Figure A.34 - Cross section dimensions and shape
(open profile to closed profile and vice versa)**

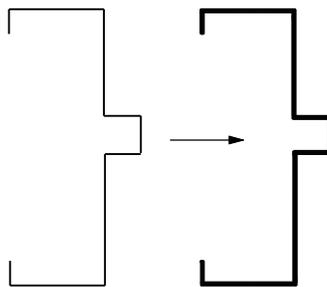


Figure A.35 - Thickness of metal (increase)

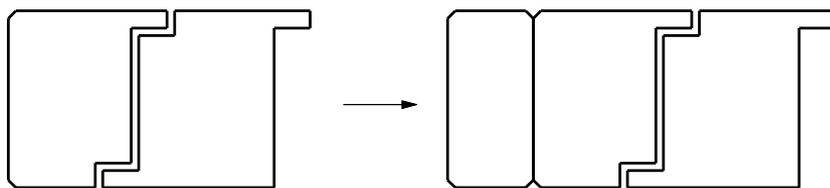


Figure A.36 –Door frame extra profile -add

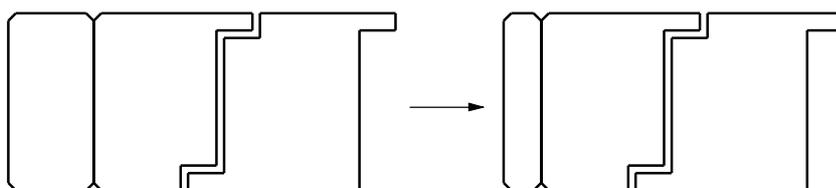


Figure A.37 – Door frame extra profile - decrease width

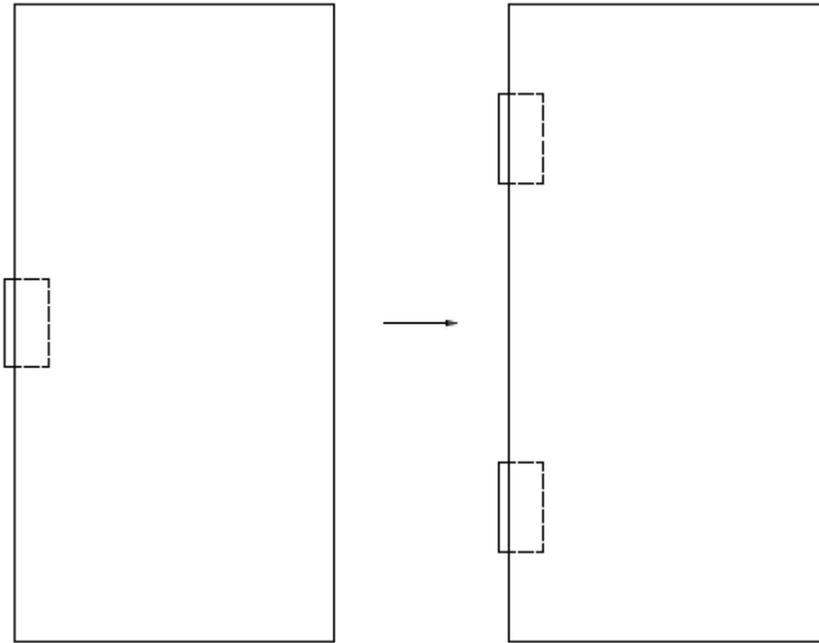


Figure A.39 – Number of latches / locks and strike plates (increase)

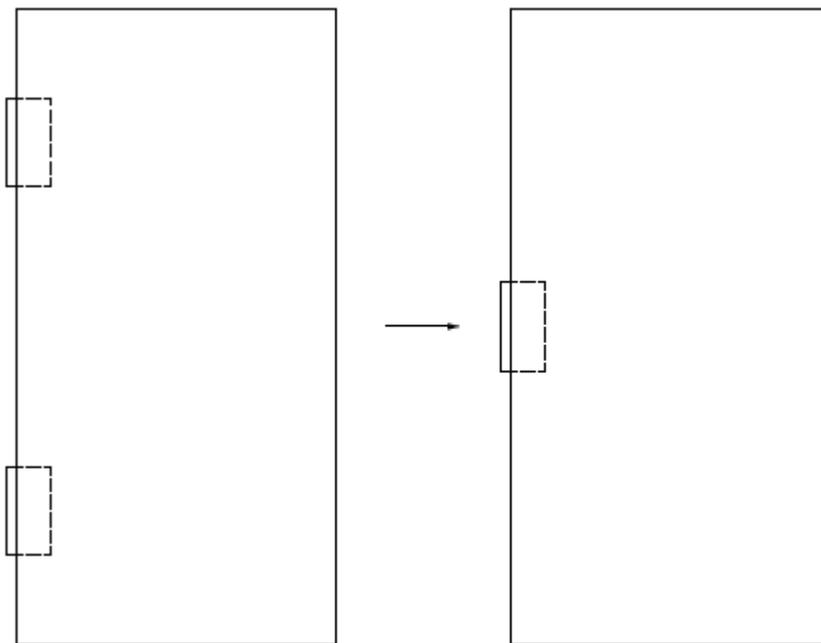


Figure A.40 – Number of latches / locks and strike plates (decrease)

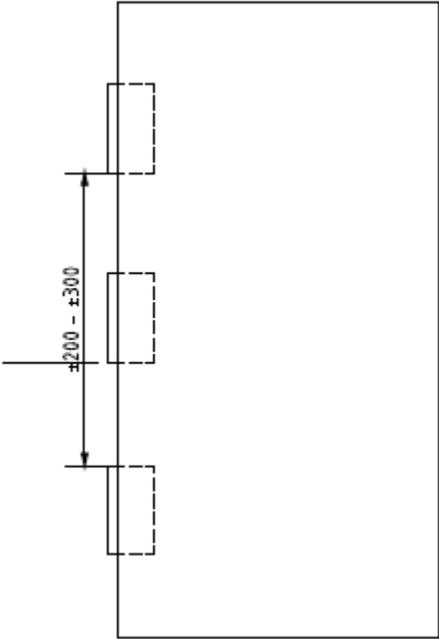


Figure A.41 – Position of single latch / lock and strike plate (alternative)

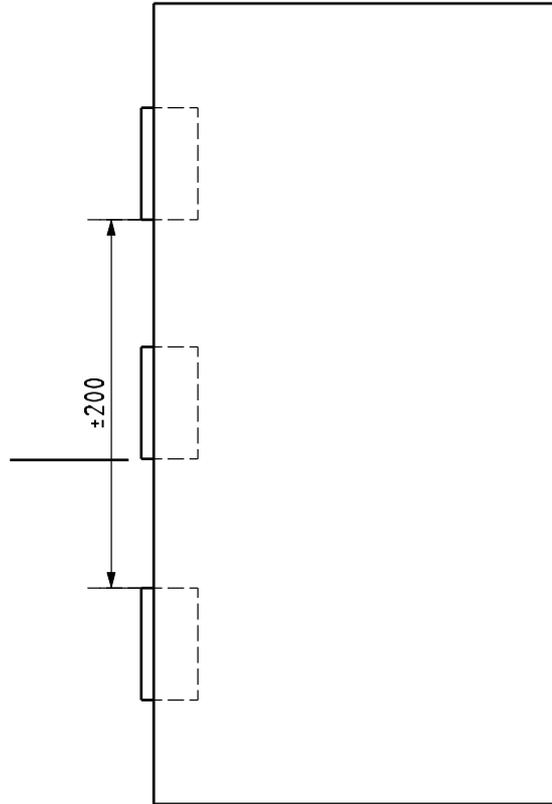


Figure A.42 - Position of multiple latches/locks/strike plates (with or without connecting rods) - alternative

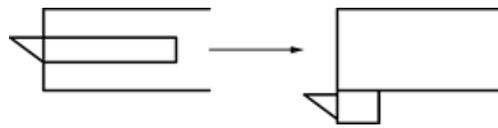


Figure A.43a - Latches / locks (exchange internal for external)

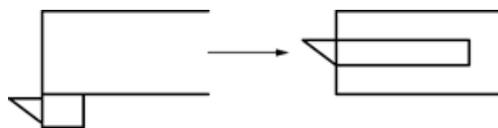


Figure A.43b - Latches / locks (exchange external for internal)

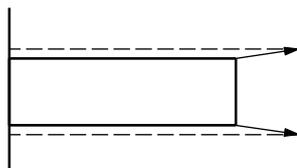


Figure A.44a – Dimension of dog bolts (increase)

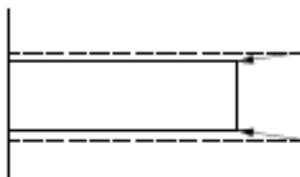


Figure A.44b – Dimension of dog bolts (decrease)

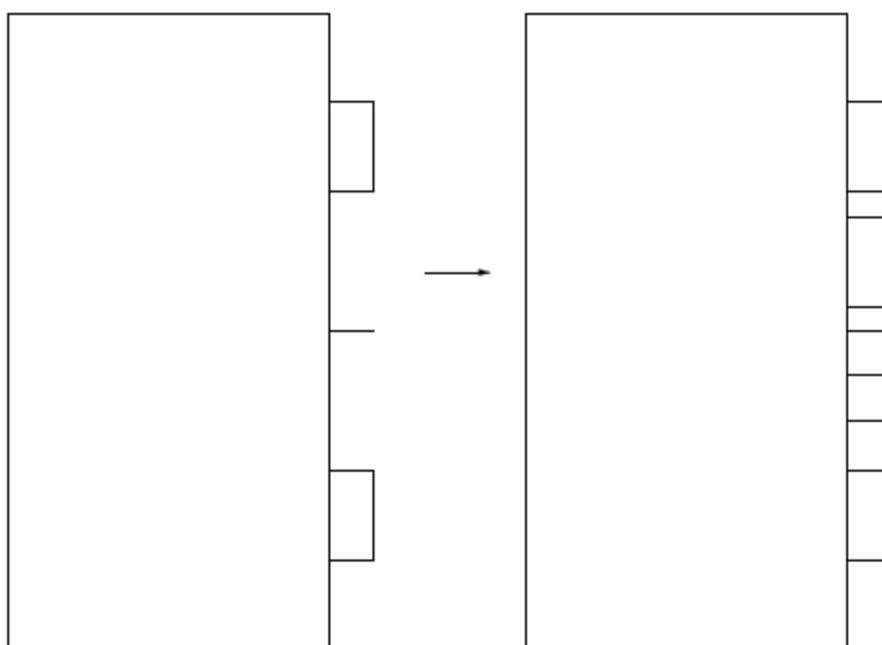


Figure A.45 – Number of hinges / dog bolts (increase)

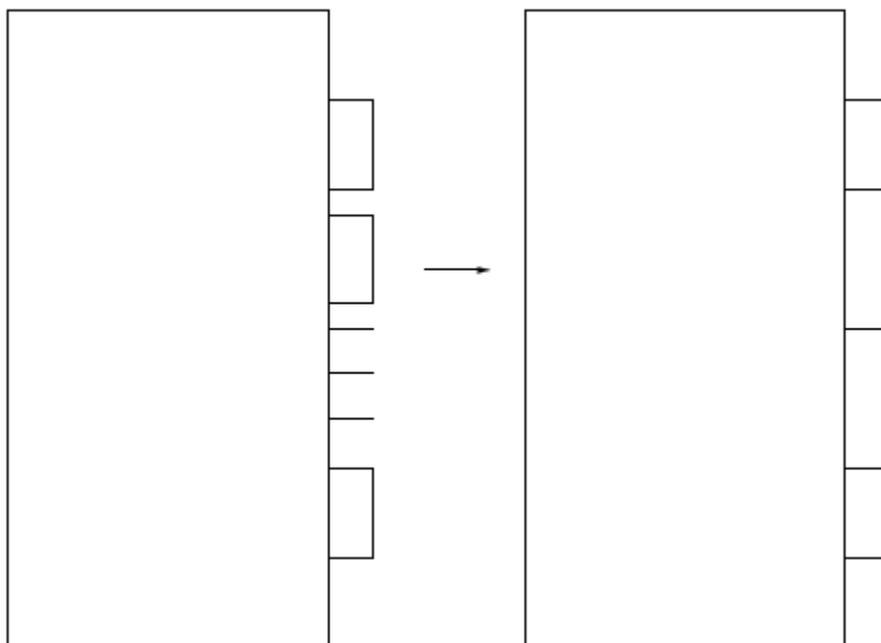


Figure A.46 – Number of hinges / dog bolts (decrease)

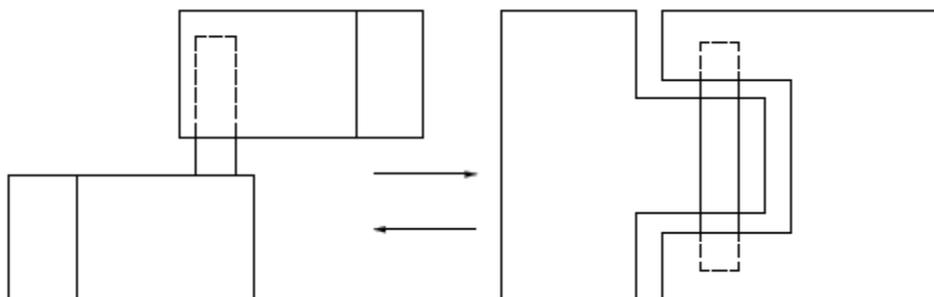


Figure A.47 – Type of hinges (alternative material / type)

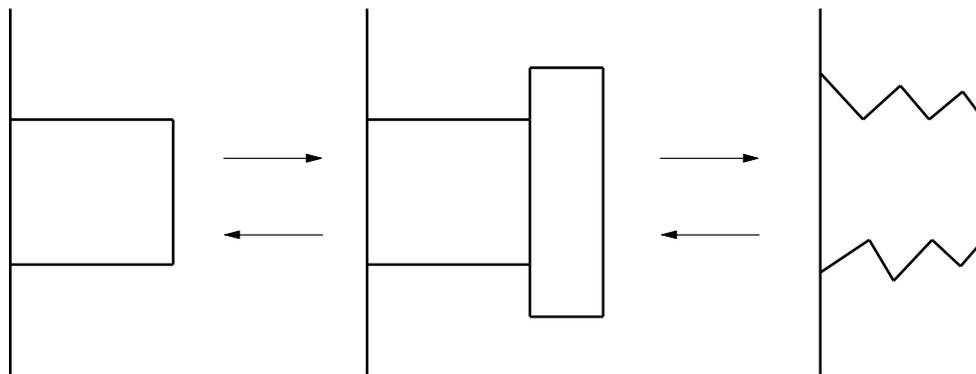


Figure A.48 – Type of dog bolts (alternative material/type/shape)

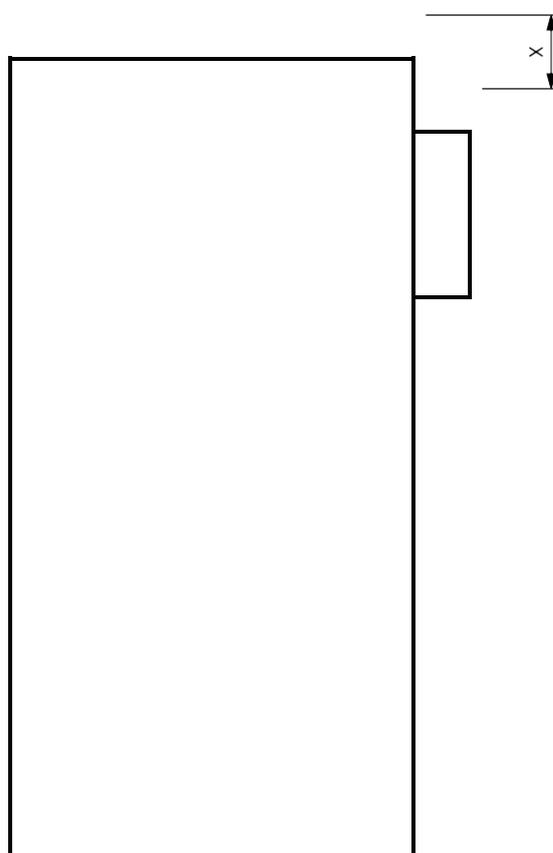


Figure A.49 – Distance from top of upper hinge to top of door (x) - increase/decrease

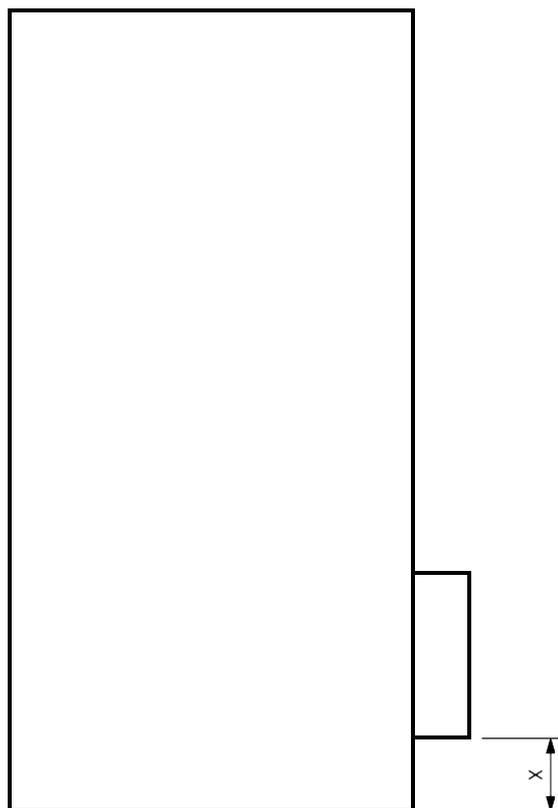


Figure A.50 – Distance from bottom of lower hinge to bottom of door (x) - increase/decrease

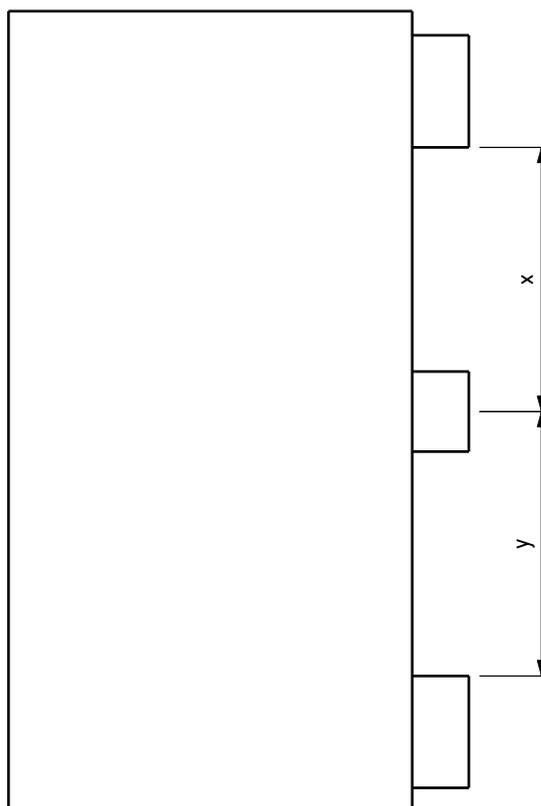


Figure A.51 - Distances between top and bottom hinges and intermediate movement restrictors (increase/decrease)

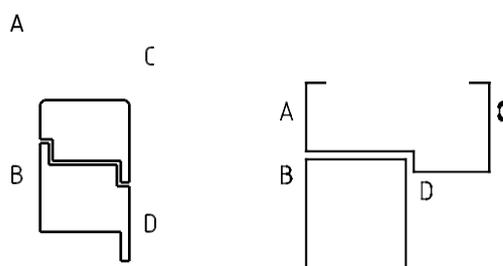


Figure A.52 – Face fixed door closer (alternative fitting positions)

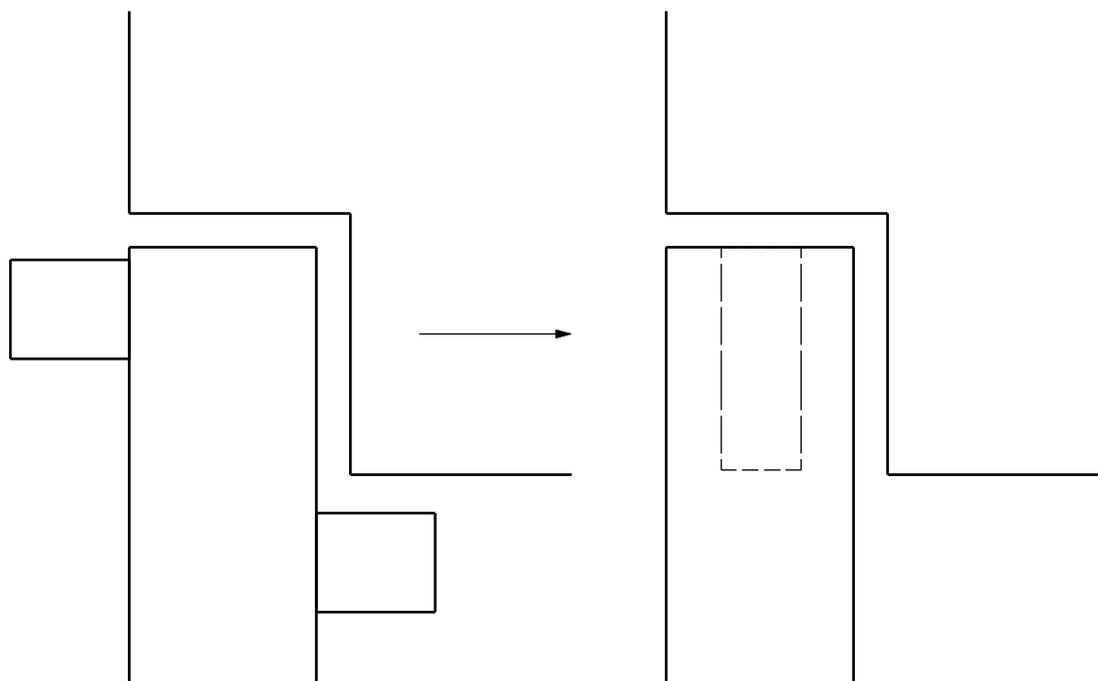


Figure A.53 – Door closer - Change of location (face mounted for concealed)

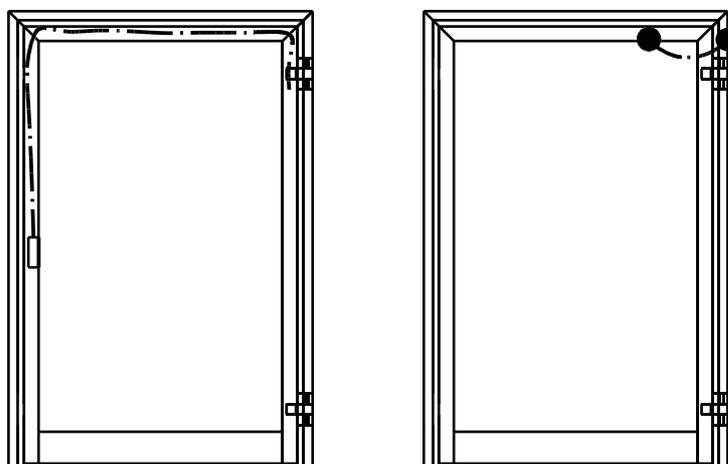


Figure A.54 - Power cable and protective conduits for electric locks (fitted in the door leaf or frame) - Add (2 examples shown)

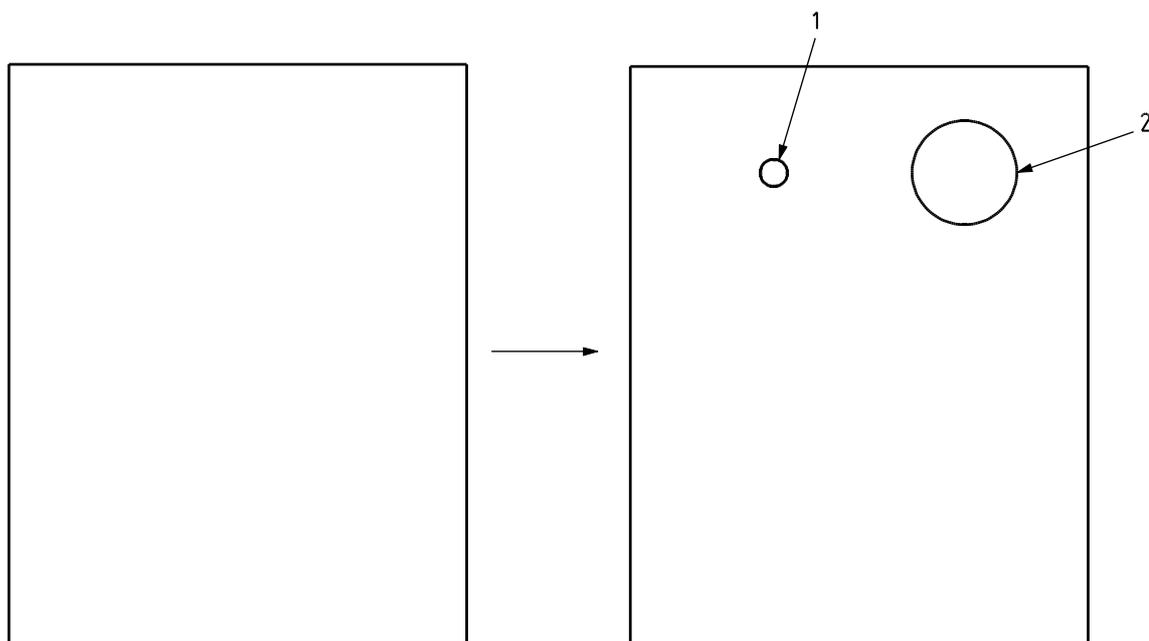


Figure A.55 – Spy holes / key tubes - add

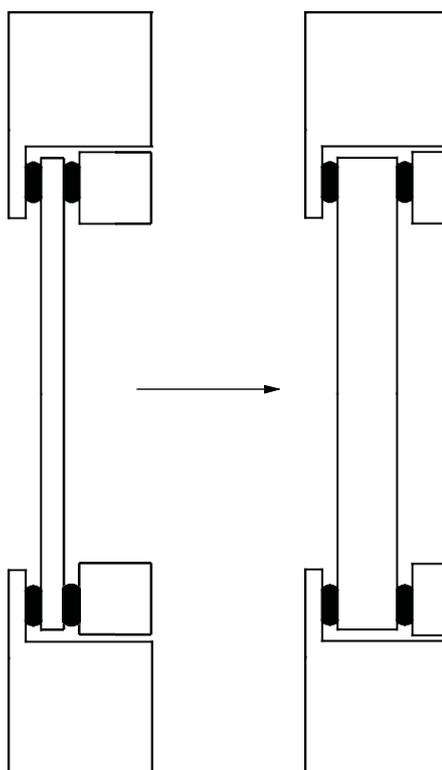


Figure A.56a – Thickness of glass (increase)

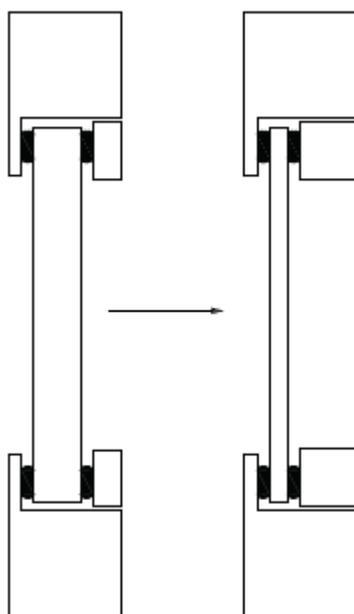


Figure A.56b – Thickness of glass (decrease)

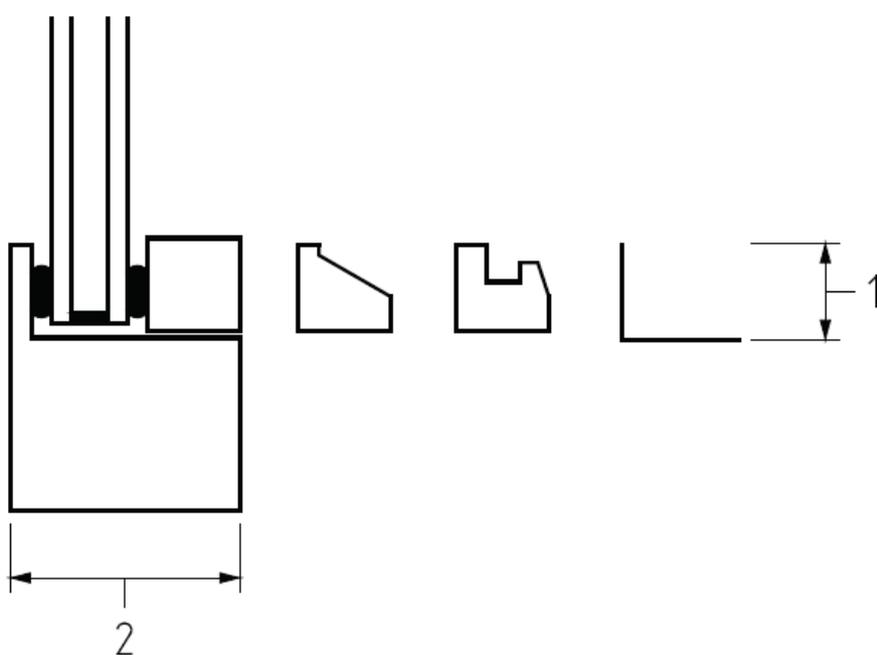


Figure A.57 – Shape of glazing bead (alternative) - examples

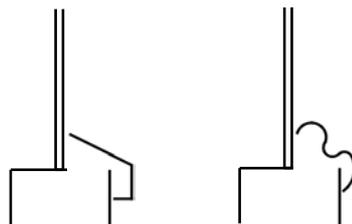


Figure A.58 – Decorative capping (add or exchange)

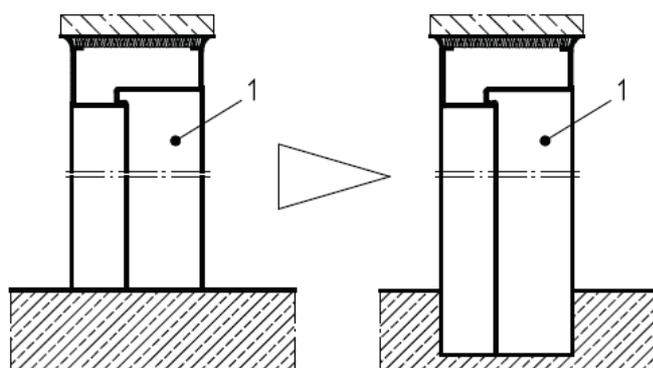


Figure A.59 – Fixing to floor (cleated to sunk)

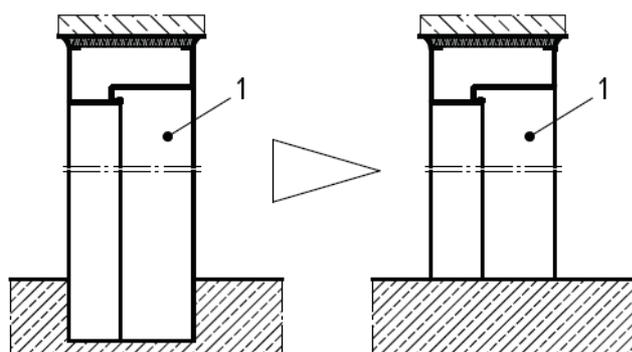


Figure A.60 - Fixing to floor (sunk to cleated)

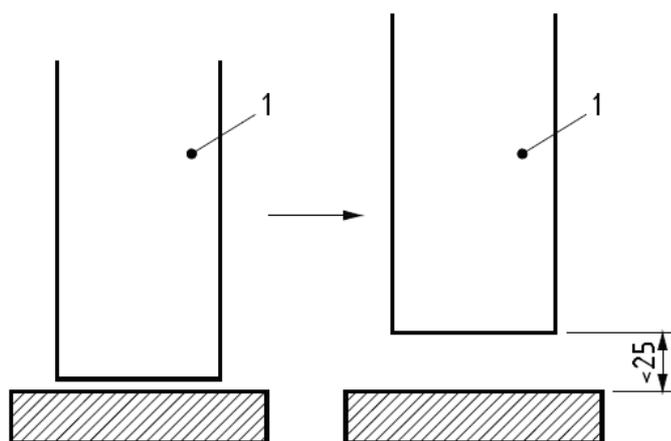


Figure A.61 – Gap between door leaf and floor (increase)

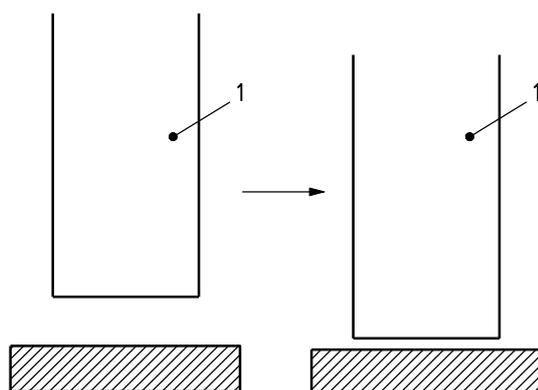


Figure A.62 – Gap between door leaf and floor (decrease)

Annex B – Extended application smoke control

B1. General

Annex B covers hinged and pivoted steel metal framed glazed doorsets of single or double-leaf construction and prescribes the methodology for extending the application of test results obtained from test(s) conducted in accordance with EN 1634-3.

Before there can be any consideration for extended application the doorset shall have been tested in accordance with EN 1634-3 to achieve a test result which could generate a classification in accordance with EN 13501-2 at least equal to the classification subsequently required from extended application considerations.

Subject to the completion of the appropriate test or tests, the extended application may cover Ambient Temperature Smoke Control (S_a) and Medium Temperature Smoke Control (S_m) classifications and all or some of the following variations:

- glazed elements,
- side, transom or overpanels;
- items of building hardware;
- decorative finishes;
- intumescent, smoke, draught or acoustic seals;
- alternative supporting construction(s).

B2. Determination of the field of extended application

Before there can be any consideration for extended application the doorset shall have been tested and classified in accordance with EN 1634-3 and EN 13501-2 respectively in order to establish a classification for the doorset.

A review of the doorset construction parameters can indicate that one or more characteristics may be improved by a particular parameter variation. All evaluations shall be made on the basis of retaining the classifications obtainable from testing to EN 1634-3, including those lower than the test duration. However, this shall never lead to an increased classification for any specific parameter beyond that achieved during any one test unless specifically identified in the relevant Construction Parameter Variation tables.

All evaluations shall be made on the basis of retaining the classification obtained from testing to EN 1634-3.

If, by following the ensuing procedure, any part of the classification cannot be achieved by extended application rules, that part of classification shall be omitted from the subsequent extended application report.

Identify the variations from the original test specimen(s) which are required to be covered by an extended application report.

Locate the variations in the appropriate parameter variation by reference to columns (1) and (2) of table A.

Review the type of classification to be retained from column (3) of table A and establish from the contents of column (4) of table A whether any extended application is available without the need for further testing.

Where this is deemed to be possible this can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (4) in Table A.

Where the variations required can only be achieved from additional testing according to column (5), the additional test can be made on a similar specimen type to the original test against which the extended application is sought. Alternatively, column (5) in table A identifies an option for alternative testing and relevant test parameters.

B3. Procedure for maximum field of extended application

It is possible to provide a limited field of extended application from the results of a single test. However, where a manufacturer intends to produce a range of doors incorporating single doors and also double doors with or without glazing, with alternative elements of building hardware, etc., it is recommended that careful consideration is given to the complete range of doorset designs and options in order to minimise the testing required before testing commences.

Establish all the parameter variations which are required to be part of the product range.

Select specimens for the first tests in the series to ensure that the most important parameter variations for the manufactured products are covered.

Complete the first test or a series of tests and prepare a field of direct application from the results of the test(s).

Establish which of the original desired parameter variations have not been covered by the direct application report.

Identify these parameter variations in table A and establish where an extended application is possible without further testing.

Record this for the extended application report together with any restrictions and rules given in column (5) in table A.

Evaluate which, if any, of the desired parameter variations have not been covered by the field of direct application or the initial field of extended application derived from chapter 3.

Select the required outstanding parameter variations from column (1) and column (2) of table A and observe from column (5) in table A which are the most appropriate weakest specimen options for further testing.

If the complete selection of required parameter variations has not been covered by the tests as listed above, then an appropriate test or tests may be carried out with the additional product variations incorporated.

B4. Interpretation of test results

In order to maximise the field of extended application, it is important that the test reports shall record details of any failure throughout the duration of the test.

Where a series of tests have been conducted, the field of extended application shall be based on the lowest performance achieved from the complete series of tests unless excessive leakage has been attributed to one or more specific construction parameter variation.

Where it has been possible, to identify leakage due to a specific parameter, the extended application for all other construction parameter variations can be based on the performance achieved after isolating the parameter with excessive leakage.

B5. Construction parameter variations

Table A is designed to provide rules for the creation of extended application reports by experts in the field of smoke control testing of hinged and pivoted doorsets.

Table A shall only be used to evaluate a field of extended application when at least one positive smoke control test to EN 1634-3 has resulted in a classification according to EN 13501-2.

The first two columns of table A identify possible variations to the construction details of the specimen tested.

The type of classification, referred to as performance characteristic in Column (3) of table A, achieved from the test can be identified from the 'Performance characteristic' section of table A column (3) as Ambient Smoke Control (S_a) and Medium Temperature Smoke Control (S_m) as derived from EN 13501-2.

The effect of the change in each parameter is evaluated for each characteristic in table A column (3) under

S_a for Ambient temperature and S_m for Medium temperature.

Where symbols are used these relate to the following definitions: a)

- b) \leq - forecast is a worse performance;
- b) $>$ - forecast is a better performance;
- c) $=$ - forecast is no significant difference;
- d) \leq - forecast is a worse or equal performance;
- e) \geq - forecast is a better or equal performance;
- f) $\geq <$ - forecast unknown.

These evaluations lead to the judgement of the possibility of extending the field of application, the results of which are given in column (4) of table A.

Where additional tests are deemed to be necessary the type of specimen approved for incorporation of the changed parameter is defined in column (5) of table A. Where it is possible to use information from tests performed on one configuration for evidence on a different configuration, this allowance has been made in order to reduce the overall number of tests required for extended application evaluation (e.g. single action doorsets to double action doorsets).

In all cases following the evaluation, the relationship between the leaf and the frame (e.g. gaps) shall remain the same as shall the relationship between smoke seals and the faces and/or edges of the leaf (i.e. the contact between the edges of the smoke seal and the leaf face) shall not decrease, nor shall the contact between the smoke seal and the leaf edge.

Solid timber can be replaced by other solid timber of the same or higher density. Glued timber with solid pieces of min. 10 mm thickness may be used as solid timber. Composite wood products (e.g. Medium Density Fibreboard) may not be replaced with other materials or composites.

If after consideration of a specific variation, additional changes are required to be made to the specimen, these may be made providing the implications on other variations are also taken into account.

The following tables and the following figures were taken from DIN EN 15269-20 in extracts. The structure corresponds to the norm.

Table A - Construction parameter variations

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A Door leaf In certain cases, the rules given in Section A are also appropriate to side and overpanels or the door frame; where this is the case it is clearly indicated in column (1). For double leaf doorsets, both leaves shall be of the same basic construction.					
A.1 General					
A.1.1 number of leaves	Single leaf from double leaf doorset	≥	≤	Possible for S _a if the seals are unchanged Not possible for S _m without additional test	Test shall be a single leaf doorset from the most onerous exposure direction.
A.1.2 number of leaves	Double leaf from single leaf doorset	≤	≤	Not possible without additional test	shall be a double leaf doorset.
A.1.3 smoke seals (fitted at leaf to frame interface) – see Figure A.1	Location towards the frame rebate	≤	≤	Not possible without additional test	Test shall be of the required configuration.
A.1.4 smoke seals (fitted at leaf to frame interface) – see Figure A.2	Location away from the frame rebate	≤	≤	Not possible without additional test	Test shall be of the required configuration.
A.1.5 smoke seals (fitted in meeting edges)	Location change	≤	≤	Not possible without additional test	Test shall be of the required configuration.
A.1.6 smoke seals (fitted in leaf or frame)	Remove	<	<	Not possible without additional test	Test shall be of the required configuration.
A.1.14 Leaf edge rebate (to door leaf or panel – not at the meeting edges; see section A.2 for meeting edge parameters) - see Figure A.4	Add (added rebate shown shaded in drawings)	≥		Possible providing the rebate does not lead to reduced compression on the seals	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)			
		S_a	S_m					
A.1.15 Leaf edge rebate (to door leaf or panel – not at the meeting edges; see section A.2 for meeting edge parameters)	Remove	\leq	\leq	Not possible without additional test	The required detail shall be tested. Test can be single or double leaf.			
A.1.17 Latched condition for single leaf or double leaf doorsets - see Figure A.5	Change in latching condition	\geq	$<$	Possible in line with the following relationship otherwise not possible without an additional test:	Additional test to include the required latching condition			
						tested without a latch/lock/bolt	tested with a latch/lock/bolt but unlatched	tested with a latch/lock/bolt, latched
				extension to: without a lock/latch/bolt			possible	not possible
				extension to: with lock/latch/bolt but unlatched		not possible		not possible
				extension to: with a lock/latch/bolt, latched		not possible	possible	
				Additional latch/lock may be fitted providing there is specific evidence on the latch/lock identifying it will not affect the leakage.				
A.2 Meeting edge detail								
A.2.1 Meeting edge detail – see Figure A.6	Change in edge detail	\leq	\leq	Possible for S_a for rebated details shown in Figures A.6a) and A.6b) only otherwise not possible without additional test	Test shall be double leaf.			
A.2.2 Astragal – see Figure A.6f)	Add	\geq	\geq	Possible				
A.2.3 Astragal – see Figure A.6f)	Remove	\leq	\leq	Not possible without additional test	Test shall be double leaf.			
Size variations								
A.3.1 Size of leaf or panel (area, width, height)	Decrease	\geq	\geq	Possible				

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.3.2 Height/width/area of leaf or panel	Increase	>=<	>=<	<p>The doorset shall normally be tested at full size, however, where this is not possible an increase in dimension is possible providing the sealing system is unchanged and any interruptions for hardware are in equal or less proportion to the tested specimen and subject to the following rules:</p> <p>For S_m doorsets with a maximum tested leakage rate of 50% (single leaf doorsets with 10 m³/h and for double leaf doorsets with 15 m³/h) of the leakage rate referred in EN 13501-2, for:</p> <p>a) Hinged or pivoted latched doors: Size increase is permitted up to 15% height, 15% width and 20% area,</p> <p>Otherwise not possible without additional test.</p>	For configuration/sizes above that allowed by the adjacent column, the specific size shall be tested.
A.3.3 Thickness of the door leaf or panel	Increase	≥	≥	Possible	
A.3.4 Thickness of the door leaf or panel	Decrease	≤		Required thickness of leaf or panel shall be tested.	
A.4 Materials and constructions					
A.4.1 Density of core material of leaf or panel	Increase/decrease	≥	>=<	Possible for timber and steel based S _a doorsets and possible for S _m timber and steel based doorsets providing the increase/decrease is not greater than 50% otherwise not possible without an additional test	Test on required density of core material

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.4.2 Pattern of core material of leaf or panel – see Figure A.7	Increase number of pieces	=	>=<	Possible for S _a .	
				Possible for S _m doorsets by 50% providing the test included more than one joint. Possible also proportionately with a leaf/panel size increase For double leaf doorsets, the rule shall be applied to each leaf separately, otherwise not possible without additional test.	Test shall be on a leaf with the maximum number of required pieces.
A.4.3 Pattern of core material of leaf or panel	Decrease number of pieces	=	>=<	Possible for S _a ,	
				Possible for S _m steel based doorsets providing the fixing technique is unchanged and possible for S _m timber based dorsets by up to 50% providing one joint in the core material remains. For double leaf doorsets, the rule shall be applied to each leaf separately, otherwise not possible without additional test.	Test shall be on a leaf with the minimum number of required pieces.
A.4.4 Number of layers of identical core material of leaf or panel	Increase number of layers	=	>=<	Possible for S _a .	
				Possible for S _m doorsets up to 50% providing the test included more than one joint. For double leaf doorsets, the rule shall be applied to each leaf separately, otherwise not possible without additional test.	Test shall be on a leaf with the maximum number of required layers.
A.4.5 Number of layers of identical core material of leaf or panel	Decrease number of layers	=	>=<	Possible for S _a ,	
				Possible for S _m steel based doorsets providing the fixing technique is unchanged and possible for S _m timber based dorsets by up to 50% providing one joint in the core material remains. For double leaf doorsets, the rule shall be applied to each leaf separately, otherwise not possible without additional test.	Test shall be on a leaf with the minimum number of required pieces
A.4.6 Type of core material in leaf or panel (single thickness or in combination of different layers)	Change of manufacturer (same basic product type)	=	=	Possible	
A.4.7 Type of core material in leaf or panel (single thickness or in combination of different layers)	Alternative composition of same basic product type	=	=	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.4.11 Type of adhesives used in leaf or panel	Change of supplier/manufacturer for identical composition	=	=	Possible	
A.4.12 Type of adhesives used in leaf or panel	Alternative composition	=	≤	Possible for S _a	Additional test to include the alternative adhesive
				Not possible for S _m	
A.4.13 Glued area (partially or fully glued)	Increase	≥	≥	Possible	
A.4.14 Glued area (partially or fully glued)	Decrease	≤	≤	Not possible	
A.4.17 Cross-section dimension of perimeter framing elements in leaf or panel	Increase	≥	≥	Possible	
A.4.18 Cross-section dimension of perimeter framing elements in leaf or panel	Decrease	>=<	>=<	Possible for S _a . Possible for S _m providing the stiffness of the leaf is not reduced such that the resulting leaf will not distort more than the original leaf at the equivalent of 50Pa load otherwise not possible without additional test.	Additional test to include the minimum dimension of framing element
A.4.19 Framing elements of leaf or panel	Change of species	≥	>=<	Possible to change species for other solid timber of the same or higher density timber only otherwise not possible without additional test	
A.4.20 Framing elements of leaf or panel	Change of material	>=<	>=<	Not possible	Additional test to include the required material
A.4.21 Jointing technique of internal leaf or panel framing	Alternative	>=<	>=<	Possible for S _a . Possible for S _m providing the stiffness of the leaf is not reduced such that the resulting leaf will not distort more than the original leaf at the equivalent of 50Pa load otherwise not possible without additional test.	The required jointing method & detail shall be tested.

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.4.22 Threshold at the bottom of the door set – See Figure A.8	Add	≥	>=<	Possible for S _a .	The required threshold detail shall be tested.
				Possible for S _m providing the tested bottom sealing system is maintained or replaced by the sealing system tested at the upper edges of the door leaf otherwise not possible without additional testing.	
A.4.23 Threshold at the bottom of the doorset	Remove	=	≤	Possible for S _a	The required threshold detail shall be tested.
				Not possible for S _m	
A.4.24 Decorative leaf or panel edge detail – see Figure A.9	Shape	>=<	>=<	Possible providing the alternative shape doesn't interfere with the sealing system otherwise not possible without additional testing	The required edge detail shall be tested.
A.4.25 Dimension of smoke seals (fitted in leaf or frame)	Increase	>=<	>=<	Possible up to a maximum of 25% in any cross sectional dimension providing the same material and the same manufacturer otherwise not possible without an additional test	Additional test to include maximum size of seals
A.4.26 Dimension of smoke seals (fitted in leaf or frame)	Decrease	>	>	Not possible	Test to include minimum size of seals
A.4.27 Type of smoke seals (fitted in leaf or frame)	Change of supplier/manufacturer	>=<	>=<	Possible if the composition, material, size and shape is identical otherwise not possible without an additional test	Further test to include the required seal supplier/manufacturer's seal
A.4.28 Type of smoke seals (fitted in leaf or frame)	Alternative material	>=<	>=<	Not possible	Further test to include the required seal supplier/manufacturer's seal

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.5 Decorative and / or protective finishes					
A.5.1 Decorative laminates on the face of the leaf, panel or frame	Add	=	>=<	Possible for S _a	Additional test to include the required decorative laminate
				Possible for S _m for laminates and veneers up to 1.5mm thick otherwise not possible without an additional test	
A.5.2 Decorative laminates on the face of the leaf, panel or frame	Remove	>=<	>=<	Possible for S _a for laminates and timber veneers up to 1.5mm thick and possible for S _m for timber veneers up to 1.5mm thick otherwise not possible without an additional test	Additional test to include the required decorative laminate
A.5.5 Types of decorative laminates on the face of the leaf, panel or frame	Change material	=	>=<	Possible for S _a	Additional test to include the required decorative laminate
				Possible for S _m for laminates and veneers up to 1.5mm thick otherwise not possible without an additional test	
A.5.6 Decorative laminates on the edges (on leaf, panel or frame)	Change material/species	≥	≥	Possible providing the sealing system is unaffected otherwise not possible without an additional test	Additional test to include the required change to sealing system
A.5.11 Protective plates – face fixed (kick plates / push plates / protective plates) on leaf or panel	Recessed to unrecessed	>=<	>=<	Possible providing the sealing system is unaffected otherwise not possible without an additional test	Additional test to include the required change to sealing system
A.5.12 Protective metal plates – face fixed (kick plates / push plates / protective plates) on leaf or panel	Unrecessed to recessed	>=<	>=<	Possible for plates up to 1.5mm thick providing the sealing system is unaffected otherwise not possible without an additional test	Additional test to include the required change to sealing system

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
A.5.13 Protective plates – including kick plates / push plates / protective plates / protective composites and plastic elements, face fixed on leaf or panel – see Figure A.10	Add	≥	>=<	Possible for S _a Possible for S _m providing no thicker than 1.5mm or, if thicker than 1.5mm, limited to one piece up to 800 mm from the base of the leaf or limited to maximum two pieces per face at 250 mm in width or height and providing the sealing system is unaffected otherwise not possible without an additional test.	Additional test to include the required change to sealing system and/or the plate configuration
A.5.14 Protective plates – including kick plates / push plates / protective plates / protective composites and plastic elements, face fixed on leaf or panel	Remove	>=<	>=<	Possible providing the sealing system is unaffected otherwise not possible without an additional test	Additional test to include the required change to sealing system
A.5.15 Protective plates – including kick plates / push plates / protective plates / protective composites and plastic elements, face fixed on leaf or panel	Change material	>=<	>=<	Possible for S _a providing the sealing system is unaffected otherwise not possible without an additional test Also possible for S _m providing the melting point is higher than 200°C and providing the sealing system is unaffected otherwise not possible without an additional test	Additional test to include the required change to sealing system and the alternative material
A.5.16 Attachment technique of protective plates (as described above) on leaf or panel	Alternative (adhesive / screw)	=	=	Possible	
A.5.17 Mouldings (on the face of the leaf or panel)	Add	=	=	Possible	
A.5.18 Mouldings (on the face of the leaf or panel)	Remove	=	=	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)	
		S_a	S_m			
B. Door Frame B.1. General						
B1.1	Position of an access door above floor level	Alternative	=	=	Possible	
B1.2	Position of door frame within the thickness of the supporting construction	Alternative	>=<	>=<	Possible providing the door frame does not project beyond the face of the supporting construction more than tested otherwise not possible without an additional test	Additional evidence to include door frame at required position
B.2 Materials and constructions						
B.2.1	External Dimensions	Increase	>=<	>=<	Possible providing the rebate depth is maintained otherwise not possible without an additional test	Additional test to include door frame with required rebate
B.2.2	External Dimensions	Decrease	>=<	≤	Possible for S_a providing the rebate depth is maintained otherwise not possible without an additional test Not possible for S_m without an additional test	Additional evidence to include door frame at required dimensions
B.2.4	Type of frame material (steel)	Mild to stainless	≥	≥	Possible	
B.2.5	Type of frame material (steel)	Stainless to mild	≥	≥	Possible	
B.2.6	Type of frame material	Interchange material (timber and steel)	>=<	>=<	Possible for timber doors S_a and S_m to change from steel frame to timber frame or frame made of timber based materials otherwise not possible	Additional test shall provide evidence of each configuration e.g. double leaf, double acting etc, with each type of frame material.
B.2.7	Thickness of steel	Increase	≥	≥	Possible	
B.2.8	Thickness of steel	Decrease	≥	>=<	Possible for S_a	
					Not possible for S_m without an additional test	Additional evidence to include door frame at minimum thickness

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S_a	S_m		
B.2.9 Type of infill material (in steel frame)	Alternative material	=	>=<	Possible for S_a where seal to supporting construction is unchanged otherwise not possible without an additional test Not possible for S_m without an additional test where less dense material is required	Additional evidence to include door frame with required density material
B.2.11 Assembling technique for metallic frame members	alternative (welding / riveting / screwing / tenoned)	>=<	>=<	Possible to interchange between techniques	
B.3 Protection					
B.3.1 Protection of frame members – see Figure A.11	Add	>=<	>=<	Possible providing the protection does not interfere with the smoke seal otherwise without an additional test	Additional test to include the required frame member detail
B.3.2 Protection of frame members	Remove	≥	≥	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)	
		S _a	S _m			
C. Building hardware						
C.1 General						
NOTE It is a requirement of this document that all items of building hardware are in accordance with the relevant technical specification and that the door assembly onto which the building hardware will be fitted is appropriate to that class of use. When considering a change in a parameter of building hardware, the effect on the durability of self-closing shall be considered.						
C.1.1	Latches / locks and strike plates	Alternative	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without additional test	Additional test to include the required hardware item
C.1.2	Strike plates for metallic frames	Add / remove	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without additional test	Additional test to include the required hardware item
C.1.3	Number of latches / locks and strike plates	Increase	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without additional test	Additional test to include the required hardware item
C.1.4	Number of latches / locks and strike plates	Decrease	≤	≤	Not possible for S _a and S _m without an additional full size test unless originally tested with the latch bolt(s) withdrawn	Additional test to include the required number of latches
C.1.5	Position of lock assembly – single element - see Figure A.12	Alternative	>=<	>=<	Possible by 200mm in each direction providing the hardware does not interfere with the smoke seal more than tested	Additional test to include the required positioning
C.1.6	Position of latches / locks and strike plates – multi-point locks	Alternative	≥	>=<	Possible for S _a providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without an additional test. Not possible for S _m without an additional full size test unless originally tested with the latch bolt(s) withdrawn otherwise not possible without additional test.	Additional test to include the required positioning of locks
C.1.7	Strike plates	Alternative	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested	Additional test to include the required hardware item

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S_a	S_m		
C.1.10 Bolts (flush, morticed, internal and surface mounted)	Add	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested	Test to include the required internal lock assembly
C.1.11 Bolts (flush, morticed, internal and surface mounted)	Remove	≥	>=<	Possible for S_a .	
				Not possible for S_m without an additional full size test unless originally tested with the latch bolt(s) withdrawn.	Test to include the required internal lock assembly
C.1.12 Bolts (flush, morticed, internal and surface mounted)	Alternative	≥	>=<	Possible for S_a .	
				Not possible for S_m without an additional full size test unless originally tested with the latch bolt(s) withdrawn.	Test to include the required bolt assembly
C.1.13 Size of leaf cut-out for through items	Increase/decrease	>=<	>=<	Possible to decrease the size but not increase the size otherwise test is required	Test to include the largest size of the hole cut through the leaf
C.1.14 Function of latches / locks (e.g. From normal use to panic use or vice versa)	Alternatives	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested	Additional test can be single or double leaf doorset.
C.1.15 Door handles, push pads and emergency exit devices to EN 179	Add	>=<	>=<	Possible to add face mounted elements only with any break through being limited to screw fixings and their covering otherwise further test is required	Further test is to include the required elements.
C.1.16 Door handles, push pads and emergency exit devices to EN 179	Remove	>=<	>=<	Possible but the lock assembly has to remain as tested and providing the removal does not expose any areas of potential weakness beneath the element. The removal of the building hardware shall not result in less restraint on the door leaves. Otherwise not possible without an additional test.	Further test is to include the required elements.

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S_a	S_m		
C.1.17 Panic devices (to EN 1125)	Add	≥	≥	Possible to add face mounted elements only with any break through being limited to screw fixings and their covering otherwise further test is required	Further test is to include the required elements.
C.1.18 Panic devices (to EN 1125)	Remove	≥	≥	Possible but the lock assembly has to remain as tested and providing the removal does not expose any areas of potential weakness beneath the element. The removal of the building hardware shall not result in less restraint on the door leaves. Otherwise not possible without an additional test.	Further test is to include the required elements.
C.1.19 Dimension of hinges	Increase	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested. Otherwise not possible without an additional test.	Further test is to include the required elements.
C.1.20 Dimension of hinges	Decrease	≥	≥	Possible	
C.1.21 Hinge fixing type	Alternative	=	=	Possible	
C.1.22 Dimension of dog bolts	Increase	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested. Otherwise not possible without an additional test.	Further test is to include the required elements
C.1.23 Dimension of dog bolts	Decrease	≥	≥	Possible	
C.1.24 Number of hinges/dog bolts	Increase	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested. Otherwise not possible without an additional test.	
C.1.25 Number of hinges/dog bolts	Decrease	≥	>=<	Possible for s_a .	
				Not possible for S_m without an additional test	Additional test to include the required number of dog bolts
C.1.26 Hinges / dog bolts of the same type	Change of manufacturer type	=	=	Possible providing the hardware does not interfere with the smoke seal more than tested; otherwise not possible without an additional test	Additional test to include the required manufacturer of hinges/ dog bolts

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
C.1.27 Type of hinges	Alternative material	≥	>=<	Possible for S _a .	Further test is to include the required hinges.
				Possible for S _m without an additional test if hinge unless the components have softening point lower than 200°C otherwise not possible without an additional test	
C.1.28 Type of hinges	Alternative type	>=<	>=<	Possible providing the hinge does not interfere with the sealing system more than tested otherwise not possible without an additional test	Further test is to include the required hinges.
C.1.29 Single axis spring hinges	Change from single axis spring hinge to single axis hinge	>=<	>=<	Possible, provided a previously proven closing device is added and providing the hinge does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Further test is to include the required hinges.
C.1.30 Single axis spring hinges	Change of type from a Single axis hinge to a single axis spring hinge	>=<	>=<	Possible if the spring hinge is successfully tested to EN 1634-1 on a comparable doorset or evaluated against EN 1634-2 and providing the hinge does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Further test is to include the required hinges.
C.1.31 Single axis spring hinges	Addition or exchange of single axis spring hinge of identical design.	>=<	>=<	Possible if the spring hinge is successfully tested to EN 1634-1 on a comparable doorset or evaluated against EN 1634-2 and providing the hinge does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Further test is to include the required hinges.
C.1.32 Distance from top of upper hinge to top of door	Increase	≥	≤	For S _a , possible.	Further test is to include the required positioning of the top hinge.
				Possible for S _m doors subject to a maximum variation of 100 mm.	
C.1.33 Distance from top hinge to top of door	Decrease	≥	≥	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
C.1.34 Distance from bottom of lower hinge to bottom of door	Increase	=	≤	For S _a , possible	Further test is to include the required positioning of the hinge.
				Possible for S _m doors subject to a maximum variation of 100 mm	
C.1.35 Distance from bottom hinge to bottom of door	Decrease	≥	≥	Possible	
C.1.36 Position of intermediate movement restrictors (i.e. hinges or dog bolts) – see Figure A.14	Variation	=	>=<	For S _a , possible	Further test is to include the required positioning of the movement restrictor.
				Possible for S _m doors subject to a maximum variation of 100 mm unless originally tested with the movement restrictor withdrawn.	
C.1.37 Door closer positioning on face of doorset	Alternative side	=	=	Possible	
C.1.38 Concealed door closer positioning in the head/frame of doorset	Change position or product	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Additional test to include the specific closer required
C.1.39 Door closer (leaf or frame mounted)	Exchange concealed for face fixed	>=<	>=<	Possible providing door leaf/frame is 'made good' otherwise not possible without an additional test	Additional test to include the specific detail required
C.1.40 Door closer (leaf or frame mounted)	Exchange face fixed for concealed	≤	≤	Not possible without an additional test	Additional test to include the specific closer required
C.1.41 Door closer of the same type	Change of manufacturer / alternative	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without an additional test	
C.1.42 Floor/transom mounted closing devices/pivots with single action accessories (shoe & top centre)	Exchange from hinges	>=<	>=<	Not possible without an additional test	Additional test to include the specific closer and accessories and doorset configuration

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
C.1.43 Floor/transom mounted closing devices/pivots with single action accessories (shoe & top centre)	Exchange to hinges	>=<	>=<	Not possible without an additional test	Additional test to include the specific closer and accessories and doorset configuration
C.1.44 Power cable and protective conduits for electric locks (door or frame) – see Figure A.15	Add	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Additional test to include the specific parameter variation
C.1.46 Key tubes	Add	>=<	>=<	Not possible without specific test evidence	Additional test to include the specific key tube required
C.1.47 Alarm contacts and proximity switches	Additional/alternative	>=<	>=<	Possible providing the hardware does not interfere with the smoke seal more than tested otherwise not possible without an additional test.	Additional test to include the specific parameter variation
C.1.48 Door signs	Additional	≥	≥	Possible	
C.1.49 Threshold seal	Add	≥	≥	Possible providing the seal to be added does not interfere with the smoke seal more than tested otherwise not possible without an additional test	Further test to include the door leaf with the required seal
C.1.50 Threshold seal	Remove	≤	≤	Possible for S _a doors. Not possible for S _m doors without specific test evidence.	Further test to include the door leaf without a seal
C.1.51 Threshold seal	Alternative type	≤	≤	Possible for S _a doors. Not possible for S _m doors without specific test evidence.	Further test to include the required seal
D Side / transom panels and flush over panels					
D.1. Panel arrangements					
D.1.1 Side / transom panel arrangement	Variation of tested arrangement	>=<	>=<	A successful test on a construction indicated by a figure in Annex B would allow the variations indicated in subsequent figures in Annex B and also Figures B.6 and B.7 in double leaf configuration following a B.1 and/or B.2 tested configuration. The above assumes the fixing/retention method of the paneling system is retained otherwise specific test is required.	Specific test needed on required panel arrangement

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
E Glazing for door leaf or side /over panels					
E.1 General					
E.1.1 Glazed panel	Add	>=<	>=<	Not possible without specific test evidence	Further test to include the door leaf with the required type/size of glazed panel
E.1.2 Glazed panel	Remove	>	>	Possible	
E.1.3 Thickness of glass	Increase	>=<	>=<	Possible for S _a doors subject to evidence on the sealing system's suitability in a S _a door. Possible for S _m doors subject to evidence on the sealing system's suitability in a S _m door and subject to test evidence on the performance of the glass at 200°C showing that it doesn't break or fracture otherwise not possible without specific test evidence.	Further test to include the door leaf with the required thickness of glazed panel
E.1.4 Thickness of glass	Decrease	>=<	>=<	Possible for S _a doors subject to evidence on the sealing system's suitability in a S _a door. Possible for S _m doors subject to evidence on the sealing system's suitability in a S _m door and subject to test evidence on the performance of the glass at 200°C showing that it doesn't break or fracture otherwise not possible without specific test evidence.	Further test to include the door leaf with the required thickness of glazed panel
E.1.5 Dimensions of each pane – see Figure A.16	Increase	≤	≤	Not possible	Further test to include the door leaf with the required size of glazed panel

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
E.1.6 Dimensions of each pane – see Figure A.17	Decrease	=	=	Possible to decrease the size.	Technical requirement is a test on a doorset without glazing
E.1.7 Type of glass	Change of manufacturer and/or glass type	=	>=<	For S _a , possible.	
				Possible for S _m if the glass is fire resistant or will not fracture at temperatures less than 200°C otherwise not possible without an additional test.	Further test to include the door leaf with the required type of glazed panel
E.1.8 Materials and/or geometry of edge fixing technique including seals (with the same glass)	Alternative	≤	≤	Not possible without an additional test	Further test to include the door leaf with the required type of glazed panel
E.1.9 Type/position of glazing bead fixings	Alternative	≤	≤	Not possible without an additional test	Further test to include the door leaf with the required type of glazed panel
E.1.10 Shape of glazing - see Figure A.18	Alternative	>=<	>=<	Possible providing the edge fixing detail is the same and the new shape is within the area of the tested glass otherwise not possible without an additional test	Further test to include the door leaf with the required type of glazed panel
E.1.11 Number of glazed apertures – see Figure A.19	Increase	>=<	>=<	Possible for S _a providing the air leakage rate is calculated proportionately otherwise not possible without an additional test. Not possible S _m without specific test evidence.	Further test to include the door leaf with the required type/size of glazed panel
E.1.12 Number of glazed apertures	Decrease	>	>	Possible up to 50% increase of the tested gap for S _a and S _m doors if the sealing system remains the same otherwise not possible without an additional test	
E.1.13 Distance between the edge of glazing and the perimeter of the door leaf / panel	Increase	=	=	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
E.1.14 Smallest tested distance between the edge of glazing and the perimeter of the door leaf / panel	Decrease	=	≤	Possible for S _a For S _m , not possible without an additional test	Further test to include the required minimum dimensions between glazing panel and leaf edge
E.1.15 Distance between glazed apertures	Increase	=	>	Possible	
E.1.16 Smallest tested distance between glazed apertures - see Figure A.20	Decrease	=	<	Possible for S _a Not possible for S _m without an additional test.	Further test to include the required minimum dimensions between glazing panels
F Supporting construction and attachment (technique) of door frame or side / over panels					
F.1 General					
F.1.1 Supporting construction	Flexible to rigid	=	=	Possible	
F.1.2 Supporting construction	Rigid to flexible	=	=	Possible	
F.1.3 Type of fixings	Alternative type and/or manufacturer	=	=	Possible	
F.1.4 Number and size of fixings	increase	=	=	Possible	
F.1.5 Number and size of fixings	Decrease	=	=	Possible	
F.1.6 Distance between fixings	Increase	=	=	Possible	

Construction Parameter (1)	Variation (2)	Influence of variation on performance characteristic (3)		Possibility of extension (4)	Additional Evidence Required (5)
		S _a	S _m		
F.1.7 Distance between fixings	Decrease	=	=	Possible	
F.1.8 Fixing to floor	Cleated to sunk	=	=	Possible	
F.1.9 Fixing to floor	Sunk to cleated	=	=	Possible	
F.1.10 Gap between door leaf and floor	Increase	=	>=<	Possible for S _a	
				Not possible without specific test	Test to include maximum required threshold gap
F.1.11 Gap between door leaf and floor	Decrease	=	>=<	Possible for S _a	
				Possible for S _m if tested sealing system can be maintained otherwise not possible without specific test	Test to include required threshold gap and sealing system
F.1.12 Gap between door frame and wall	Increase	>=<	>=<	Not possible without specific test	Test to include maximum required frame to wall gap
F.1.13 Gap between door frame and wall	Decrease	>=<	>=<	Possible providing sealing method remains as tested otherwise not possible without an additional test	Test to include maximum required frame to wall gap sealing method
F.1.14 Sealing of the gap between door frame and wall	Alternative seal	>=<	>=<	Alternative type is possible providing the sealing system has been successfully tested in the same condition. The seal cannot be removed otherwise not possible without an additional test.	Test to include maximum required frame to wall gap sealing method

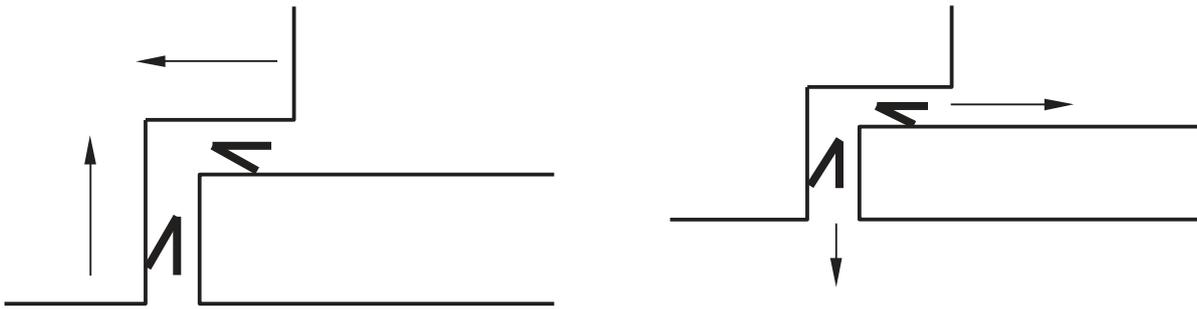


Figure A.1 – Smoke seals (fitted at leaf to interface) Figure A.2 – Smoke seals (fitted at leaf to frame frame interface)

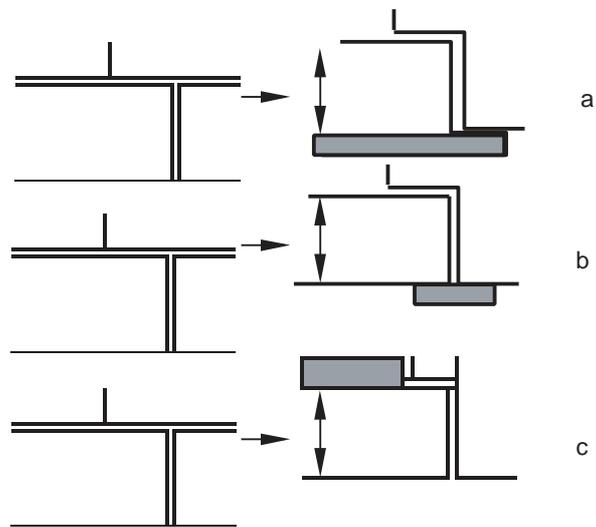
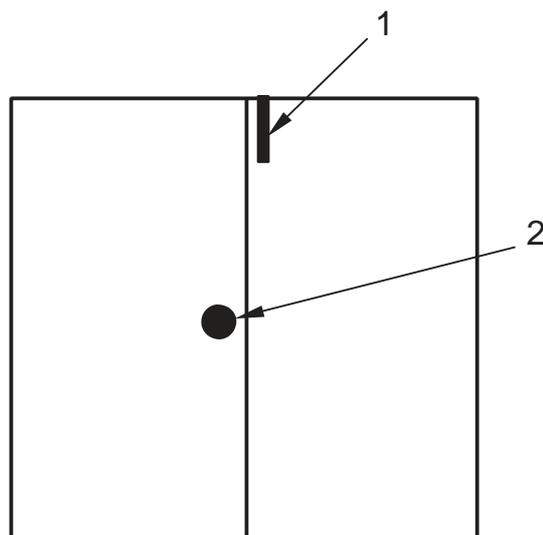


Figure A.4 – Leaf edge rebate (to door leaf or panel – not at the meeting edges)



Key

- 1 = Bolt
- 2 = Latch

Figure A.5 – Latched condition for double leaf doorsets

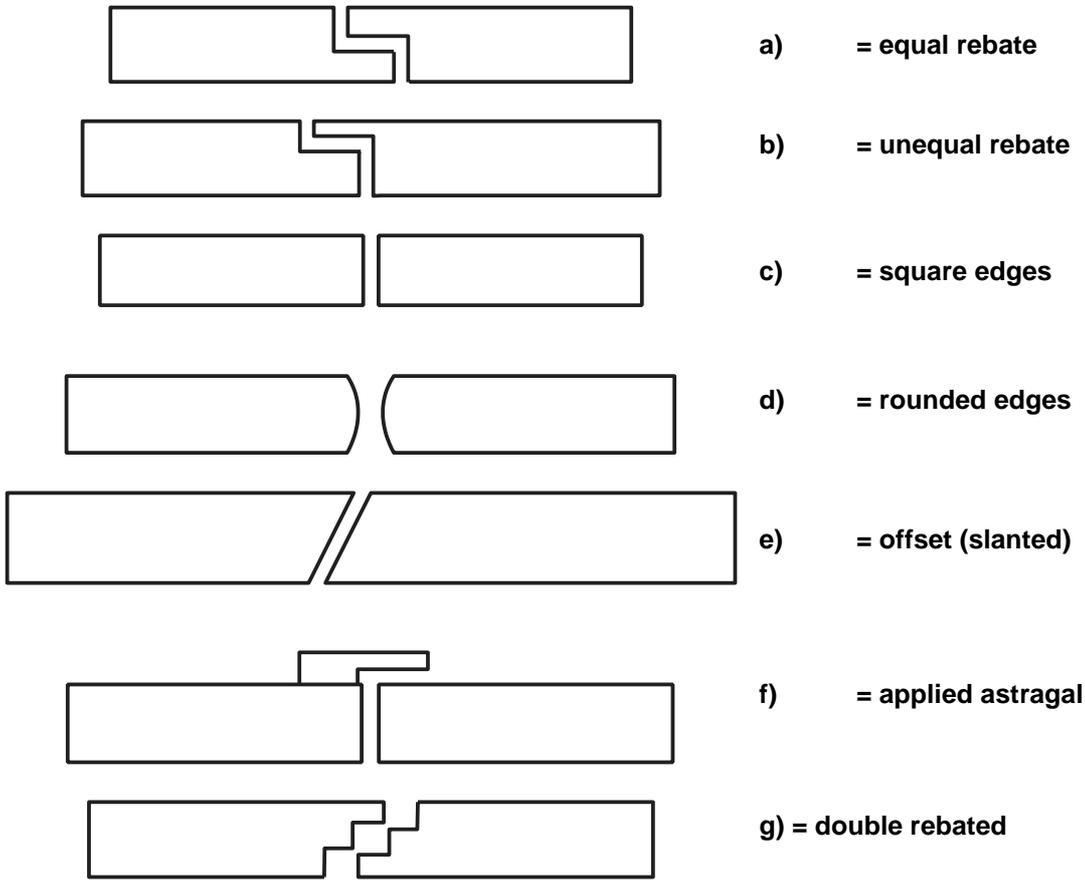


Figure A.6 – Meeting edge details

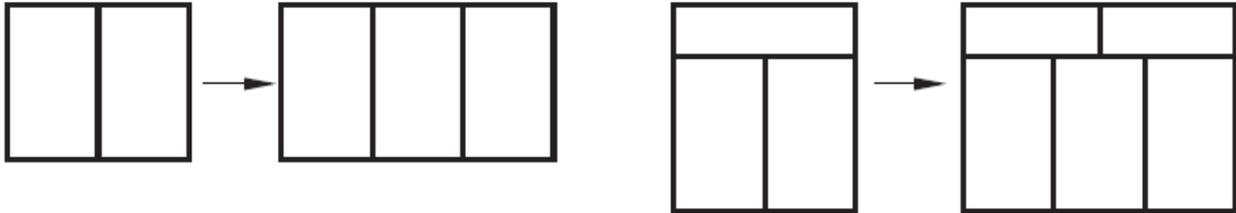


Figure A.7 – Pattern of core material of leaf or panel (2 examples shown)

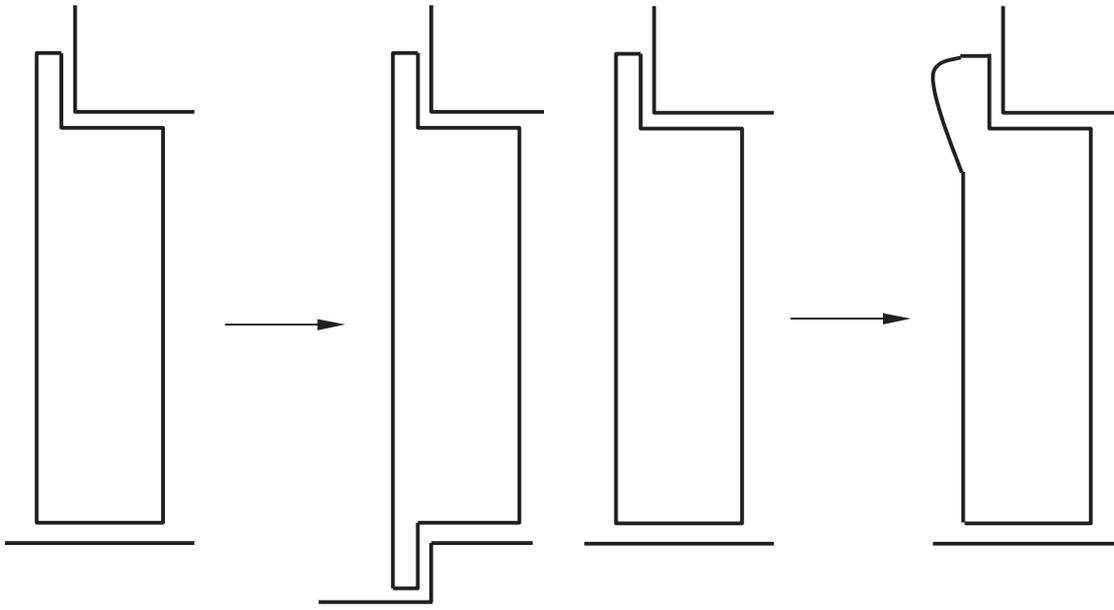


Figure A.8 – Timber threshold at the bottom of the door leaf or panel

Figure A.9 – Decorative leaf or panel edge details (example only)

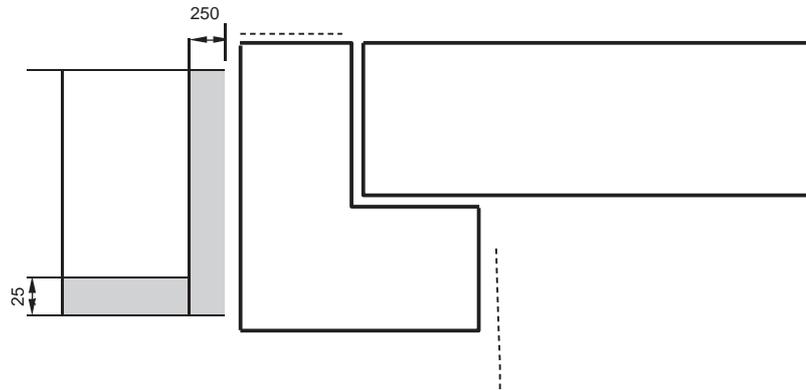
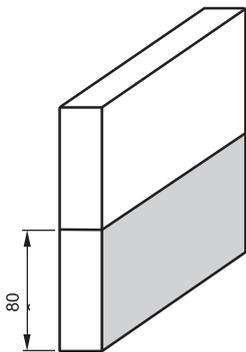


Figure A.10 – Protective plates

Figure A.11 – Protection of frame members

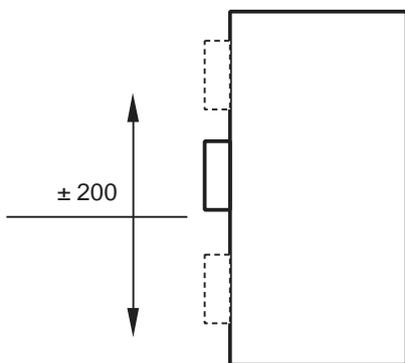


Figure A.12 – Position of lock assembly

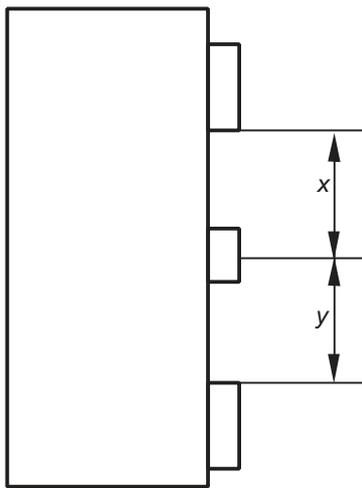


Figure A.14 – Position of intermediate movement restrictors (i.e. hinges or dog bolts)

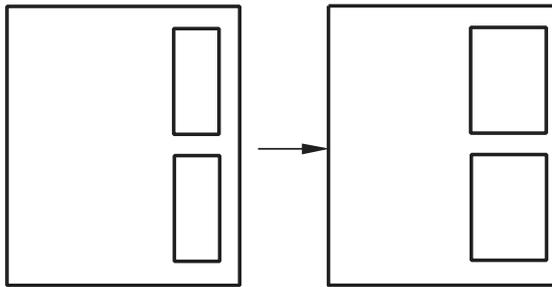


Figure A.16 – Dimensions of each pane

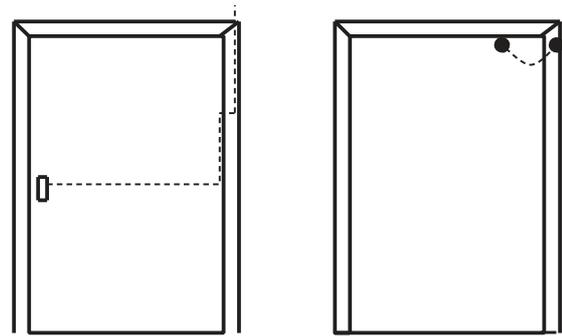


Figure A.15 – Power cable and protective conduits for electric locks (door or frame)

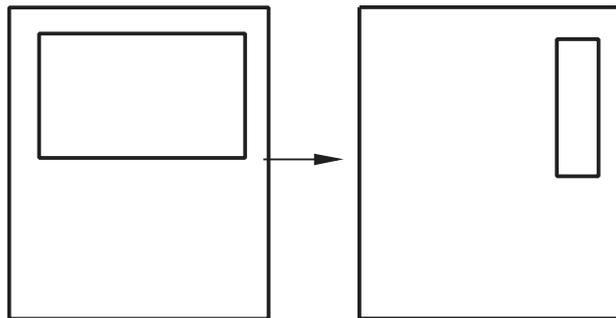
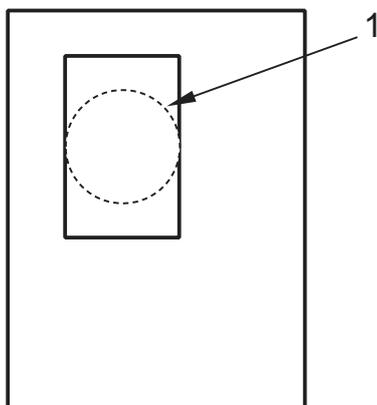


Figure A.17 – Dimensions of each pane



KEY
1 = eg

Figure A.18 – Shape of glazing

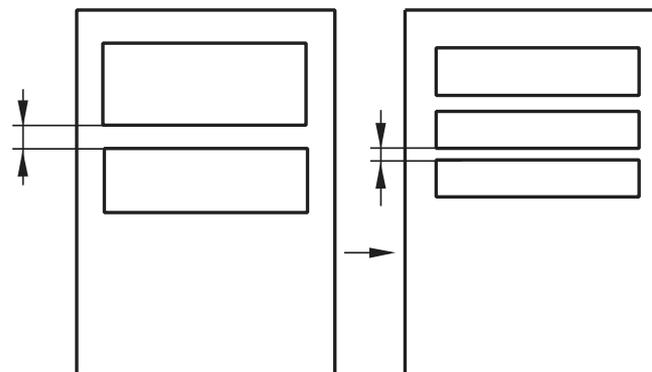


Figure A.19 – Number of glazed apertures

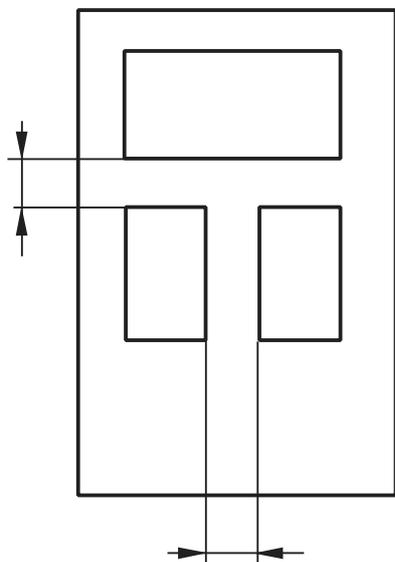


Figure A.20 – Distance between glazed apertures

B6. Arrangements for doorsets incorporating side and/or overpanels

A successful test on the configuration shown below in Figure B.1 will cover the variations shown in Figures B.2 to B.7 by reference to Annex A, Section D.

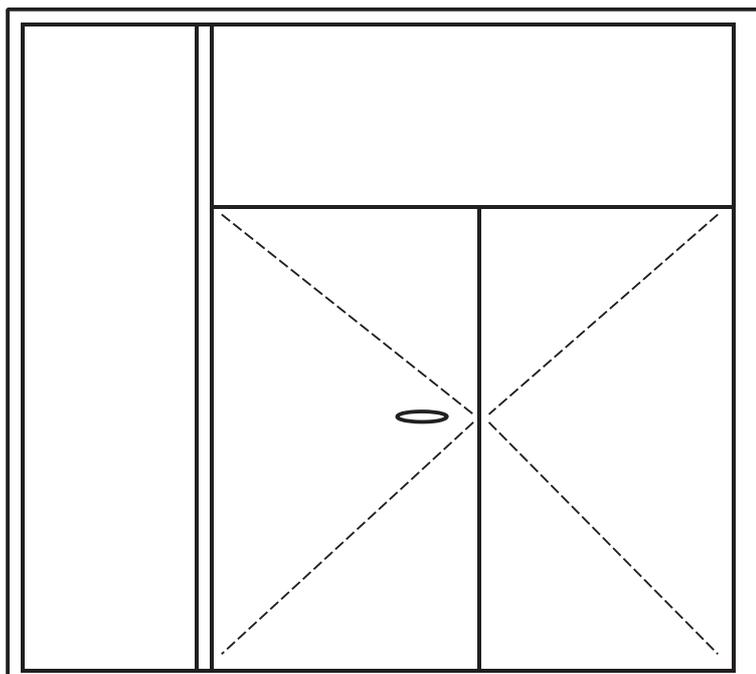


Figure B.1 – Arrangement to test for double leaf configurations without a transom member

A successful test on the configuration shown below in Figure B.2 will cover the variations shown in Figures B.3 to B.7 by reference to Annex A, Section D.

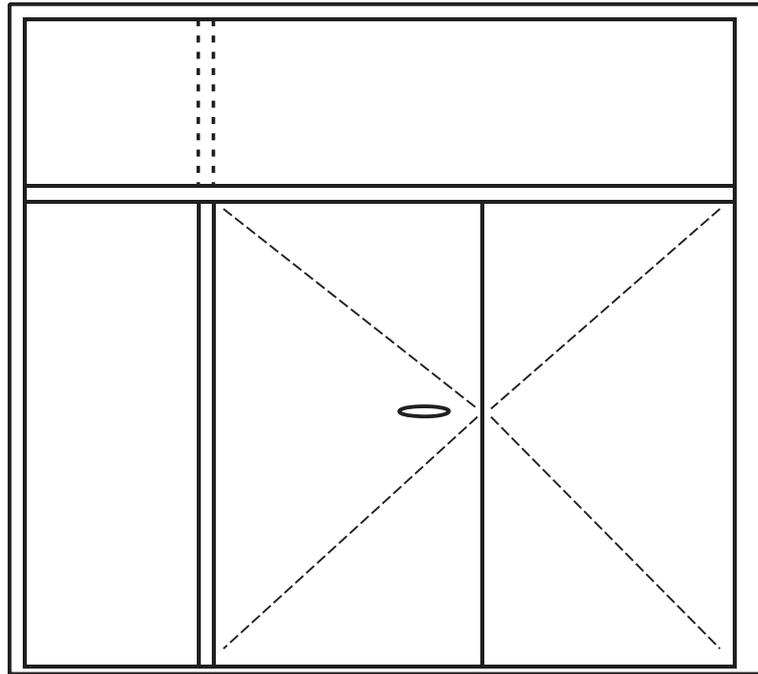


Figure B.2 – Arrangement to test for double leaf configurations with a transom member
A successful test on the configuration shown below in Figure B.3 will cover the variations shown in Figures B.4 to B.7 by reference to Annex A, Section D.

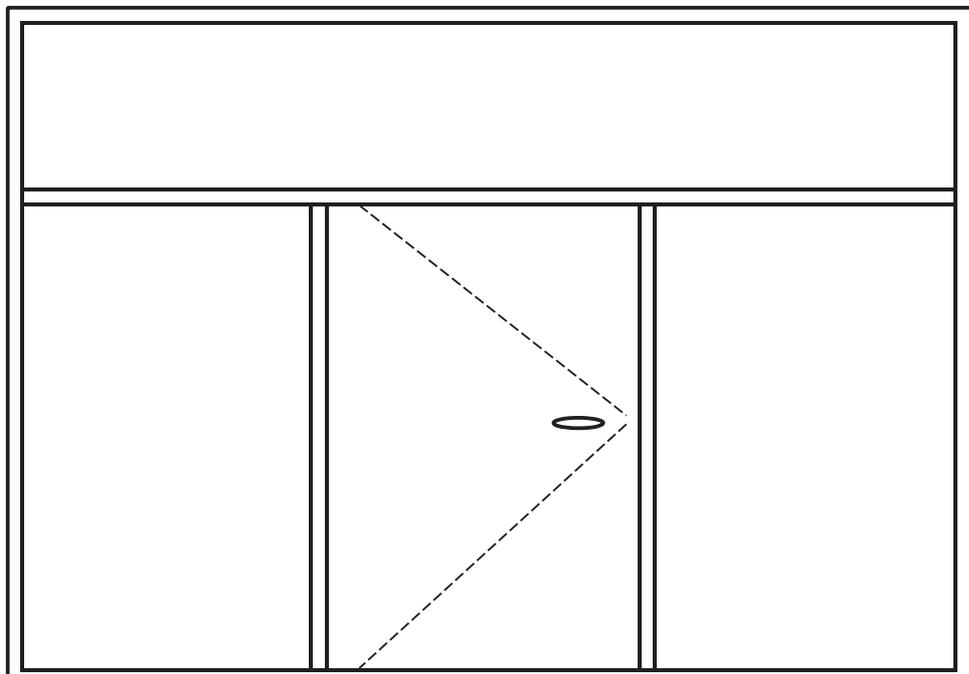


Figure B.3 - A successful test on the configuration shown below in Figure B.4 or B.5 will cover the variations shown in Figures B.6 and BB.7 by reference to Annex A, Section D. 31

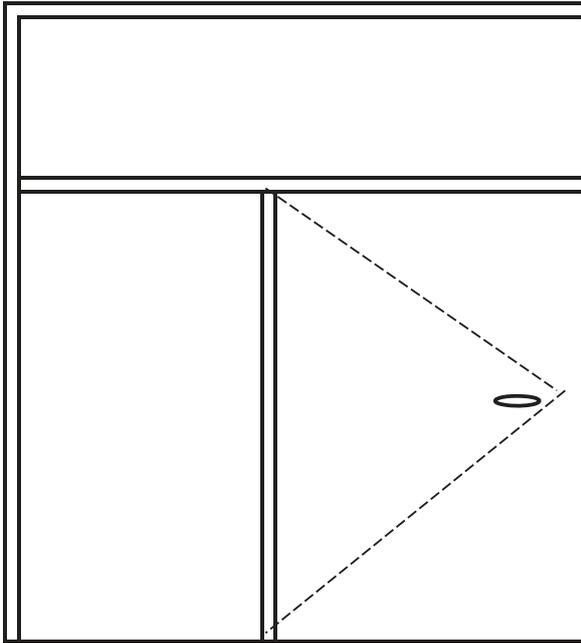


Figure B.4

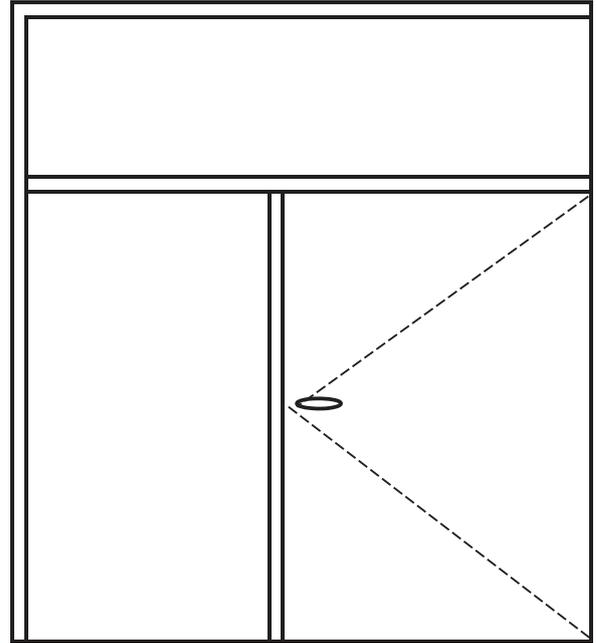


Figure B.5

A successful test on the configuration shown below in Figure B.6 will cover the variation shown in Figure B.7 by reference to Annex A, Section D.

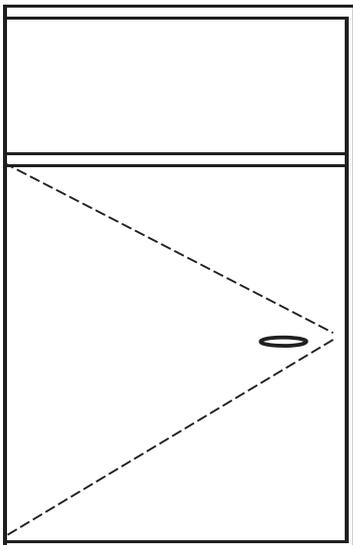


Figure B.6

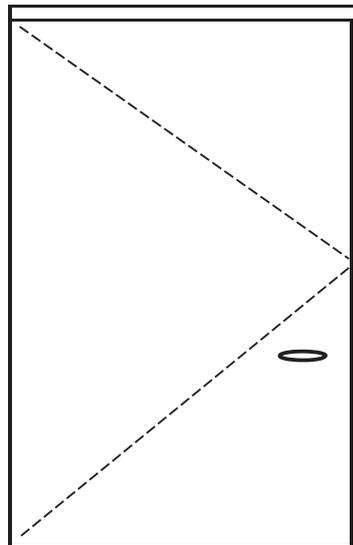


Figure B.7

Annex C – Extended application permanent function

C1. General

Annex C covers single and double leaf, hinged and pivoted, steel based doorsets covered by EN 17020-4 and prescribes the methodology for extending the application of test results obtained from durability self-closing test(s) conducted in accordance with EN 1191.

Before there can be any consideration for extended application, the doorset will need to have been tested in accordance with EN 1634-1 resp. EN 1634-3 and EN 1191 to achieve a test result which could generate a classification in accordance with EN 13501-2 at least equal to the classification subsequently required from extended application considerations.

Subject to the completion of the appropriate self-closing test or tests, the extended application may cover all or some of the following examples:

- doorsets
- door leaf
- side, transom and/or overpanels
- wall/ceiling fixed elements (frame/suspension system)
- glazing for door leaf, side, transom and flush over panels
- items of building hardware
- decorative finishes
- intumescent, smoke, draught or acoustic seals
- alternative supporting construction(s).

C2. Determination of the field of extended application

Before there can be any consideration for extended application the doorset shall have been tested and classified in accordance with EN 1191 and EN 13501-2 in order to establish a classification for the doorset. Before the extended application process can be applied on a construction parameter variation it shall be ensured that the varied doorset is able to self-close without restraint at least once.

A review of the doorset construction parameters can indicate that one or more characteristics may be improved by a particular parameter variation. All evaluations shall be made on the basis of retaining the classifications obtainable from testing to EN 1191, including those with a lower number of opening and closing cycles. However, this shall never lead to an increased classification for any specific parameter beyond that achieved during any one test unless specifically identified in the relevant Construction Parameter Variation tables.

All evaluations shall be made on the basis of retaining the classification obtained from testing to EN 16341 or EN 1634-3.

If, when following the extended application procedure, any Part of the classified product cannot be covered by the extended application rules, that Part shall be omitted from the subsequent extended application report and classification report.

Identify the variations from the original test specimen(s) which are required to be covered by an extended application report.

Locate the variations in the appropriate parameter variation by reference to columns (1) and (2) of table A.

Establish from the contents of column (4) of table A whether any extended application is available without the need for further testing.

Where this is deemed to be possible this can be recorded in the extended application report together with any appropriate restrictions and the stated rules from column (4) in table A.

Where the variations required can only be achieved from additional testing according to column (5), the additional test can be made on a similar specimen type to the original test against which the extended application is sought. Alternatively, column (5) in table A identifies an option for alternative testing and relevant test parameters.

C3. Procedure for maximum field of extended application

It is possible to provide a limited field of extended application from the results of a single test. However, where a manufacturer intends to produce a range of doors incorporating single doors and also double doors with or without glazing, with alternative elements of building hardware, etc., it is recommended that careful consideration is given to the complete range of doorset designs and options in order to minimize the testing required before testing commences.

Establish all the parameter variations which are required to be Part of the product range.

Determine which are the most important specification requirements and incorporate as many as possible into the specimen(s) for the first tests in the series.

Conduct the first durability test or a series of tests and then establish which of the original desired parameter variations have not been covered by this test(s).

Identify these parameter variations in table A and establish if any extended application is possible without further testing.

Record this for the extended application report together with any restrictions and rules given in column (4) in table A.

Evaluate which, if any, of the desired parameter variations have not been covered by the initial field of extended application derived from chapter 3.

Determine if the product range is to include only single leaf doorsets or if the range is to also include double leaf configurations. Where only single doorsets are to be Part of the product range, the outstanding construction parameter variations shall only be incorporated into specimens for the single leaf doorsets. Where single leaf and double leaf doorsets are to be included in the product range, the outstanding construction parameter variations for the extended application of single leaf doorsets may be incorporated into either repeated single leaf doorset tests or, in the weakest option, as defined in column (5) of the table in table A, double leaf doorset configurations.

Select the required outstanding parameter variations from column (1) and column (2) of table A and observe from column (5) in table A which are the most appropriate weakest specimen options for further testing.

If the complete selection of required parameter variations has not been covered by the tests listed above, then an appropriate test or tests may be carried out with the additional product variations incorporated.

C4. Interpretation of test results

In order to maximize the extended field of application, it is important that the test reports shall record details of any premature integrity and/or insulation failure also record details of any distortion to evaluate low, medium and high distortion (see table A).

Where a series of tests have been conducted, the field of extended application shall be based on the lowest performance achieved from the complete series of tests unless premature failure has been attributed to one or more specific construction parameter variations.

Where it has been possible to identify specific parameter failures, the extended application for all other construction parameter variations can be based on the performance achieved after isolating the premature failure(s).

C5. Construction parameter variations

Table A below is designed to be used by experts competent in the field of fire resistance and self-closing durability testing of hinged and pivoted steel doorsets.

The table shall only be used to assess a field of extended application when at least one positive self-closing durability test to EN 1191 has generated a classification according to EN 13501-2.

The first two columns identify possible variations to the construction details of the specimen tested. It is presupposed that the variation does not restrain the door closing.

Column (4) leads to the judgement of the possibility of extending the field of application.

Where additional tests are deemed to be necessary, the type of specimen approved for incorporation of the changed parameter is defined in column (5). Where it is possible to use information from tests performed on one configuration for evidence on a different configuration, this allowance has been made in order to reduce the overall number of tests required for extended application evaluation e.g. single action doorsets to double action doorsets.

Where an additional test is required in column (5), the test is a full scale test unless otherwise specified. In order to maximize the possible field of application from a minimum number of tests, the parameter changes have been spread over a series of test specimens. The recommended tests for each parameter is depending upon the classification required and the preferred direction of testing as indicated in column (5).

Where more than a single parameter variation is required, the influence on other variations shall also be taken into account.

The following tables were taken from DIN EN 17020-4 in extracts. The structure corresponds to the norm.
Table A — Construction parameter variations

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A Door leaf				
For double leaf door sets, both leaves shall be of the same basic construction.				
A.1 General				
A.1.1 Number of leaves	Single leaf from double leaf test	=	Possible	–
A.1.2 Number of leaves	Double leaf from single leaf test	<	Not possible without additional test	Additional test double leaf doorset
A.1.3 Intumescent seals between frame and door leaf/leaves	Location towards the frame rebate	> = <	Possible	–
A.1.4 Intumescent seals between frame and door leaf/leaves	Location away from the rebate frame	> = <	Possible	–
A.1.5 Intumescent seals between meeting edges of the door leaves	Location	> = <	Possible	–
A.1.6 Non intumescent seals between frame and door leaf / leaves (draught / smoke / acoustic etc.) – (Reaction to fire class A1) e.g. ceramic products (fitted in leaf or frame).	Location	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.1.7 Non intumescent seals between meeting edges of the door leaves (draught / smoke / acoustic etc.) – (Reaction to fire class A1)	Location	> = <	Possible	–
A.1.8 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – < Reaction to fire class A1 (fitted in leaf or frame)	Location	> = <	Possible providing the deformation of the seal will not increase during movement of the door leaf/leaves otherwise not possible without an additional test	Additional test double for single and double leaf door sets or single for single leaf doorsets
A.1.9 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – (Reaction to fire class A1), e.g. ceramic products (fitted in leaf or frame)	Add	> = <	Not possible without an additional test	Additional test double for single and double leaf door sets or single for single leaf doorsets
A.1.10 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – (Reaction to fire class A1), e.g. ceramic products (fitted in leaf or frame)	Remove	=	Possible	–
A.1.11 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc.) – < Reaction to fire class A1 (fitted in leaf or frame)	Add	=	Not possible without an additional test	Additional test double for single and double leaf door sets or single for single leaf doorsets
A.1.12 Non intumescent seals between door leaves and / or frames (draught / smoke / acoustic etc. – < Reaction to fire class A1 (fitted in leaf or frame)	Remove	=	Possible	–
A.1.20 Rebate (door leaves to frames)	Add	=	Possible	–
A.1.21 Rebate (meeting edges)	Add (one rebate)	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension				Additional Evidence Required		
(1)	(2)	(3)	(4)				(5)		
A.1.22 Rebate (door leaves to frames and meeting edges)	Remove	=	Possible				–		
A.1.23 Latched condition for single and double leaf doorsets	Change in latching condition	=	Possible in line with the following relationship:				Additional test double for single and double leaf doorsets or single for single leaf doorsets.		
				tested without a latch/lock	tested with a latch/lock but unlatched	tested with a latch/lock latched			
			extension to: without a lock/latch	—	Possible	Not possible			
			extension to: with lock/latch but unlocked/unlatched	Possible	—	Not possible			
extension to: with a lock/latch, latched	Not possible	Not possible	—						
A.1.24 Latching / locking	Remove from door leaf tested with latching / locking	=	Possible				–		

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.2 Size variations				
A.2.1 Size (area, width, height)	Decrease	>	Possible	
A.2.2 Height	Increase	=	Possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.2.3 Width	Increase	> = <	Possible by a maximum of 25 % providing that the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.2.4 Area	Increase	> = <	Possible in line with A.2.2 and A.2.3 otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.3 Materials and constructions				
A.3.1 Density of infill of profile or core- material in the panel (organic or Reaction to fire class A1)	Increase	=	Possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.3.2 Density of infill of profile of core material (organic or Reaction to fire class A1)	Decrease	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.3.3 Type of infill of profile of core material (single thickness or in combination of different layers)	Change of supplier/ manufacturer of identical material with identical composition and properties	=	Possible	–
A.3.4 Type of core material (single thickness or in combination of different layers)	Alternative composition	> = <	Possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.3.5 Amount of adhesive/m2 – organic based (<Reaction to fire class A1)	Increase	=	Possible	–
A.3.6 Amount of adhesive/m2 — organic based (<Reaction to fire class A1)	Decrease	=	Possible	–
A.3.7 Amount of adhesive/m2 — inorganic based (Reaction to fire class A1)	Increase	=	Possible	–
A.3.8 Amount of adhesive/m2 — inorganic based (Reaction to fire class A1)	Decrease	=	Possible	–
A.3.9 Type of adhesive	Change of manufacturer for identical composition	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.3.10 Type of adhesive	Alternative composition	=	Possible	–
A.3.11 Additional overlapping edge at the bottom of the door leaf	Add	=	Possible	–
A.3.12 Overlapping edge at the bottom of the door leaf	Remove	=	Possible	–
A.3.14 Dimension of intumescent seals (leaf or frame fitted)	Increase	=	Possible	–
A.3.15 Dimension of intumescent seals (leaf or frame fitted)	Decrease	=	Possible	–
A.3.16 Type of intumescent seals (leaf or frame fitted)	Change of supplier/ manufacturer	=	Possible	–
A.3.17 Type of intumescent seals (leaf or frame fitted)	Alternative material	=	Possible	–
A.3.18 Dimension of draught/smoke seals (Reaction to fire class A1); e.g. ceramic products (leaf or frame fitted)	Increase	> = <	Possible up to a maximum of 15 % in any cross sectional dimension and up to a maximum of 10 % mass otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets doorset
A.3.19 Dimension of draught/smoke seals (Reaction to fire class A1); e.g. ceramic products (leaf or frame fitted)	Decrease	=	Possible	–
A.3.20 Dimension of draught/smoke seals (<Reaction to fire class A1) — leaf or frame fitted	Increase	> = <	Possible up to a maximum of 15 % in any cross sectional dimension and up to a maximum of 10 % mass otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets set

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.3.21 Dimension of draught/smoke seals (<Reaction to fire class A1) (leaf or frame fitted)	Decrease	=	Possible	–
A.3.22 Type of draught/smoke seals (leaf or frame fitted)	Change of supplier/manufacturer	=	Possible	–
A.3.23 Type of draught/smoke seals (leaf or frame fitted)	Alternative material (changing to higher Reaction to fire class)	=	Possible up to a maximum of 15 % in density otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
A.3.24 Type of draught/smoke seals (leaf or frame fitted)	Alternative material (changing to a equal or a lower Reaction to fire class)	=	Possible up to a maximum of 15 % in density otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.4 Decorative and/or protective finishes				
A.4.1 Paints without contribution to fire resistance (on leaf or frame)	Addition	=	Possible	–
A.4.2 Paints without contribution to fire resistance (on leaf or frame)	Interchange	=	Possible	–
A.4.3 Thickness of paints with positive contribution to fire resistance (on leaf or frame)	Increase	=	Possible	–
A.4.4 Thickness of paints with positive contribution to fire resistance (on leaf or frame)	Decrease	=	Possible	–
A.4.5 Type of paints with positive contribution to fire resistance (on leaf or frame)	Change of supplier/ manufacturer	=	Possible	–
A.4.6 Type of paints with positive contribution to fire resistance (on leaf or frame)	Alternative material	=	Possible	–
A.4.7 Decorative laminates and timber veneers on the face (on leaf or frame)	Add	=	Possible in line with direct application according to EN 1634–1 otherwise not possible without additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.4.8 Decorative laminates and timber veneers on the face (on leaf or frame)	Remove	=	Possible	–
A.4.12 Types and thickness of decorative laminates and timber veneers on the face (on leaf)	Change material content, increase, decrease	=	Possible	–
A.4.15 Types of decorative laminates on the leaf	Colour, pattern	=	Possible	–
A.4.16 Protective elements – face fixed (kick plates/push plates/armour plates)	Add	=	Possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.17 Protective elements – face fixed (kick plates/push plates/armour plates)	Remove	=	Possible	–
A.4.18 Attachment technique for elements added to doors	Selection (adhesive/rivet/ screw)	=	Possible	–
A.4.19 Mouldings/profiles	Add	=	possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
A.4.20 Mouldings/profiles	Remove	=	Possible	–
A.5 Profiles in door leaf				
A.5.1 Cross section of profile of the door leaf (including transoms and mullions)	Increase depth	=	possible providing the requirements of annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.5.3 Cross section of profile of the door leaf	Decrease depth	=	Possible	–
A.5.3. a Type of infill material	Change of supplier/ Manufacture of material with identical composition and properties	=	Possible	–
A.5.3. b Type of infill material	Alternative material	=	possible providing the requirements of B6 are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
A.5.3. c Thickness of infill material	Increase	=	possible providing the requirements of B6 are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
A.5.3. d Thickness of infill material	Decrease	=	Possible	–
A.5.4 Cross section of profile of the door leaf	Increase width	=	Possible	–
A.5.6 Cross section of profile of the door leaf	Decrease width	=	Possible	–
A.5.7 Thickness of the metal wall of the profile (including transoms and mullions)	Increase	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.5.8 Thickness of the metal wall of the profile	decrease	> = <	not possible without an additional test	Additional test single or double leaf doorset
A.5.10 Vertical stiles	add	=	Possible	–
A.5.11 Vertical stile	Remove	=	Possible	–
A.5.14 Position of vertical stile	Moving away from the hinges	=	Possible	–
A.5.15 Position of vertical stile	Moving to the hinge side	=	Possible	–
A.5.17 Vertical stiles	Changing the angle	> = <	Changing the angle of rails in any direction is possible if tested as in EN 15269– 5:2014, Figure A.28 Otherwise not possible without an additional test	Additional test single or double leaf doorset
A.5.18 Other changes of stiles	Bended, shaped, etc.	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.19 Shapes of door-leaf	Other than rectangular	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
A.5.20 Type of steel	Mild to stainless	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
A.5.21 Type of steel	Stainless to mild	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
B Door Frame				
B.1 General				
For intumescent/draught/smoke seals refer to section A.1				
B.1.1 Threshold/sill/frame member to bottom of door frame	Add	=	Possible	–
B.1.2 Threshold/sill/frame member to bottom of door frame	Remove	=	Possible	–
B.1.3 Height of hatch door frame above floor	Variation	=	Possible	–
B.1.4 Height of doorset above floor	Variation	=	Possible	–
B.2 Materials and constructions rules related to open profiles in perimeter frame				
B.2.1 Overall dimensions and shape	Increase	> = <	Possible providing the cross section detail at the overlap/rebate position (shown in bold in of EN 15269-5:2014, Figure A.32 is retained and / or possible to increase the overlap/rebate detail in line with the increase of the depth of the cross section of the profile of the door leaf otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.2.2 Overall dimensions and shape	Decrease	> = <	Possible providing the cross section detail at the overlap/rebate position (shown in bold in EN 15269-5:2014, Figure A.32) is retained and / or possible to decrease the overlap/rebate detail in line with the decrease of the depth of the cross section of the profile of the door leaf otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
B.2.2.a cross - section dimensions and shape	Open profile to closed profile	=	Possible if done according to EN 15269-5:2014, Figure A.34 otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.2.3 Type of infill material	Change of supplier/manufacturer of material with identical composition and properties	=	Possible	–
B.2.4 Type of infill material – see Table B.2.4	Alternative material	=	Possible providing tested without any infill material otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.2.5 Thickness of metal	Increase	=	Possible	–
B.2.6 Thickness of metal	Decrease	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.2.7 Type of metal	Change of basic material (e.g. Alu ↔ Steel)	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.2.8 Type of metal	Mild to stainless	=	Possible	–
B.2.9 Type of metal	Stainless to mild	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
B.3 Materials and constructions; rules related to closed profiles in perimeter of doorset (=frame)				
B.3.1 cross - section dimensions and shape	Increase depth and/or width	> = <	Possible providing the cross section detail at the overlap/rebate position (shown in bold in EN 15269-5:2014, Figure A.24) is retained and / or possible to increase the overlap/rebate detail in line with the increase of the depth of the cross section of the profile of the door leaf otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.3.2 cross - section dimensions and shape	Decrease depth and/or width	> = <	Possible providing the cross section detail at the overlap/rebate position (shown in bold in EN 15269-5:2014, Figure A.24) is retained and / or possible to decrease the overlap/rebate detail in line with the decrease of the depth of the cross section of the profile of the door leaf otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.3.3 cross - section dimensions and shape	Closed profile to open profile	> = <	Not possible without additional test	Additional test can be single or double leaf doorset with glazing bead in fire side
B.3.4 Extra profile	Add	=	Possible	–
B.3.5 Extra profile	Remove	=	Possible	–
B.3.6 Extra profile	Increase width	=	Possible	–
B.3.7 Extra profile	Decrease width	=	Possible	–
B.3.8 Type of steel	Mild to stainless	=	Possible	–
B.3.9 Type of steel	Stainless to mild	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
B.4 Vertical and horizontal mullions in side- and top-lights, excluding perimeter-profiles (perimeter profiles are addressed in the rules B.2.1. until B.3.9).				
B.4.1 Cross section of profile	Increase depth	=	Possible	–
B.4.2 Cross section of profile	Decrease depth	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.4.3.a Type of Infill material	Change of supplier/ manufacture of material with identical composition and properties	=	Possible	–
B.4.3.b Type of Infill material	Alternative material	=	possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
B.4.3.c Thickness of Infill material	Increase	=	possible providing the requirements of Annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
B.4.3.d Thickness of Infill material	Decrease	=	Possible	–
B.4.5 Cross section of profile of the side or toplight	Increase width	=	Possible	–
B.4.6 Cross section of profile of side or toplight	Decrease width	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
B.4.6 Cross section of profile of side or toplight	Decrease width	> = <	not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
B.4.7 Thickness of the metal wall of the profile	Increase	=	Possible	–
B.4.8 Thickness of the metal wall of the profile	Decrease	> = <	not possible without an additional test	Additional test single or double leaf doorset
B.4.9 Horizontal and vertical mullions in each <u>sidelight</u>	Add	=	Possible	–
B.4.10 Horizontal and vertical mullions in each <u>sidelight</u>	Remove	=	Possible	–
B.4.11 Horizontal mullions in <u>sidelight</u>	Moving upwards and downwards	=	Possible	–
B.4.12 Vertical mullions in <u>sidelight</u>	Moving	=	Possible	–
B.4.13 Horizontal and vertical mullions in <u>toplight</u>	Add	=	Possible	–
B.4.14 Horizontal and vertical mullions in <u>toplight</u>	Remove	= <	Possible except for the mullion of a topline which extension is attached with the profile that hosts door hinges otherwise not possible without an additional test	Additional test single or double leaf doorset
B.4.15 Horizontal mullions in <u>toplight</u>	Moving up- and downwards	=	Possible	–
B.4.16 Vertical mullions in <u>toplight</u>	Moving sideways	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C Hardware EN 16035 may provide information for the interchangeability of hardware.				
C.1 General				
C.1.1 Latches/locks and strike plates	Alternative	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard. The classification for category of use, durability of latch action, door mass and closing force according to EN 12209, prEN 15685 or EN 14846 shall be in line with the intended durability of self-closing classification of the doorset and comply with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.2 Number plates of latches/locks and strike	Increase	=	Possible	–
C.1.3 Number plates of latches/locks and strike	Decrease	=	possible providing one latch/lock is retained otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.4 Locking system	Exchange single latch/lock to multipoint locking system	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard. The classification for category of use, durability of latch action, door mass and closing force according to EN 12209, prEN 15685 or EN 14846 shall be in line with the intended durability of self-closing classification of the doorset and comply with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.5 Locking system	Exchange multipoint locking system to single latch/lock	=	Possible	–
C.1.6 Position of single latch/lock/strike plate	Alternative height	=	Possible 300 mm variation otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.7 Position of multiple latches/locks/ strike plates (with or without connecting rods)	Alternative height	=	Possible	–
C.1.8 Latches/locks and strike plates of the same type	Change of supplier/ manufacturer	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard. The classification for category of use, durability of latch action, door mass and closing force according to EN 12209, prEN 15685 or EN 14846 shall be in line with the intended durability of self-closing classification of the doorset and comply with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.9 Latches/locks and strike plates of the same type	Alternative material	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard. The classification for category of use, durability of latch action, door mass and closing force according to EN 12209, prEN 15685 or EN 14846 shall be in line with the intended durability of self-closing classification of the doorset and comply with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.10 Latches/locks	Exchange internal for external	> = <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.11 Latches/locks	Exchange external for internal	> = <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.12 Function of latches/locks (e.g. from normal use to panic use or vice versa)	Alternatives	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.13 Face mounted operating device (e.g. handles, knobs, panic bars, push or touch pads)	Exchange operating devices retaining latch/lock	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.14 Face mounted operating device (e.g. handles, knobs, panic bars, push or touch pads)	Remove	=	Possible to remove face mounted components providing the internal lock/latch assembly remains as tested otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.15 Panic exit device or emergency exit device	Exchange internal for external	> = <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.16 Panic exit device or emergency exit device	Exchange external for internal	> = <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets sets
C.1.17 Panic exit device or emergency exit device of the same type	Change of supplier/manufacturer	> = <	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard. The classification for category of use, durability of panic exit devices or emergency exit devices according to EN 179 or EN 1125 shall be in line with the intended durability of self-closing classification of the doorset and comply with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
C.1.18 Dimension of hinges	Increase	> = <	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard or issued European Technical Assessment. The hinge grade based on EN 1935 or issued ETA is in line with the intended durability of self-closing classification of the doorset and complies with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test.	Additional test single or double leaf doorset

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.19 Dimension of hinges	Decrease	> = <	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard or issued European Technical Assessment. The hinge grade based on EN 1935 or issued ETA is in line with the intended durability of self-doorset and complies with the mass of the door. The type of fixings shall not be changed and the closing classification of the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test single or double leaf doorset
C.1.20 Dimension of dog bolts	Increase	=	Possible	–
C.1.21 Dimension of dog bolts	Decrease	=	Possible	–
C.1.22 Bolts (flush, internal and surface mounted)	Add	=	Possible	–
C.1.23 Bolts (flush, internal and surface mounted)	Remove	=	Possible	–
C.1.24 Bolts (flush, internal and surface mounted)	Alternative	=	Possible	–
C.1.25 Bolts (flush, internal and surface mounted)	Change of supplier/ manufacturer	=	Possible	–
C.1.26 Number of hinges/dog bolts	Increase	=	Possible	–
C.1.27 Number of hinges/dog bolts	Decrease	=	Not possible without an additional test for hinges Possible for dog bolts	Additional test single or double leaf doorset

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.28 Hinges/dog bolts of the same type	Change of supplier/ manufacturer	=	Possible for dog bolts. Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard or issued European Technical Assessment. The hinge grade based on EN 1935 or issued ETA is in line with the intended durability of self-closing classification of the doorset and complies with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test.	Additional test single or double leaf doorset
C.1.29 Type of hinges	Alternative material/type	=	Possible providing the alternative hardware is of the same type (internally mounted / mortised or surface mounted) and complies with its relevant product standard or issued European Technical Assessment. The hinge grade based on EN 1935 or issued ETA is in line with the intended durability of self-closing classification of the doorset and complies with the mass of the door. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test.	Additional test single or double leaf doorset
C.1.30 Type of dog bolts	Alternative material/type/ shape	=	Possible	-
C.1.31 Distance from top of upper hinge to top of door	Increase	> = <	Possible up to a movement of 50 mm otherwise not possible without an additional test	Additional test single or double leaf doorset
C.1.32 Distance from top of upper hinge to top of door	Decrease	=	Possible	-

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.33 Distance from bottom of lower hinge to bottom of door	Increase	> = <	Possible up to a movement of 50 mm otherwise not possible without an additional test	Additional test single or double leaf doorset
C.1.34 Distance from bottom of lower hinge to bottom of door	Decrease	=	Possible	–
C.1.35 Distances between top and bottom hinges and intermediate movement restrictors	Increase	=	Possible	–
C.1.36 Distances between top and bottom hinges and intermediate movement restrictors	Decrease	=	Possible	–
C.1.37 Fixing technique for hinges (door leaf, frame)	Alternative (welding or Riveting or screwing)	> = <	Possible to interchange only between riveting and screwing, providing the centre distances are not exceeded and cross section dimension of the alternative (rivets / screws) is not smaller otherwise not possible without an additional test Possible to change from screwing or riveting to welding, but not vice versa	Additional test single or double leaf doorset
C.1.38 Armature of an electrically powered separate hold open device	Addition/ Alternative	=	Possible	–
C.1.39 Electrically powered hold open device	Exchange original concealed for alternative face mounted	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.40 Electrically powered hold open device	Exchange original face mounted for alternative concealed	=	Possible	–
C.1.41 Electrically powered hold open device	Change of manufacturer/ alternative	=	Possible	–
C.1.42 Face fixed closer (face fixed to face fixed, mounted on the closing or opening side of the doorset)	Alternative fitting positions in accordance with table below	=	Possible	–
C.1.43 Face fixed closer	Alternative	=	Possible providing that the alternative hardware complies with its relevant product standard. The closer power size which corresponds to the size of the door/window, shall be of the same or higher class in accordance to EN 1154. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.44 Concealed closer (mounted in the door leaf or the frame)	Alternative manufacturer/ supplier/type	=	Possible providing that the alternative hardware complies with its relevant product standard. The closer power size which corresponds to the size of the door, shall be of the same or higher class in accordance to EN 1154. The type of fixings shall not be changed and the number of fixings shall not be reduced otherwise not possible without an additional test	Additional test single or double leaf doorset
C.1.45 Concealed closer/drive	Change of location (door leaf to frame or vice versa)	=	Possible	–
C.1.46 Closer	Change of location (concealed for face mounted or vice versa)	=	Possible	–
C.1.47 Power cable and protective conduits for electric locks (fitted in the door leaf or frame)	Add	=	Possible	–
C.1.48 Power cable and protective conduits for electric locks (fitted in the door leaf or frame)	Alternative	=	Possible	–
C.1.50 Alarm contacts and proximity switches	Add	=	Possible	–
C.1.51 Alarm contacts and proximity switches	Alternative	=	Possible	–
C.1.52 Door signs (Reaction to fire class A1)	Add	=	Possible	–
C.1.53 Door signs (<Reaction to fire class A1)	Add	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
C.1.54 Pivots with single action accessories (shoe and top centre) with or without floor/transom mounted closing devices	Exchange from hinges	> = <	Not possible without an additional test	Additional test single or double leaf doorset
C.1.55 Pivots with single action accessories (shoe and top centre) with or without floor/transom mounted closing devices	Exchange to hinges	> = <	Not possible without an additional test	Additional test single or double leaf doorset
C.1.56 Threshold 'drop' seal/automatic seal	Add	> = <	Not possible without an additional test	Additional test single or double leaf doorset
C.1.57 Threshold 'drop' seal/automatic seal	Remove	=	Possible	–
C.1.58 Threshold seal	Alternative	> = <	Not possible without an additional test	Additional test single or double leaf doorset
D Support/attachment — door leaf to framing				
D.1 General				
D.1.1 Gap dimensions (door leaf to frame)	Increase/decrease	=	Possible in line with direct application in accordance with EN 1634–1 beyond the field of direct application rules not possible without an additional test	Additional test double for single and double leaf door sets or single for single leaf door sets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
E Transom panels and flush over panels				
The maximum tested height of doorset with side panels and/or over panels, can only be reduced by applying the following rules and cannot be increased.				
The maximum tested width of doorset with side panels and/or over panels, may be increased or reduced by applying the following rules.				
E.1 Side, over and transom panel arrangements Before there can be any consideration for the variation in side and over panel arrangements the doorset shall have been tested in accordance with EN 1191 to achieve a test result which could generate a classification in accordance with EN 13501–2 at least equal to the classification subsequently required from extended application considerations.				
E.1.1 Side/transom panel arrangement – See EN 15269–5:2014, Annex B	Additional or variations of alternative arrangements in accordance with the table below	=	A successful test on an arrangement indicated in the left hand column of Table A.2 would allow the variations in arrangement indicated by letter 'x' in the same row assuming the fixing/ retention method of the panelling system is retained Otherwise not possible without additional, specific test	Test using test specimens according of EN 15269–5:2014, B6
E.2 General Parameter variations as defined in A.1 have no negative impact on self-closing ability				
E.3 Size variations				
E.3.1 Size (area,, height)	Decrease	=	Possible	–
E.3.2 Size (area, height)	Increase	=	Possible while being in line with E	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
F Glazing for door leaf/leaves or side/transom and flush over panels				
F.1 General				
Where „similar edge fixing technique” is referred to, this means that the technique used in the original door test should be replicated exactly in terms of the retention detail or that the technique may be modified to accommodate a technique proven in an alternative test.				
F.1.1 Thickness of glass	Increase	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
F.1.2 Thickness of glass	Decrease	=	Possible providing a similar edge fixing technique only modified to accommodate the alternative thickness otherwise not possible without an additional test	Additional test single or double leaf doorset
F.1.3 Dimensions of each glass pane	Increase	=	possible	–
F.1.4 Dimensions of each glass pane	Decrease	=	Possible	–
F.1.5 Type of glass	Change of glass type	=	Possible providing the requirements of annex B are fulfilled otherwise not possible without an additional test	Additional test single or double leaf doorset
F.1.6 Edge fixing technique and materials	Alternative	=	Possible	–
F.1.7 Shape of glazing bead	Alternative	=	Possible	–
F.1.8 Depth of glazing bead and/or flange	Increase	=	Possible	–
F.1.9 Depth of glazing bead and/or flange	decrease	=	Possible	–
F.1.10 Height of the glazing bead and /or flange	increase	=	Possible	–
F.1.11 Height of the glazing bead and /or flangelick	decrease	=	Possible	–
F.1.12 Fixing of glazing bead	Alternative	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
F.1.13 Glazing bead – change of material	alternative	=	Possible	–
F.1.14 Decorative capping – See Figure A.58	Add or exchange	=	Possible	–
F.1.15 Shape of glazing	alternative	=	Possible	–
F.1.16 Corner of the glass-panel	Change from 90° corners	=	Possible	–
F.1.17 Classification of the glass	Change to lower classification	=	Possible	–
F.1.18 Glazing gaskets (<Reaction to fire class A1) – thickness (uncompressed)	Decrease	=	Possible	–
F.1.19 Glazing gaskets (<Reaction to fire class A1) –thickness(uncompressed)	Increase	=	Possible	–
F.1.20 Glazing gaskets (<Reaction to fire class A1) – cross-section shape	change	=	Possible	–
F.1.21 Glazing gaskets (<Reaction to fire class A1) – material	Change	=	Possible	–
F.1.22 Glazing gaskets (Reaction to fire class A1) – thickness (uncompressed)	Decrease	=	Possible	–
F.1.23 Glazing gaskets (Reaction to fire class A1) – thickness (uncompressed)	Increase	=	Possible	–
F.1.24 Glazing gaskets (Reaction to fire class A1) – cross-sectional shape	change	=	Possible	–
F.1.25 Glazing gaskets (Reaction to fire class A1) – material	Change	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
G Non-glass-panels				
G.1 Dimensions of each non glass panel	Increase	=	Possible	–
G.2 Dimensions of each non glass panel	Decrease	=	Possible	–
G.3 Fixing of the non-glass panel	Interchange	=	Possible	–
G.4 Thickness of non-glass-panel	increase	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.5 Thickness of non-glass-panel	decrease	=	Possible providing a similar edge fixing technique only modified to accommodate the alternative thickness otherwise not possible without an additional test	Additional test single or double leaf doorset
G.6 Thickness of coversheets of non-glass- panels	Decrease	=	Possible	–
G.7 Coversheets of non glass panels fixed with glazing beads	Add	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.8 Coversheets of non glass panels fixed with glazing beads	Remove	=	Possible	–
G.9 Coversheets of non glass panels fixed with glazing beads – material change	Change from steel to aluminium	=	Possible	–
G.10 Coversheets of non-glass panels fixed with glazing beads – material change	Change from aluminium to steel	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
G.11 Coversheets of non-glass panels fixed with glazing beads – material change	Change from mild to stainless steel	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.12 Coversheets of non-glass panels fixed with glazing beads – material change	Change from stainless to mild steel	=	Possible	–
G 13 Materials and construction Parameter variations as defined in A.3 have no negative impact on self-closing ability				
G 14 Decorative and / or protective finishes / intumescent / draught / smoke seals Parameter variations as defined in A.4 have no negative impact on self-closing ability				
G. 15 Glass panel to non-glass panel	interchange	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.16 Glass-panel to non-glass- panel in doorleaf	interchange	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.17 Non-glass panel to glass panel in doorleaf	interchange	=	Possible providing the requirements of annex B are fulfilled Otherwise not possible without an additional test	Additional test single or double leaf doorset
G.18 Non-glass-panel in doorleaf	Remove	=	Possible	–
G.19 Change location in vertical position of non-glass-panel	Move	=	Possible	–
G.20 Change location in horizontal direction of Non-glass-panel	Move	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
H Supporting construction and attachment (technique) of door frame or side/transom panels/flush over panels				
H.1 General				
H.1.1 Supporting construction	Flexible to rigid	>	Possible	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.1.1 Supporting construction	Test according to EN 1191 to any supporting construction	=	Possible	–
H.1.2 Supporting construction	Rigid to flexible	<	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.3 Supporting construction	Flexible to associated supporting construction	> / = / <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.4 Supporting construction	Rigid to associated supporting construction	> / = / <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.5 Supporting construction	associated to flexible supporting construction	> / = / <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.6 Supporting construction	associated to Rigid supporting construction	> / = / <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.7 Supporting construction	Associated A to associated B supporting construction	> / = / <	Not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
H.1.8 Attachment technique	Alternative built- in frame anchor to plug and screw and vice versa	> / = / <	Possible providing the fixings are appropriate to the construction and the distance between the fixings is not increased otherwise not possible without an additional test	Additional test double for single and double leaf doorsets or single for single leaf doorsets
H.1.9 Type of fixings	Alternative manufacturer/supplier	=	Possible	–
H.1.10 Type of fixings	Alternative material	=	Possible to interchange between alternative fixing material providing the same or higher mechanical performance otherwise not possible without an additional test.	Additional full scale test can be single or double leaf doorset
H.1.11 Number and size of fixings	Increase	>	Possible	–
H.1.12 Number and size of fixings	Decrease	<	Not possible without an additional test	Additional full scale test can be single or double leaf doorset with or without a panel in the same type of supporting construction
H.1.13 Distance between fixings	Increase	<	Possible up to a maximum of 15 % otherwise not possible without additional test	Additional full scale test can be single or double leaf doorset with or without a panel
H.1.14 Distance between fixings	Decrease	=	Possible	-
H.1.15 Fixing to floor	Cleated to sunk	=	Possible	-
H.1.16 Fixing to floor	Sunk to cleated	=	Possible	–
H.1.17 Gap between door leaf and floor	Increase	=	Possible	–
H.1.18 Gap between door leaf and floor	Decrease	=	Possible	–

Construction Parameter	Variation	Influence of variation on performance characteristic	Possibility of extension	Additional Evidence Required
(1)	(2)	(3)	(4)	(5)
<p>Key to symbols in column 3</p> <ul style="list-style-type: none"> > higher performance anticipated < lower performance anticipated = no significant change in performance anticipated ≥ equal or higher performance anticipated ≤ equal or lower performance anticipated > = < the influence on performance could be worse, equal or better hence variations not possible unless specific, limited conditions are identified N.A. Not Applicable 				

Table A.2 — Test on an arrangement for compliance E.1.1

Tested	Allows																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	x	x							x	x	x	x																	
2		x							x	x	x	x																	
3	x	x	x	x	x	x	x	x	x	x	x	x														x	x	x	
4	x	x		x		x		x	x	x	x	x															x		x
5	x	x		x	x	x	x	x	x	x	x	x															x	x	x
6	x	x				x		x	x	x	x	x															x		x
7	x	x		x		x	x	x	x	x	x	x															x	x	x
8	x	x						x	x	x	x	x															x		x
9									x																				
10									x	x	x	x																	
11									x		x	x																	
12									x		x	x																	
13	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
14	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
15	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
16	x	x		x		x		x	x	x	x	x				x		x		x	x	x	x	x	x	x	x	x	x
17	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x
18	x	x		x		x		x	x	x	x	x						x		x	x	x	x	x	x	x	x	x	x
19	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x
20	x	x		x		x		x	x	x	x	x						x		x	x	x	x	x	x	x	x	x	x
21	x	x		x		x		x	x	x	x	x														x	x	x	

Tested	Allows																												
22	x	x		x		x		x	x	x	x	x									x	x	x	x	x	x	x		
23	x	x		x		x		x	x	x	x	x									x		x	x	x	x	x		
24	x	x		x		x		x	x	x	x	x									x		x	x	x	x	x		
25	x	x							x	x	x	x													x		x		
26	x	x		x		x		x	x	x	x	x													x	x	x		
27									x	x	x	x															x		
28	x	x		x		x		x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	x	x		x		x		x	x	x	x	x									x	x	x	x	x	x	x		x