

Revision 1 of EN 14509

Changes and News

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Date: Oct. 2013

Table Ae: General changes

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Pt.	Topic	Chapter	Changes in Rev 1	Kind of changes	Comments
1	List of changes in Rev.1 compared to the previous edition.	Foreword	Annex F provides details of significant technical changes between this European Standard and the previous edition.	new	In this appendix all changes are listed in principle, however only with very short remarks (keywords) regarding every change.
2	Use of Data obtained from earlier tests	Foreword	Data obtained from earlier tests in accordance to EN 14509:2006 may be used without the need for further testing to the revised procedures (6.2.2) providing the declared data does not change significantly.	new	important remark: See comments to chapter 6.2.2.
3	Evaluation of conformity, testing, assessment and sampling methods General	6.1	The principle of grouping products into families may be used ...	new	Procedure is suitable to obtain more uniform characteristic values and material safety factors as the parameters within a range of similar products are varied, or to reduce testing costs. More information see comments to chapter 6.4.
4	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 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	Important remark, especially for reaction to fire: The new requirement that in principle all tests shall be performed without edge protection could be hard for countries for which this requirement was not essential. In these cases all must be retested.
5	Testing and compliance criteria – ITT	6.2.4, Table 5	Tested panel thickness	new	In table 5 the panel thicknesses for test specimens are newly defined.
6	Shortened testing programme	6.2.5	Shortened testing programme – ITT (product change)	new	Important chapter! A shortened test programme was not captured in the previous edition of the standard.

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7	Shortened testing programme General	6.2.5.1 Table 6	<p>If there is only a change of the core material or the adhesive for a panel family, a shortened test programme (not the whole range of ITT) – see Table 6 may be used to compare the values of shear strength and modulus; tensile strength and modulus; compression strength and modulus of the core; and creep against the values from the original ITT. Provided that all of these characteristic material values for the new core material are better than or equal to the values declared as a result of the original ITT test, the existing declared values for the mechanical properties of the panel may be retained without further ITT.</p> <p>If there is only a change in the grade of the facing material a shortened test programme to compare the bending moment capacity values shall be used (see Table 6).</p>	new	On the base of a shortened test programme no better mechanical values can be declared, only the values of the original core material can be confirmed. The possibility for a shortened test programme, e.g. if there is a change of the core material, is of major interest for the industry to save costs and time for preparing of a CE-mark.
8	No shortened programme - other characteristics	6.2.5.3	<p>Where there is a change of the core material or the adhesive for a panel family, there is no shortened test programme for the remaining characteristics listed in Table 5 – density, thermal transmittance, durability, fire, permeability and sound. New ITT tests shall be carried out where applicable.</p> <p>In the case of the fire characteristics any requirement for a retest shall be in accordance with the direct application rules, C.1.3 – reaction to fire and C.2.4 – fire resistance.</p>	new	In this chapter it is clarified for which tests a shortened test programme is not allowed.

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9	Characteristic values from families of tests	6.4	<p>The evaluation of families of test results shall follow the principles given in EN 1990:2002, Annex D. The procedure that follows is a simplified version of the more general procedure given in EN 1990, which is deemed to be adequate for the purposes of this European Standard.</p> <p>The characteristic resistances of the members of the family shall be determined on the basis of a suitable design expression 'x des ' that relates the test results to all of the relevant parameters. This design expression may either be based on the appropriate formulae of structural mechanics or determined on an empirical basis.</p>	new	<p>Explanations and an example to show the benefit of the procedure see presentation, EPAQ congress Dublin 2013 or article in the Stahlbau magazine, issue Dec. 2013</p>
10	Classification and designation	7, Table 10	<p>Footnote c Either the wrinkling strength or bending resistance shall be declared.</p> <p>Density Kg/m³</p> <p>Thermal transmittance and thermal conductivity: W/m² · K and W/m · K</p> <p>Air permeability :C and n values</p>	changed	<p>Clear statement that the declaration for the bending resistance is only optional, because these values are not needed for the design according to appendix E.!!</p> <p>The declaration of the density is required.</p> <p>It shall be declared both: Thermal transmittance and thermal conductivity</p> <p>For the air permeability the values for declaration are changed, see chapter A.12.5.</p>
11	Marking, labelling and packaging	8.1, 1. clause	<p>The following information shall be supplied by the manufacturer with or attached to every pack, or bundle of sandwich panels or supplied with the commercial documentation: remark f) including grade of metal, and coatings where applicable;</p>	<p>changed</p> <p>new</p>	<p>Important and new is the statement that the information can also be included in the commercial documentation.</p> <p>The description of the metal faces is required in point f.</p>

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12	Interpolation und Extrapolation von Prüfergebnissen	A.16.4	In the case of panels of the same type the minimum requirement is that the greatest and least thickness shall be tested together with a panel from the middle of the range. If only three thicknesses are tested, the values for products of intermediate thickness and of greater thickness up to 20 % but not more than 30 mm higher may be interpolated or extrapolated linearly.	new	Important remark, especially for the extrapolation of elements with greater thicknesses: up to 20 % but not more than 30 mm higher.
13	Design procedures	Annex E Note (foreword)	NOTE This annex supports mechanical resistance characteristics required by the standard and describes the methods required for their calculation. The mechanical resistance characteristics can equally be obtained by testing. E.7.2.8 is an informative guidance for the calculation of additional stresses due to expansion. E.8 gives informative guidance on the design of panels with specific profiles.	new	New chapters E.7.2.8 and E.8! See comments to chapter E.7.2.8 and E.8.
14	Serviceability limit state	E.5.4	The serviceability limit state shall be characterized...: The attainment of specified amounts of axial movement in the panel due to thermal expansion and contraction in the faces. ... This effect is likely to be a potential problem only in special cases with long panels e.g. 20 m with aluminium facings, particularly at end laps.	new	New regulation: Perhaps with serious consequences if there are damages in special cases. The limitation to special cases is important e.g. long elements (20 m!!!).
15	Nominal values of γ M based on past experience	E.6.3.3	The material safety factors given in Table E.9 are examples of values that may be obtained for a product with relatively consistent properties such as continuously laminated PUR or PIR. They may be unsafe for products with less consistent properties..	new	This means: The values are not suitable for mineral wool elements.
16	Thermal expansion and contraction	E.7.2.8	A safe approximation to the net thermal movement over the length L of a long panel may be determined... New formulas	new	Completely new chapter. In the moment the consequences for the application of sandwich due to this consideration are not foreseeable. It is questionable as there are given no limits for the thermal movement in the standard.

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17	Static system, geometry and thickness	E.7.3	The design thickness of a steel facing sheet shall be taken as $t_d = t_{nom} - t_{zinc} - 0,5 t_{tol}$, where t_{nom} is the nominal thickness of the steel sheet, t_{zinc} the total thickness of the zinc layers (or similar protective coating) and t_{tol} the normal or special tolerance according to EN 10143. If the special tolerance according to EN 10143 is fixed, the design thickness shall be taken as $t_d = t_{nom} - t_{zinc}$ (without any reduction)	new	The design thickness $t_d = t_{nom} - t_{zinc}$ (without any reduction) with special tolerance is not captured in the previous edition of the standard. There is a benefit for the design. An example is given in the presentation of EPAQ congress, Dublin
18	Panels with special profiles	E.8 E.8.1	Panels with special profiles: A typical example of a special profile is an outer metal face which is formed in 3-dimensions to simulate a tiled profile.	new	Completely new chapter. It is interesting that such elements are now in the scope of the EN 14509, because such products are on the market. However, the use of this chapter is difficult, because the description of the design procedure is only given general. It is not clear where the needed additional values (e.g. the effective area of the faces) should be declared. The values of the common CE-mark are not sufficient.
19	Accompanying documents to the CE Marking - roofs	ZA.3.4	Changed: description of the product: generic name, grade and thickness of facing materials, metallic coating mass and coating type and thickness, core material and thickness, mass, density and intended use; resistance to point loads – roofs – where required. The maximum achieved load and tested span shall be declared; resistance to access loads. (for occasional foot traffic without additional protection) – roofs – where required. Pass required before affixing CE Marking	changed	Exemplary illustrated only for roof. For ceilings and walls it's analogues.

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20	Example of CE Marking (roofs): accompanying information	Figure ZA.2	Mass: 12 kg/m ² . For non-standard steels properties of yield stress, ultimate strength and elongation are to be declared from tests. Reaction to fire: B-s2,d0 (with steel flashing details) Air permeability: n = 0.9: C = 0.001	changed	Non -standard steel types: e.g. type DX 51.