ANNEX 30

NATIONAL ANNEX TO

STANDARD

SFS-EN 1993-5 EUROCODE 3: DESIGN OF STEEL STRUCTURES

Part 5: Piling

Foreword

This National Annex is used together with Standard SFS-EN 1993-5: 2007.

This National Annex sets out:

a) National parameters for the following paragraphs in Standard SFS-EN 1993-5: 2007 where national choice is permitted:

3.7 (1)	5.2.2 (13)	7.2.3 (2)
3.9 (1)P	5.2.5 (7)	7.4.2 (4)
4.4 (1)	5.5.4 (2)	A.3.1 (3)
5.1.1 (4)	6.4 (3)	B.5.4 (1)
5.2.2 (2)	7.1 (4)	D.2.2 (5) .

b) Guidance on the use of Normative Annex A and Informative Annexes B, C and D.

3.1 General

3.1(1)P

Explanation:
Other steel grades may be used according to valid product approval.

3.7 Steel members used for anchors

3.7(1)
The recommended value should be used.

3.9 Fracture toughness

3.9(1)P
The lowest service temperature should be determined according to standard SFS-EN 1991-1-5 and according to its National Annex. Safety against brittle fracture should be checked at all service temperatures by using load combinations relevant for that service temperature. Safety against brittle fracture should be checked for the installation stage and the final structure.

4.4 Corrosion rates for design

4.4(1)
The values given in the table 4.1 or table 4.2 should be used if local conditions do not require other values. Table 4.1 and table 4.2 are not intended for stainless steels.

Applicability of the values given in table 4.1 and 4.2 should be stated based on preliminary investigations and based on previous knowledge and experience of the soil in the cases, where there are no reasons to assume, that soil or water is polluted. In unclear cases research programme should be refined.

Explanation:
Additional information is given in the valid publication "Sillan geotekniset suunnitteluperusteet" (Geotechnical design principles for bridges) given by Finnish Road Administration.

5.1.1 General

5.1.1(4)
The recommended values should be used.

5.2.2 Sheet piling in bending and shear

5.2.2(2), Note 2
The numerical value for β_B should be determined reliable for each project.

5.2.2(13)
The recommended value should be used.

5.2.5 Straight web steel sheet piles

5.2.5(7)
The recommended value should be used.

5.5.4 Primary elements

5.5.4(2)
The recommended value should be used.

6.4 Structural aspects of steel sheet piling

6.4(3)
The numerical value for β_D should be determined reliable for each project depending on for example the profile and locking.

7.1 General

7.1(4)
The recommended values should be used. See also National Annex of standard SFS-EN 1993-1-8.

7.2.3 Ultimate limit state verification

7.2.3(2)
The recommended values should be used. In addition the fabrication method of making threads should be taken into account according to the clause 3.6.1(3) of standard EN 1993-1-8.

7.4.2 Bearing piles

7.4.2(4)
For impact driven piles and for drilled piles following provisions should be followed:

a) The characteristic compression, tension and bending resistance of the splice of the pile should fulfil the requirements of the table 7.4.2./1, when the splice is tightened.

b) The bending resistance and bending stiffness of the splice should be tested according to the test arrangements given in the table 7.4.2/1. For the splice of the impact driven pile, the tests should be made after the impact test. For the splice of the drilled pile, the test may be made after the tightening of the splice.

Table 7.4.2/1 Requirements for resistances and bending stiffness of impact driven and drilled pile splice

Chracteristic value of the compression resistance	Characteristic value of the tension resistance	Characteristic value of the bending resistance	Bending stiffness EI ($0{,}3 \ldots 0{,}8 \cdot M_{k,pile}$)
$> N_{k,pile}$	$> 0{,}15 \cdot N_{k,pile}$	$> M_{k,pile}$	$> 0{,}75 \cdot EI_{p,pile}$

where:

$N_{k,pile}$ is the characteristic compression resistance of the steel part of the pile, when corrosion allowance is not taken into account;
$M_{k,pile}$ is the characteristic bending resistance of the steel part of the pile, when corrosion allowance is not taken into account;
$EI_{p,pile}$ is the characteristic bending stiffness of the steel part of the pile, when corrosion allowance is not taken into account.

Bending stiffness EI [kNm^2] may be calculated from:

$$EI = \frac{M \cdot l^2}{8 \cdot \delta} \qquad (7.4.2/1)$$

where:

M in the bending moment [kNm];
l is the distance between measurement points [m];
δ is the deflection of the pile between measurement points. [m].

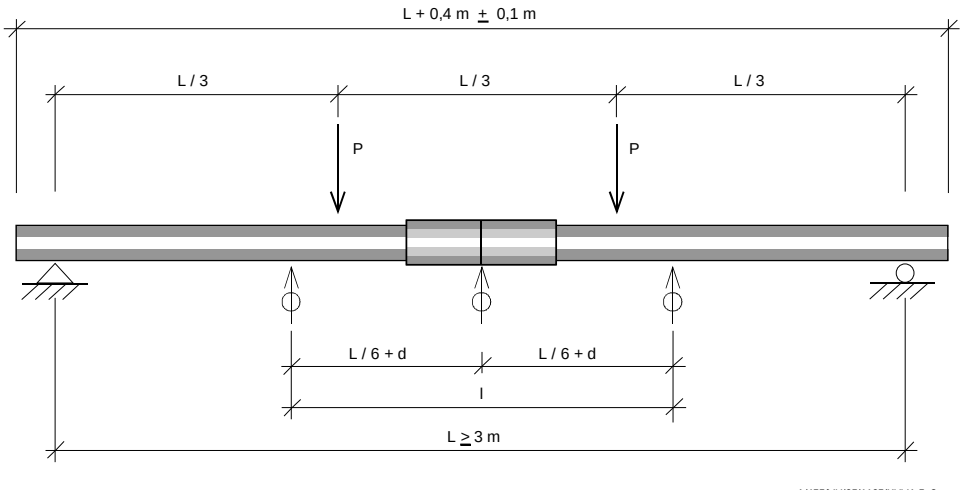

Figure 7.4.1/1 Bending test for spliced pile

Annex A
Thin walled steel sheet piling

A.3.1 Material properties

A.3.1(3)
The values given in the National Annex for standard SFS-EN 1993-1-1 should be used.

Annex B
Testing of thin walled steel sheet piles

Annex B may be used.

B.5.4 Design values

B.5.4(1)
The value of η_{sy} should be determined reliable in each project.

Annex C
Guidance for the design of steel sheet piling

Annex C may be used.

Annex D
Primary elements of combined walls

Annex D may be used.

D.2.2(5)
Additional information is not given.