

Template for comments and secretariat observations

Date: 2014-04-25	Document: N2033	Project: CEN/TC250/WG2 Scientific and Policy Report N2032
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MB/ NC ¹	Line number (e.g. 17)	Clause/ Subclause (e.g. 3.1)	Paragraph/ Figure/ Table/ (e.g. Table 1)	Type of comment ²	Comments	Proposed change	Observations of the secretariat
ES	38	Foreword		te	Since risk analysis is allowed and explicitly mentioned, some guidance should be given.	The easiest way to do so would be by referencing ISO 2394 or any JCSS document such as <i>Principles, system representation and risk criteria</i> . This could possibly be done in section 2 or/and 5.	
ES	6	1.3		ed	Indeed, often it is impossible to check the assumptions from EN 1990 clause 1.3. But what is to do in such cases?	Shift the sentence "However, often it is not possible ... , except the structure itself" to line 15 and change the sentence "If these circumstances ... to obtain adequate results" for: "Under these circumstances special care is needed to obtain adequate results."	
ES	3	2.2		te	Since risk analysis is allowed and explicitly mentioned in the Foreword, not only target reliability levels should be referenced in clause 2.2, but also acceptable risks to persons. Economic requirements, in turn, are a matter of optimisation.	Minimum requirements for human safety should be included in Annex A in terms of acceptable individual and collective risks.	
ES	3	3.1		ed	Before the "most effective interventions" can be identified, "any doubts regarding" the "current condition and future structural performance" should be removed.	The order should be changed.	
ES	9	3.1	Table 3.1	te	"Conception of remedial interventions" would be the first step in the planning of "remedial interventions". On the other hand, it is not clear why "supplementary safety interventions" are different from some of the other "remedial interventions" (see also comment concerning clause 6.5, line 2 on page 32.). For these reasons, the intermediate column of Table 3.1 might not be necessary. Possible conclusions from the assessment are: • No action is required.	Table 3.1 should reflect the mentioned conclusions from the assessment (no action; remedial interventions; immediate intervention). Within the remedial interventions it should further be distinguished between: • Administrative and technical measures. • Constructional measures.	

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					<ul style="list-style-type: none"> Remedial interventions are to be adopted. Immediate intervention is needed. 		
ES	11	3.1		ed	Document search should not only focus on information concerning the original design of the structure. If available, information on the construction (incidents; changes of the original design; etc.), inspection and maintenance activities during the previous service period, possible alterations, etc. should also be gathered.	Other than documents from the original design should also be mentioned in the context of information search.	
ES	22	3.1		ed	<p>Damage and deterioration mechanisms should be added to the list of parameters to be updated.</p> <p>On the other hand, direct updating of ultimate resistance and deformation capacity is difficult. Parameters that are being updated are those for geometry, material properties, deterioration mechanisms, etc., as mentioned. These are introduced in the resistance models in order to deduce updated values for the ultimate resistance and deformation capacity.</p>	Where it says “The structural analysis and verifications... geometrical properties, as well as ultimate resistances and deformation capacity.” it should say “The structural analysis and verifications... geometrical properties, damage and deterioration mechanisms, all of which in turn are used for the establishment of updated values for the ultimate resistance and deformation capacity.”	
ES	31	4.2.1		te	The report concerning EN 1991-1-1 should include prior information on loads, and not “detailed guidance on statistical technique how to determine the actual permanent load...”. Guidance on how to combine prior information and measured values should be included in this report (concerning EN 1990), either explicitly or by reference (such as in the Note from clause 4.1, on line 24 of the same page).	The text should be amended according to this principle.	
ES	38	4.2.3		te	Equivalent to comment concerning clause 4.2.1, line 31 on page 18.	The text should be amended accordingly.	
ES	7	4.2.4		te	Equivalent to comment concerning clause 4.2.1, line 31 on page 18.	The text should be amended accordingly.	

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ES	25	4.2.6		te	Equivalent to comment concerning clause 4.2.1, line 31 on page 18.	The text should be amended accordingly.	
ES	30	4.3.3		ed	According to the wording on line 30, the paragraph apparently refers to the characteristic value of a given resistance variable. However, on line 31, statistical parameters are mentioned. Both, characteristic values and the set of parameters, are needed depending on whether partial factor or probabilistic methods are used for the assessment.	The text should be improved in order to avoid possible confusion. To this end, it should be taken into account that, according to Eurocode terminology, the characteristic value is obtained on the basis of a prescribed probability of not being attained.	
ES	1	4.3.3	Table 4.1	ed	The caption refers to the characteristic values whereas the table includes information on statistical parameters. See also comment concerning clause 4.3.3, line 30 on page 22.	The text should be improved in order to avoid possible confusion.	
ES	1 ff.	5		te	No guidance is given in section 5 on how to carry out verifications for deteriorating structures. Verifications by means of risk analysis are also not mentioned (see also comment concerning Foreword, line 38 on page 5).	Both topics should be mentioned, explicitly or by references.	
ES	4; 6	5.2		te	Different analysis methods may be used together with different methods for taking into account uncertainties.	Rewording.	
ES	22 ff.	5.3.2		ed	In principle, updating is possible for all parameters.	Notation should be adapted accordingly.	
ES	3	5.3.2	Page 27	te	The application of non-linear analysis in conjunction with the partial factor method is not completely solved.	The future EN 1990 should include some hints on this topic, which, when available, should be taken into account in this document.	
ES	8	5.3.2	Page 27	te	In EN 1992-1-1 there is a lack of specific rules for checking structural reliability of building structures by means of non-linear analysis. On the contrary,	For bridges, the same verification format should be applied for linear and non-linear analysis, respectively. What should be different are the	

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					specific rules are given in EN 1992-2 for the verification of structural safety of bridge structures based on non-linear analysis. These rules differ from the partial factor format used for the verification of structural safety based on linear analysis. However, in the case of statically indeterminate bridge structures, the required levels of redistribution of internal forces and moments are usually lower than in building structures. Furthermore, since in non-linear analysis the interactions between action effects and structural response are taken into account, uncertainties are different compared to those associated with verifications based on linear analysis.	numerical values for the partial factors, particularly those associated with model uncertainties (γ_{Sd} , γ_{Rd}).	
ES	20	5.3.2	Page 27	ed	A consistent notation would be $R_{d,act}$. Also: $\mu_{R,act}$; $V_{R,act}$; etc.	Adapt notation.	
ES	1; 4	5.4		te	Model uncertainties are difficult to model and can hardly be updated within the framework of the assessment of an existing structure.	Default models should be defined for model uncertainties.	
ES	2	6.5		te	Why “supplementary safety interventions” are different from some of the other interventions or measures (e.g. monitoring according to 6.3 and 6.5, respectively). See also comment concerning clause 3.1, line 9 on page 13 (Table 3.1).	Categories of measures should be ordered according to immediate and remedial interventions, respectively. Within the remedial interventions it should further be distinguished between: <ul style="list-style-type: none"> • Administrative and technical measures. • Constructional measures. 	
ES	3	Annex B	Note; p. 35	te	The information given seems very subjective and rather unrealistic: depending on the particular case or circumstances, the differences in the updating efforts might be much more important. Do we really need this Annex C?	This type of rules of thumb should be avoided.	

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ES	1	Annex C		ed	The information from this annex is, at least partly (p. 36-37), included in EN 1990 Annex C.	Since this report is complementary to EN 1990, repetition is not necessary. Compared to the Eurocode only new information should be included in this document.	
ES	15	Annex C	Table (B.1) C.1	te	Target values have been deduced for the Netherlands.	It is to be confirmed whether a transposition to other countries or circumstances is possible.	
ES	15	Annex C	Table (B.1) C.1	te	The consequence class 0 is not included in EN 1990 and should be explained.	Add definition of consequence class 0: as class 1, but no human safety involved.	

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