ETC-C

EPR TECHNICAL CODE FOR CIVIL WORKS

2010 Edition

1st Errata – July 2015

afcen

French Association for Design, Construction, and In Service Inspection Rules for Nuclear Island Components

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NOTE TO THE USER

Based on the feedback of code Users, this document proposes a small number of modifications which mainly correspond to editorial errors in ETC-C 2010.

These editorial errors have been identified through:

- the feedback of ETC-C 2010 users;
- the preparation of ETC-C 2012 Edition;
- the preparation of RCC-CW 2015 Edition.

Page	§	ETC-C V2010	Corrected Text
15/405	0.1.3.1	<table><tr><td>EN 1993-1-6</td><td>07/07</td><td>Part 1-6: Strength and Stability of Shell Structures</td></tr></table>	<table><tr><td>EN 1993-6</td><td>09/07</td><td>Part 6: Crane supporting structures</td></tr></table>
24/405	0.1.3.2.2	<table><tr><td>NF P 18-42</td><td>05/2008</td><td>Concrete - Freeze test on hardened concrete - Freeze in air - Thaw in water</td></tr></table>	<table><tr><td>NF P 18-425</td><td>05/2008</td><td>Concrete - Freeze test on hardened concrete - Freeze in air - Thaw in water</td></tr></table>
27/405	0.1.3.2.2	<table><tr><td>P 18263</td><td>12/1986</td><td>Concretes, mortar and grout admixtures - Ordinary injection grouts for prestressed concrete - Determination of feigned setting (Tusschenbroeck test).</td></tr></table>	<table><tr><td>P 18-363</td><td>12/1986</td><td>Concretes, mortar and grout admixtures - Ordinary injection grouts for prestressed concrete - Determination of feigned setting (Tusschenbroeck test).</td></tr></table>
61/405	1.3.2	- LOCA + Design Earthquake (combination of conventional actions for Reactor Building,combination 16 in Table 1.3.3-2).	- LOCA + Design Earthquake (conventional combination of actions for Reactor Building,combination 16 in Table 1.3.3-2).
69/405	1.3.3.3.5	Document [1], or another specific Project document, defines actions associated to aircraft crash As.	Document [1], or another specific Project document, defines actions associated to aircraft crash $A_{d,apc}$.

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73/405	1.3.3.4.3	4- Combination of conventional actions LOCA-SLB+ Design Earthquake (LOCA-SLB + DE) :	4- Conventional combination of actions LOCA-SLB+ Design Earthquake (LOCA-SLB + DE):
105/405	1.4.5.2.2	EN 1992-1-1, 5.10.2.3, (1) to (3) are supplemented by the following requirements:	EN 1992-1-1, 5.10.2.3, (1) and 5.10.3, (1) to (3) are supplemented by the following requirements:
154/405	1.8.4.2	NOTE For Serviceability Limit State verification for slabs or walls with edges or pedestal	NOTE For Ultimate Limit State verification for slabs or walls with edges or pedestal
155/405	1.8.4.2	$f_{bd} = \frac{2.25 \cdot (f_{ctk,0.05})^{\frac{1}{2}}}{\gamma_c}$,for high-bond steels, as given in EN 1992-1-1, 8.4.2 and 3.1.6,	$f_{bd} = \frac{2.25 \cdot (f_{ctk,0.05})}{\gamma_c}$,for high-bond steels, as given in EN 1992-1-1, 8.4.2 and 3.1.6,
155/405	1.8.5	For each limit state, the required verifications for tension load in a single anchor or in an anchor group are:	For each limit state, the required verifications for shear load in a single anchor or in an anchor group are:
156/405	1.8.5.3	CEB Design Guide, 15.1.5 applies.	CEB Design Guide, 15.1.3.5 applies.

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165/405	1.9.2.5, Table 1.9.2-2	Shallow foundations & Buried galleries / SLS STR: rupture of buried structures due to earth pressure / Densities; Shear strength (C, Phi); Earth pressure coefficient at rest K_0; Groundwater levels	Shallow foundations & Buried galleries / ULS STR: rupture of buried structures due to earth pressure / Densities; Shear strength (C, Phi); Earth pressure coefficient at rest K_0; Groundwater levels
165/405	1.9.2.5	See 0 for guidance on acquiring the geotechnical parameters listed above.	See 2.1.1.3 for guidance on acquiring the geotechnical parameters listed above.
196/405	Eq 1.C-16	$\frac{1}{K_{dy}} = w = \frac{a^2}{64\pi \cdot D} \cdot \left[\left(4 - 3 \cdot \gamma^2\right) + 4 \cdot \gamma^2 \cdot \ln \gamma\right]$	$\frac{1}{K_{dy}} = w = \frac{r^2}{64\pi \cdot D} \cdot \left[\left(4 - 3 \cdot \gamma^2\right) + 4 \cdot \gamma^2 \cdot \ln \gamma\right]$
196/405	Eq 1.C-18	$u_{dy} = \frac{a^2 \cdot M_{dy}}{4 \cdot D} \cdot \frac{\left[\left(4 - 3 \cdot \gamma^2\right) + 4 \cdot \gamma^2 \cdot ln\, \gamma\right]}{(1+\upsilon) \cdot \left(\gamma^2 - 4 \cdot ln\, \gamma\right)}$	$u_{dy} = \frac{r^2 \cdot M_{dy}}{4 \cdot D} \cdot \frac{\left[\left(4 - 3 \cdot \gamma^2\right) + 4 \cdot \gamma^2 \cdot ln\, \gamma\right]}{(1+\upsilon) \cdot \left(\gamma^2 - 4 \cdot ln\, \gamma\right)}$
200/405	1.D.3	$\left(\frac{\rho \cdot V^2}{f_{ck}}\right)_{just\ penetration} = 1.89 \cdot \left(\frac{\rho \cdot H^2 \cdot D}{M}\right)^{4/3}$	$\left(\frac{\rho \cdot V^2}{10^6 \cdot f_{ck}}\right)_{just\ penetration} = 1.89 \cdot \left(\frac{\rho \cdot H^2 \cdot D}{M}\right)^{4/3}$

<table>
<tr><th>Page</th><th>§</th><th>ETC-C V2010</th><th>Corrected Text</th></tr>
<tr><td>211/405</td><td>Appendix 1.F
Table 1.F-1</td><td>
<table>
<tr><th colspan="4">Diagrams of supports</th><th>λ</th><th>μ</th></tr>
<tr><th>a</th><th>a’</th><th>b</th><th>b’</th><th></th><th></th></tr>
<tr><td>A</td><td>A</td><td>A</td><td>A</td><td>1.00</td><td>1.00</td></tr>
<tr><td>A</td><td>A</td><td>A</td><td>E</td><td>0.94</td><td>1.52</td></tr>
<tr><td>A</td><td>A</td><td>E</td><td>E</td><td>0.84</td><td>2.20</td></tr>
<tr><td>A</td><td>E</td><td>A</td><td>E</td><td>1.41</td><td>1.41</td></tr>
<tr><td>A</td><td>E</td><td>E</td><td>E</td><td>1.26</td><td>2.07</td></tr>
<tr><td>E</td><td>E</td><td>E</td><td>E</td><td>1.90</td><td>1.90</td></tr>
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<tr><td>E</td><td>E</td><td>E</td><td>E</td><td>1.90</td><td>1.90</td></tr>
</table>
</td></tr>
<tr><td>223/405</td><td>1.H.8</td><td>The coefficient ν_1, defined in EN 1992-1-1, 6.2.3, (3) is taken as:
Equation 1.H-13
$$v_1 = 0.6 \cdot \left[1 - \frac{f_{ck}}{250}\right] > 0.5$$
with f_{ck} in [MPa] (EN 1992-1-1, (6.6N)).</td><td>The coefficient ν_1, defined in EN 1992-1-1, 6.2.3, (3) is taken as:
Equation 1.H-13
$$v_1 = 0.6 \cdot \left[1 - \frac{f_{ck}}{250}\right]$$
with f_{ck} in [MPa] (EN 1992-1-1, (6.6N)).
NOTE This expression replaces expressions (6.10.aN) and (6.10.bN) of EN 1992-1-1.</td></tr>
<tr><td>229/405</td><td>2.1.1.1</td><td>Depth: in any case, local stratigraphy (and any qualitative data given by non-destructive geophysical testing and/or geological study) should be known to a minimum depth of 200 m under the NI raft (see 0).</td><td>Depth: in any case, local stratigraphy (and any qualitative data given by non-destructive geophysical testing and/or geological study) should be known to a minimum depth of 200 m under the NI raft (see 2.1.1.3).</td></tr>
</table>

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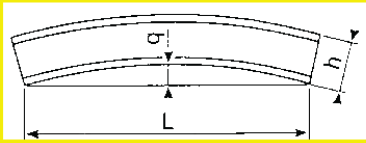
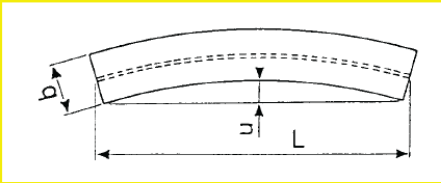
254/405	2.2.2.4	....refractory concretes....	....high temperature resistant concretes....
258/405	2.2.2.9.4	- a 28-day tensile splitting strength test, according to EN 12390-6 (3 mixes as per the nominal formula and 2 derived mixes); - A drying shrinkage and creep test, following a pre-approved procedure.	- a 28-day tensile splitting strength test, according to EN 12390-6 (3 mixes as per the nominal formula and 2 derived mixes).
260/405	2.2.2.9.8	....refractory concretes....	....high temperature resistant concretes....
264/405	2.2.3.3.4	....refractory concretes....	....high temperature resistant concretes....
273/405	2.3.1.3	− Formwork panel misalignment: not exceeding 1 mm, with a linear value less than 1 m per cm^2 of the area,	− Formwork panel misalignment: not exceeding 1 mm, with a linear value less than 1 m per m^2 of the area,
282/405	2.4.5.4.1	The instructions given in 2.4.5.3.3 on the bending and re-straightening of deformed reinforcements, shall be observed.	The instructions given in 2.4.5.3 on the bending and re-straightening of deformed reinforcements, shall be observed.

Page	§	ETC-C V2010	Corrected Text
363/405	2.10.2.5	(Diagrams 7 and 8 are missing)	 *Diagram 7*  *Diagram 8*
399/405	3.4.1.2	As a minimum, the pressure stages at which the measurements are taken shall be as follows: 0 - 0.5 Pa - Pa - 1.10 Pa - Pa- Pa -0.5 Pa - 0	As a minimum, the pressure stages at which the measurements are taken shall be as follows: 0 - 0.5 Pa – Pa - 1.10 Pa – Pa - 0.5 Pa - 0