Revision 1 of EN 14509
Changes and News

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Table Ce: Fire

[C1] Comments given by Dipl.-Phys. Edith Antonatus

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Pt	Topic	Chapter	Changes in Rev 1	Kind of changes	Comparison with the previous edition	Comments[C1]
	General comments	The used standards and decisions of the Commission are updated. But no new essential change for testing and assessment of the fire behavior are resultant. The following comments are therefore only in a general form. Recorded is the statement of the EU Commission regarding the question: Which requirements can be additional demanded of the member states ensuring the fire safety of the construction works. It is also stated that classification of the reaction to fire according to EN 13501-1 and maybe also the fire resistance classes are the essential parameter concerning fire performance of sandwich panels. Only in exceptional cases, other instruments, such as fire safety engineering, specific to the building incorporating the products and associated assembly characteristics, may be used to assess the fire safety of the building. An essential change is introduced in the new chapter C.1.2 regarding the testing of reaction to fire. It is now for the tests according to EN ISO 11025-2 strictly required that the flame shall be applied directly to the insulating core of the sandwich panel without any facing, flashing or covering and shall be carried out on the middle of the thickness of the insulating core (specimen turned 90°). With this it is ensured that for elements which are placed in the fire class E or better also the insulating core itself fulfills at least the class E. Excluded are only elements that are designed and manufactured so that the core material is covered by the facings on all sides and will not be cut or perforated in end use. The tables for direct field of application of test results are reworked. It is now clearer defined, for which modifications at the elements no new fire tests are necessary (s. Table C2 and C3). Furthermore the paragraphs C.2.1 and C.1.2 for the identification of the fire resistance are completely new worked out. It is now exactly described in which way the panels must be mounted and fixed for the fire test. With this the repeatability and the comparability of test results of different laboratories are enhanced. In summary it can be said that regarding the fire behavior the standard is updated and a lot of details for the test procedures for reaction to fire and fire resistance are more exact and understandable. A fundamental change is only the requirement that for nearly all elements, which should have a classification in a fire class E or better the insulating core have to fulfill also the class E.			

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1	New standards for resistance to fire	2	EN 15254-5, Extended application of results from fire resistance tests – Non-loadbearing walls – Part 5:metal sandwich panel construction CEN/TS 1187, Test methods for external fire exposure to roofs CEN/TS 13381-1, Test methods for determining the contribution to the fire resistance of structural members — Part 1: Horizontal protective membranes CEN/TS 13381-2, Test methods for determining the contribution to the fire resistance of structural members — Part 2: Vertical protective membranes	new		Major remarks for the testing laboratories

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2	Fire characteristics Reaction to fire	5.2.4.1	NOTE The European Commission has made the following statement after consultation of the Committee referred to in Article 19 of the Directive 89/106/EEC. The reaction to fire classification derived from the provisions in this standard provides regulators and other users with an essential parameter concerning fire performance of sandwich panels. Exclusively based on fire safety needs and with explicit justification, regulators may, for specific intended uses, set additional requirements for ensuring the fire safety of the construction works, in accordance with EN 13501–1. Other classifications, such as fire resistance, may also be required to achieve the intended fire safety objectives. In addition, in exceptional cases, other instruments, such as fire safety engineering, specific to the building incorporating the products and associated assembly characteristics, may be used to assess the fire safety of the building.	new		See afore mentioned general comments

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3	Existing ITT test data	6.2.2	In general, it is not required to repeat ITT tests previously performed in accordance with the provisions of EN 14509:2006 (same product, same characteristics, test method, sampling procedure, system of attestation of conformity etc.). Data obtained from earlier tests may be used without the need for further testing to the revised procedures providing the declared data does not change significantly. There are two exceptions as follows: a) Reaction to fire test EN ISO 11925-2. In cases where the edge was protected in the original test and is unprotected in the new test (See C.1.2) the product shall be retested. b) Where the thermal transmittance was calculated using the tabulated values in A.10, the thermal transmittance shall be recalculated.	new		See afore mentioned general comments

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4	FPC controls for fire characteristics Minimum testing frequencies for components for reaction to fire characteristics	6.3.5.3 Table 8	Core material Check of raw material or chemical formulation, and density (A.8) 1 per shift/6 or 8h Adhesive Check for maximum amount and thickness of adhesive layer (C.4) 1 per shift/6 or 8h	new		Change of minimum testing frequencies for components
5	Reaction to fire Fire test EN 13823 (SBI)	C.1 C.1.1 C.1.1.3.1	Panels that are produced and manufactured where the core material is covered by metal facings on all sides and will not be cut or perforated in end use application shall be tested with the edges covered. Panels shall be produced for testing in accordance with the dimensions specified in C.1.1.2.	new		Such elements are produced in rare cases. Statement not important

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6	Fire test EN ISO 11925-2 (ignitability test) Test procedure	C.1.2 C.1.2.2	Testing shall be in accordance with EN ISO 11925-2. a) Standard procedure In the edge exposure part of the test, the flame shall be applied directly to the insulating core of the sandwich panel without any facing, flashing or covering and shall be carried out on the middle of the thickness of the insulating core (specimen turned 90°). For this European Standard, other layers i.e. adhesive shall be considered non-substantial and shall not be tested individually. b) Procedure for panels with closed facing In the case of panels that are designed and manufactured so that the core material is covered by the facings on all sides and will not be cut or perforated in end use application, only the surface flame attack shall be carried out.		Testing shall be in accordance with end use conditions, where the insulating core may be unprotected or protected by flashings. a) Method for unprotected applications without flashings: The flame shall be applied both to the end (cut edge) representing all applications and to the surface of the specimen. The surface flame attack shall be as described EN ISO 11925-2. The cut-edge flame attack shall be carried out on the middle of the thickness of the insulating core (specimen turned 90°). For this document, other layers i.e. adhesive shall be considered non-substantial and shall not be tested individually. b) Method for applications with protective flashings: The flame shall be applied both to the surface of the specimen and to the protected cut edge of the specimen.	See afore mentioned general comments

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7	Reaction to fire: Direct field of application of test results Joint design	Table C.1	Similar types of joint of the tested face with facings of the same profile – see 'Facings' above and Figure C.3. Joint Types I to VIII: Valid for similar types of overlapping joint where the metal overlapping tongue on the internal face is ≥ 15 mm Butt joint (Types IX). Worst case scenario Valid for all types of joint		Valid within normal tolerances (see 5.2.5). Not valid for changes of shape or configuration	Major remarks for the testing laboratories
8	Reaction to fire: Direct field of application of test results Adhesive (where relevant)	Table C.1	Change of tested quantity and/or type: a) Quantity only Valid for lower quantity of tested adhesive (expressed as g/m^2). b) Type only a Valid for an alternative adhesive with calorific value ≤ to that tested (expressed as PCS in MJ/kg). c) Quantity and Type a Valid for an alternative adhesive and different quantity, with calorific value ≤ to that tested (expressed as PCS in MJ/m^2)		Amount and type of adhesive Valid for same amount of adhesive (same PCS) or lower Valid for PCS values lower than the tested adhesive within manufacturing tolerances	Major remarks for the testing laboratories

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9	Reaction to fire: Direct field of application of test results Thickness of panel (D)	Table C.1	Panels produced in different thicknesses In the case of a single test, valid for ±15 % of tested thickness Where the same panels are produced in different thicknesses, both the maximum and minimum thickness shall be tested and the lowest classification declared. In cases where the thickest panel is > 150 mm the results from any specimen in the range 100 ≤ D ≤ 150 mm in thickness shall be valid for the thickest specimen		a) panels < 100 mm thickness Valid for ±15 % of tested thickness (single test) Where the same panels are produced in different thickness either the maximum and minimum thickness shall be tested and the lowest classification declared b) panels ≥ 100 mm thickness The results from specimens 100 ≤ D < 150 mm in thickness shall be valid for any panel greater than 100 mm in thickness	Major remarks for the testing laboratories

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10	Fire resistance General	C.2 C.2.1	This subclause applies to test methods in 5.2.4.2 as applicable	new	C.2.1 Test thermocouples and time temperature curve Additional thermocouples of a conventional type shall be used during the first five minutes in accordance with the procedure specified in the note to 5.1.2. of EN 1363-1. NOTE Ideally, a smooth transition should be made taking a maximum of five minutes before full control by plate thermometers. If the furnace control system does not allow this, then a sudden transition can be made. With care, if both control systems are set to follow the time temperature curve specified in EN 1363-1, the resulting time-temperature curve, as measured by the plate thermometers, should be within the tolerances allowed by EN 1363-1.	Important change Because the paragraph regarding the use of plate thermometers is canceled, there is no official possibility to control more exactly the time temperature curve in the first minutes. This is a big disadvantage. Background of this change: It is not possible to state in the product standard EN 14509 special requirements regarding fire tests. If changes or amendments are necessary these shall be done in EN 1363-1
11	Fire resistance test EN 1364-1 — Walls Supplementary requirements for testing non-loadbearing, self-supporting sandwich panels as external or internal walls supported by vertical structural elements.	C.2.2	C.2.2.2 Size of specimen C.2.2.3 Mounting and fixing rules C.2.2.4 Additional test measurements and test report	new		The whole paragraph C2 is updated See afore mentioned general comments

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12	Field of application of fire resistance test results Wall elements ceilings	C.2.4 C.2.4.1 Table C.2 C.2.4.2 Table C.3	Some essential changes			See afore mentioned general comments
13	Roof elements	C.2.4.3	This European Standard does not provide rules for direct field of application of fire resistance test results for roof panels, which are considered loadbearing.	new		
14	C.3 Fire tests CEN/TS 1187 - external fire performance for roofs C.3.1 Classification without further testing (CWFT)	C.3 C.3.1	- minimum thickness 0,4 mm for facings of steel and stainless steel; - minimum thickness 0,9 mm for facings of aluminium;			
15	Relevant clauses for roof coverings	Table ZA.1.2	External fire performance - roofs 5.2.4.3 and C.3 B ROOF (t_1), B ROOF (t_2), or B ROOF (t_3) according to Commission Decision 2006/600/EC, or X ROOF (t_4) Classification	new	External fire performance – roofs 5.2.4.4 and C.3 see prEN 13501-5 Test results or CWFT	See afore mentioned general comments

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