

**FAQ to standards of CEN/TC 53**

**status by 2019-11**

QUESTION # (DATE OF QUESTION)	STANDARD (DATE OF PUB)	QUESTIONS / QUERIES	ANSWERS / ACTIONS
#1	EN 12810-1: 2003	EN 12810-1; 7.3.5.2	
		<p>[...] In the course of a project being conducted with a French scaffolding manufacturer we have discovered discrepancies in the various translations of subclause 7.3.5.2 of the European Standard EN 12810-1:2003 "Façade scaffolds made of prefabricated components - Part 1: Products specifications". We therefore ask for these discrepancies to be discussed at the next meeting of the International Interpretation Group.</p> <p>The English and French versions of subclause 7.3.5.2 of EN 12810-1:2003 are quoted below:</p> <p>English version:</p> <p><b>7.3.5.2</b> Platform units shall be locked against unintentional lifting. It is preferable that the platform units are locked in position as part of the erection procedure by the addition of subsequent components. As an alternative, a fixing device may be provided which prevents their unintentional lifting up, whose satisfactory installation can be visually checked from above or below.</p> <p>French version:</p> <p><b>7.3.5.2</b> Les plateaux doivent être bloqués afin d'éviter tout soulèvement intempestif. Il est préférable de prévoir, dans la procédure de montage, de maintenir en place les plateaux par l'ajout de composants complémentaires. Une autre solution peut consister à prévoir un dispositif de fixation empêchant leur soulèvement, dont la bonne installation peut être contrôlée visuellement du dessus ou du dessous.</p> <p>In our view, the English text could be translated into German as follows and would then correspond to the French version:</p> <p><b>"7.3.5.2</b> Belagteile müssen gegen unbeabsichtigtes Abheben gesichert sein.</p>	<p>The correct German translation is (giving an alternative not a comparison):</p> <p><b>"7.3.5.2</b> Belagteile müssen gegen unbeabsichtigtes Abheben gesichert sein. Es sind solche Konstruktionen vorzuziehen, die diese Sicherung durch den Montageablauf zwangsläufig erreichen. <b>Alternativ</b> kann ein Befestigungsmittel vorgesehen werden, dass das unabsichtliche Abheben der Beläge verhindert und dessen korrekte Installation von oben oder von unten überprüft werden kann".</p>

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		<p>Es ist vorzuziehen, dass die die Lagesicherung der Beläge im Rahmen des Aufbauvorganges durch die Montage der folgenden Bauteile erfolgt. <b>Alternativ</b> kann ein Befestigungsmittel vorgesehen werden, das das unabsichtliche Abheben der Beläge verhindert und dessen korrekte Installation von oben oder von unten überprüft werden kann".</p> <p>The German version in the 2003 version of EN 12810-1:2003 is given below for the sake of comparison:</p> <p><b>"7.3.5.2</b> Belagteile müssen gegen unbeabsichtigtes Abheben gesichert sein. Es sind solche Konstruktionen vorzuziehen, die diese Sicherung durch den Montageablauf zwangsläufig erreichen. <b>In Ausnahmefällen</b> darf zur Verhinderung eines unbeabsichtigten Abhebens ein Befestigungsmittel für Belagteile vorgesehen werden, dessen richtige Montage von oben oder unten durch Sichtprüfung überprüft werden kann".</p> <p>The clauses can be interpreted in different ways. In our view, the following is particularly important:</p> <p>Third sentence: Is the use of a fixing device to prevent the unintentional uplifting of platform units permitted as a alternative (see English and French versions) or only in exceptional cases (German version)? What would be the definition of an exceptional case?</p> <p>In practice, the different versions given in the standard result in foreign manufacturers wishing to apply for a technical approval in Germany being unsure how to proceed. It is for this reason, as well as to ensure that manufacturers are correctly informed, that a uniform interpretation of the clause should be achieved. [...]</p>	
#2	EN 12810-1: 2003	EN 12810-1; Annex ZB	
		<p>[...] With regard to the safety mechanisms against unintentional lifting of platform units the following points have come to our attention:</p> <p>EN 12810-1:2003, Annex ZB (informative) National A-deviations Germany</p>	<p>[...] The national deviation from DIN EN 12810-1 regarding the safety mechanism against unintentional lifting of platform units was drawn up in 2003 and the term "reasonably foreseeable misuse" had not yet been incorporated into the German Equipment Safety Act. The intended use of a machine is defined in subclause 3.12 of DIN EN 292-</p>

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		<p>" a) In deviation from 7.3.5.2 the safety mechanism against unintentional lifting of platform units shall be in accordance with EN 292".</p> <p>The standard EN 292 has been withdrawn and replaced by EN ISO 12100.</p> <p>EN ISO 12100 covers the safety of machinery - general principles for design, risk assessment and risk reduction.</p> <p>What implications does this have for the interpretation of 7.3.5.2 in EN 12810-1? [...]</p>	<p>1:1991.</p> <p>The intended use also includes compliance with the technical specifications set out in the instructions for use and any reasonably foreseeable misuse must be taken into account.</p> <p>Note: With regard to the foreseeable misuse any risk assessment should pay particular attention to the following types of behaviour:</p> <ul style="list-style-type: none"> <li>• Foreseeable errors due to normal carelessness but not due to intentional misuse of the machine.</li> <li>• Behaviour resulting from the tendency to choose the path of least resistance when performing a task.</li> </ul> <p>The term "foreseeable incorrect use" was then included in section 2 (6) of the German Equipment and Product Safety Act of 6 January 2004 (based on the European Product Safety Directive), not only for machines but also for all products:</p> <p>"(6) Foreseeable incorrect use is taken to be the use of a product in a way not intended by the company placing the product on the market but can result from the reasonably foreseeable behaviour of the expected user".</p> <p>The corresponding requirement is subsequently included in section 4 (2):</p> <p>"Products not subject to section 4 (1) may only be placed on the market if they are designed in such a way that they do not endanger the health and safety of users or third parties when used as intended or when misused in a way that is foreseeable".</p> <p>It can be concluded from the above sections that the previous normative requirements have been incorporated into both European and national legislation. The German national deviation in EN 12810-1 thus applies throughout</p>

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			<p>the EU. The previous wording in EN 292 helps us to better understand the concept of foreseeable misuse.</p> <p>It is for the reasons stated above that we cannot accept the safety mechanisms against unintentional lifting of platform units recently submitted to us (Goya, MJ).</p> <p>[...]</p>
#3	<p>EN 12810-1: 2003</p> <p>(and EN 10219-2)</p>	<p>EN 12810-1; 6.2.2</p>	
		<p>[..] We have a query regarding the vertical frames of façade scaffolds.</p> <p>EN 12810 specifies that the vertical components of façade scaffolds with a high yield stress may have a minimum wall thickness of 2.7 mm, with a minus tolerance of 0.2 mm. The minimum wall thickness is therefore 2.5 mm.</p> <p>In a number of technical approvals such as Z-8.1-29, the tubing is described as 48.3 x 2.7 in accordance with EN 10219-1. However, a tolerance of +/- 10% is specified for the wall thickness in that standard. This means that the minimum wall thickness may be 2.43 mm.</p> <p>My question is therefore what is the actual lower limit for the wall thickness? [...]</p>	<p>[...] There is obviously a discrepancy between EN 12810-1 and EN 10219-2 although tubing specified in the latter standard is generally used in practice at present. Reference is currently made to EN 10219-2 in nearly all technical approvals. Such deviations may of course be covered by the approval procedure, although the scaffolding will then (strictly speaking) not conform to EN 12810-1. I cannot see any problems here from a technical point of view as nominal values are always used in the verifications and the dents arising when the couplers are used will most certainly not cause any serious changes.</p> <p>[...]</p>
#4	<p>EN 12810-1:2003</p>	<p>EN 12810-1; 6.2.2</p>	
		<p>Do the provisions of paragraph 6.2.2 concerning steel tubes of external diameter 48.3mm apply for all scaffolding components?</p>	<p>The provisions of clause 6.2.2 concerning the wall-thickness of tubes with an outer diameter of 48,3 mm apply only to tubes which are intended for attaching couplers according to DIN EN 74-series. Generally this is valid for tubes used in scaffold frames or for up-rights and transoms in modular scaffold systems. Components with the same outer diameter to which it is not purposeful to attach couplers , like specially designed diagonals for scaffold systems, may have a wall-thickness less than the provision of clause 6.2.2.</p>

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#5	EN 12811-1: 2003	EN 12811-1; 5.5.1	
		Par. 5.5.1 requires that the side protection shall be secured against unintended remove. Does this requirement also apply for toe boards?	This requirement does not apply to toe boards as there is no increased risk for the workers on site when toe boards are not additionally secured.
#6	EN 12812: 2008	EN 12812; 9.3.3	
		<p>Clause 9.3.3 refers for defining and confirming of the relevant imperfections for the design of class B1 falsework in the second sentence to on-site measurements. This is valid and viable for falsework which is designed against the detailed requirements of a specific job. In the case of developing and designing proprietary falsework systems, the designer is confronted with the problem, that he has to define reasonable values for the imperfections. Is it for these applications in line with clause 9.3.3 to define the imperfections resulting from the modular character of the construction on the base of the looseness´ calculated using nominal cross-section-values of the components under consideration or verified by a survey of a test set-up?</p>	<p>Beside the bow-imperfections for single components of a falsework structure, which are to be established according to the relevant clauses of EN 1993-1-1, clause 9.3.3 of EN 12812:2008 specifies, for the purpose of determining the relevant angular imperfections and eccentricities, i.e. geometrical imperfections, for falsework in design class B1, a range between the values stated in EN 1993-1-1 and the figures given in clause 9.3.2 of EN 12812. Within these boundaries, the designer is free to take any value for the geometrical imperfections as long as he ensures that the erection of the falsework on site matches with these assumptions. This provision was stated having typical falsework constructions comprising of mostly independent elements, i.e. steel-girders, steel-columns etc. in mind.</p> <p>For modular falsework systems this provision has to be extended. For these systems, geometrical imperfections are limited by the geometrical properties of the modular elements, the components and the cross-sections involved. Hence it is in line with the regulations of clause 9.3.3 of EN 12812:2008 to calculate the above mentioned geometrical imperfections in these cases by using the dimensions of the modular elements , i.e. geometry of frames, cross-section etc., under consideration. A survey of a test set up is not necessary as long as it is ensured by production control that the relevant nominal values are maintained.</p>
#7 (2014-12)	EN 12811-1: 2003	EN 12811-1; 6.3	
		<p>Regarding the "Ultimate limit state", everything is clearly defined in the TC53-Standards.</p> <p>Regarding the "Serviceability limit state" according to EN 1995, some values (<math>k_{def}</math>, <math>\psi</math>,...) are missing.</p>	For calculating the deflection of timber decking components it is sufficient to take 80% of the instantaneous Young-modulus E as a reference to take the time-dependent behavior of timber due to moisture, creep, load-duration etc. into account.

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		<p>There are some characteristics of "Temporary works equipment", for example:</p> <ul style="list-style-type: none"> <li>• "short-short-term load duration",</li> <li>• different load classes, allowing permanent loading or not,</li> <li>• short variable loads,</li> <li>• no influence on the result (building) when the working area has more deflection,</li> </ul> <p>EN12811-1 takes these special conditions of temporary works equipment into account when it instructs to calculate the deflection only with the concentrated loads (and not with the "uniformly distributed loads").</p> <p><b>Questions:</b></p> <ul style="list-style-type: none"> <li>• Which value is meant by "Deflections" under item 6.3 of EN 12811-1?</li> <li>• Does "deflection" according to EN 12811-1 mean <ul style="list-style-type: none"> <li>• <math>u_{fin,G}</math>,</li> <li>• <math>u_{fin,Q,1}</math>,</li> <li>• <math>u_{inst,G}</math>,</li> <li>• ....</li> </ul> </li> <li>or</li> <li>• just the elastic deflection without regarding <math>k_{def}</math>.</li> <li>• Which <math>k_{def}</math> should be used for calculating the deflection of a working area?</li> </ul>	$E_{d,fin} = E_{inst} / 1,25$
#8 (2019-06)	EN 12811-2: 2004	EN 12811-2; 8.1	
		<p>[...]</p> <p>I turn to you in order to get clarification about the interpretation of the zinc layer thickness requirement in EN 12811-2:2004, clause 8.1, class C2.</p> <p>There are is uncertainty of the meaning of:</p> <p style="margin-left: 40px;"><i>C2 Hot dip galvanized coatings and similar methods</i></p> <p style="margin-left: 40px;">a) <i>Area orientated components (like decks, tubes, standards,...)</i></p> <p style="margin-left: 40px;"><b>Thickness of the coat: <math>\geq 28 \mu m (\approx 200 g/m^2)</math></b></p> <p>The question arises as well in the practice of works equipment and in my engagement in international standardisation.</p> <p>There are two interpretations:</p>	<p>[...]</p> <p>The requirement concerning the thickness of the coat, stated in clause 8.1 of EN 12811-2:2004 for class C2 corrosion protection, defines, for hot dip galvanised, area orientated components, the minimum zinc-thickness to be applied on each surface.</p> <p>[...]</p>

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		<p><b>1. 28 μm (≈ 200 g/m<sup>2</sup>) is the minimum required thickness of one single zinc coat (= on one surface)</b>                      I understand the specification this way. There are many practical and logical reasons why the minimum required thickness of the zinc coat on one surface of scaffolding components like decks, standards and ledgers shall be at least 28 μm.</p> <p><b>2. 28 μm (≈ 200 g/m<sup>2</sup>) is the <u>sum</u> of the thicknesses of the zinc coats on both surfaces</b>                      Some views tend to this interpretation. It might be a possible interpretation.</p> <p>I kindly ask you to let us know the correct interpretation. This will be very helpful and eliminate uncertainty.                      [...]</p>	