**Singapore National Annex to Eurocode 2 : Design of concrete structures
– Part 1-1 : General rules and rules for buildings**

AMENDMENT NO. 2
December 2020

1.   Page 7, Modifications to NA.1 Scope, NA.1.1(a)

Add "- 6.4.5 (1)" after "- 6.4.4(1)";

Add "- 11.6.4.2 (2)" after "- 11.6.4.1 (1)";

Replace "J.1 (2)" with "J.1".

2.   Page 8, Modification to NA.2 Nationally determined parameters, Table NA.1

Add the following footnote, below the table on every page:

"A) Table NA.1 and the "Recommended values" noted therein relate to SS EN 1992-1-1 incorporating NA to SS EN 1992-1-1: 2008 and Amendment A1:2010."

3.   Page 9, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 4.4.1.2(5)

Replace entire text under Singapore decision with the following:

Use data in SS 544 for recommendations for concrete quality for a particular exposure class and cover reinforcement c.

4.   Page 13, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 6.2.3(2)

Replace entire text under Singapore decision with the following:

$1 \leq \cot\theta \leq 2.5$, except in elements in which shear co-exists with externally applied tension (i.e. tension caused by restraint is not considered here). In these elements, the value of $\cot\theta$ should lie between 1.0 and 1.25.

5.   Page 14, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 6.2.3(3)

Replace "6.3N" with "6.6N" under Eurocode recommendation.

6.   Page 15, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 6.4.4(1)

Add a new subclause 6.4.5(1) after 6.4.4(1):

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	Singapore decision
6.4.5 (1)	Limiting value of punching shear resistance $V_{Rd,cs\,i}$	$k_{max}\,V_{Rd,c} = 1.5\,V_{Rd,c}$	$k_{max}\,V_{Rd,c} = 2.0\,V_{Rd,c}$

7. **Page 15, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 6.4.5(3)**

Replace entire subclause with the following:

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	Singapore decision
6.4.5(3)	The value of maximum punching resistance adjacent to column $V_{rd,max}$	$V_{Rd,max} = 0.4 v f_{cd}$	$V_{Rd,max} = 0.5 v f_{cd}$

8. **Page 16, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 6.8.4(1)**

Replace entire subclause with the following:

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	Singapore decision
6.8.4(1)	Values of parameters for S-N curves	Values of parameters for S-N curves for reinforcing steels given in Table 6.3N. Values of parameters for S-N curves for prestressing steels given in Table 6.4N	Use the recommended values

9. **Page 19, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 9.5.3(3)**

Replace "$\alpha_n = 1 - \sum(b_i^2/6)\, b_0\, h_0$" with "$\alpha_n = 1 - \sum(b_i^2/6\, b_0\, h_0)$" under Singapore decision.

10. **Page 21, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 9.10.2.3(4)**

Replace "q_4" with "Q_4" under Nationally determined parameter;

Replace "q_4" with "Q_4" under Eurocode recommendation.

11. **Page 22, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 11.6.1(1)**

Replace "$v_{1,min} = 0.28k^{3/2}f_{lck}^{1/2}$" with "$v_{1,min} = 0.028k^{3/2}f_{lck}^{1/2}$" under Eurocode recommendation.

12. **Page 22, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 11.6.2(1)**

Replace entire text under Singapore decision with the following:

Use the recommended values.

13. **Page 22, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause 11.6.4.1(1)**

Add the following new subclause after subclause 11.6.4.1(1):

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	Singapore decision
11.6.4.2 (2)	Value of $v_{1Rd,max}$	$0.4 f_{lcd}$	Use the recommended value Note that $v = v_1$ given by Exp (11.6.6N)

14. **Page 23, Modification to NA.2 Nationally determined parameters, Table NA.1, subclause C.1(1)**

Replace entire subclause with the following:

Subclause	Nationally Determined Parameter	Eurocode[A)] recommendation	Singapore decision
C.1(1)	Values for fatigue stress range, minimum relative rib area, β *and* exceptions to fatigue rules	Table C.2N $\beta = 0.6$ Exceptions: Reinforcement is for predominantly static loading or higher values of fatigue stress range and/or the number of cycles are shown to apply by testing.	Use the recommended values and the recommended exceptions