

EN 1993-1-9 DK NA:2007

National Annex to Eurocode 3: Design of steel structures - Part 1-1: Fatigue

Foreword

In connection with the incorporation of Eurocodes into Danish building legislation to replace the Danish structural codes of practice, this National Annex was prepared in 2006-2007 to implement Eurocode 3 in Denmark.

Scope

This National Annex lays down the conditions for the implementation of the Eurocode.

Contents

This National Annex specifies the national choices prescribed in Denmark.

The national choices may be in the form of nationally applicable values, an option between methods given in the Eurocode, or the addition of supplementary guidance.

This National Annex addresses:

- Clauses where national choices have been made;
- All clauses where national choices have been possible;
- Bibliography: Overview of all National Annexes prepared.

Clauses where national choices have been made

Clause	National choice																			
1.1(2)	DS 412, Welding Class I, and relevant requirements for inspection should be used until EN 1090 has been published.																			
3(2)	<p>The inspection interval should be determined on the basis of the fatigue life obtained using the safe life method, viz. by applying the partial factor γ_{Mf} which is relevant for this particular method, to the fatigue strength.</p> <p>When determining the inspection interval, a statistical assessment of the probability of fatigue damage should be included using the inspection method applied.</p>																			
3(7)	<p>The values in Table 3.1 should be replaced by the following:</p> <table border="1"> <thead> <tr> <th rowspan="2">Assessment method</th> <th colspan="3">Consequence of failure</th> </tr> <tr> <th>Low consequence</th> <th colspan="2">High consequence</th> </tr> <tr> <td></td> <th>CC1</th> <th>CC2</th> <th>CC3</th> </tr> </thead> <tbody> <tr> <td>Damage tolerant</td> <td>1,00</td> <td>1,00</td> <td>1,00</td> </tr> <tr> <td>Safe life</td> <td>1,26</td> <td>1,54</td> <td>1,88</td> </tr> </tbody> </table> <p>The partial factors given in Table 3.1 are based on the assumption that a partial factor for fatigue loading in accordance with the National Annex to EN 1990 has been used to determine the design fatigue load. For high consequence, class CC3 applies and for low consequence, class CC1 applies.</p>	Assessment method	Consequence of failure			Low consequence	High consequence			CC1	CC2	CC3	Damage tolerant	1,00	1,00	1,00	Safe life	1,26	1,54	1,88
Assessment method	Consequence of failure																			
	Low consequence	High consequence																		
	CC1	CC2	CC3																	
Damage tolerant	1,00	1,00	1,00																	
Safe life	1,26	1,54	1,88																	
7.1(3)	Special fatigue strength categories for particular details are allowed, provided that the fatigue strength is verified in accordance with the guidelines given in 7.1(3).																			

Overview of possible national choices

The list below identifies the clauses where national choices are possible and the applicable/not applicable informative annexes.

Furthermore, this National Annex refers to additional (non-conflicting) information that may be of assistance to the user of the Eurocode.

Clause	Comment
1.1(2)	Additional information
2(2)	No changes
2(4)	No changes
3(2)	Additional information – choice of partial factors
3(7)	Additional information – choice of partial factors
5(2)	No changes
6.1(1)	No changes
6.2(2)	No changes
7.1(3)	Additional information
7.1(5)	No changes
8(4)	No changes

Bibliography

List of all National Annexes

EN 1990 DK NA:2007	National Annex to Eurocode 0 – Basis of structural design
EN 1991-1-1 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings
EN 1991-1-2 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-2: General actions – Actions on structures exposed to fire
EN 1991-1-3 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-3: General actions – Snow loads
EN 1991-1-4 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-4: General actions – Wind actions
EN 1991-1-5 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-5: General actions – Thermal actions
EN 1991-1-6 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-6: General actions – Actions during execution
EN 1991-1-7 DK NA:2007	National Annex to Eurocode 1: Actions on structures – Part 1-7: General actions – Accidental actions
EN 1992-1-1 DK NA:2007	National Annex to Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings
EN 1992-1-2 DK NA:2007	National Annex to Eurocode 2: Design of concrete structures - Part 1-2: General rules – Structural fire design
EN 1993-1-1 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings
EN 1993-1-2 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-2: General rules – Structural fire design
EN 1993-1-3 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting
EN 1993-1-4 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-4: General rules - Supplementary rules for stainless steels
EN 1993-1-5 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-5: Plated structural elements
EN 1993-1-6 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-6: Strength and stability of shell structures
EN 1993-1-7 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-7: Plated structures subject to out of plane loading
EN 1993-1-8 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-8: Joints
EN 1993-1-9 DK NA:2007	National Annex to Eurocode 3: Design of steel structures – Part 1-9: Fatigue
EN 1993-1-10 DK NA:2007	National Annex to Eurocode 3: Design of steel structures - Part 1-10: Material toughness and through-thickness properties
EN 1994-1-1 DK NA:2007	National Annex to Eurocode 4: Design of composite steel and concrete structures - Part 1-1: General rules and rules for buildings
EN 1994-1-2 DK NA:2007	National Annex to Eurocode 4: Design of composite steel and concrete structures - Part 1-2: General rules – Structural fire design
EN 1995-1-1 DK NA:2007	National Annex to Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings
EN 1995-1-2 DK NA:2007	National Annex to Eurocode 5: Design of timber structures - Part 1-2: General – Structural fire design
EN 1996-1-1 DK NA:2007	National Annex to Eurocode 6: Design of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry structures
EN 1996-1-2 DK NA:2007	National Annex to Eurocode 6: Design of masonry structures - Part 1-2: General rules – Structural fire design
EN 1996-2 DK NA:2007	National Annex to Eurocode 6: Design of masonry structures - Part 2: Design considerations, selection of materials and execution of masonry
EN 1997-1 DK NA:2007	National Annex to Eurocode 7: Geotechnical design - Part 1: General rules
EN 1999-1-1 DK NA:2007	National Annex to Eurocode 9: Design of aluminium structures - Part 1-1: General rules
EN 1999-1-2 DK NA:2007	National Annex to Eurocode 9: Design of aluminium structures – Part 1-2: Structural fire design
EN 1999-1-3 DK NA:2007	National Annex to Eurocode 9: Design of aluminium structures – Part 1-3: Fatigue