

## **Veiligheidsklasse masten, fragmenten uit de norm.**

Tabel A1 geeft de werkelijke veiligheidsklasse aan. In de standaard mastberekening voor een VDL Holle Buis Vakwerkmast van 39,9 meter is men uitgegaan van de zwaarste veiligheidsklasse CC3. Per situatie geldt er dus een andere veiligheidsklasse.

Nederlandse norm

# **NEN-EN 1993-3-1** (en)

Eurocode 3: Ontwerp en berekening van  
staalconstructies - Deel 3-1: Torens, masten en  
schoorstenen - Torens en masten

Eurocode 3: Design of steel structures - Part 3-  
1: Towers, masts and chimneys - Towers and  
masts

## Annex A [normative] – Reliability differentiation and partial factors for actions

**NOTE:** As this Annex deals with reliability differentiation and partial factors for actions for masts and towers, it is expected that it will be transferred to Annex A to EN 1990 in a later stage.

### A.1 Reliability differentiation for masts and towers

(1) Reliability differentiation may be applied to masts and towers by the application of reliability classes.

**NOTE:** The National Annex may give relevant reliability classes related to the consequences of structural failure. The classes in Table A.1 are recommended.

**Table A.1 Reliability differentiation for towers and masts**

Reliability Class	
3	towers and masts erected in urban locations, or where their failure is likely to cause injury or loss of life; towers and masts used for vital telecommunication facilities; other major structures where the consequences of failure would be likely to be very high
2	all towers and masts that cannot be defined as class 1 or 3
1	towers and masts built on unmanned sites in open countryside; towers and masts, the failure of which would not be likely to cause injury to people

### A.2 Partial factors for actions

(1)P Partial factors for actions shall be dependant on the reliability class of the tower or mast.

**NOTE 1:** In the choice of partial factors for permanent actions  $\gamma_G$  and for variable actions  $\gamma_Q$  the dominance of wind actions for the design may be taken into account.

**NOTE 2:** The National Annex may give numerical values of  $\gamma_G$  and  $\gamma_Q$ . Where the reliability classes recommended in A.1 are used the numerical values in Table A.2 for  $\gamma_G$  and  $\gamma_Q$  are recommended.

**Table A.2 Partial factors for permanent and variable actions**

Type of Effect	Reliability Class, see NOTE to 2.1.2	Permanent Actions	Variable Actions ( $Q_s$ )
unfavourable	3	1,2	1,6
	2	1,1	1,4
	1	1,0	1,2
favourable	All Classes	1,0	0,0
Accidental situations		1,0	1,0

**NOTE 3:** The National Annex may also give information on the use of dynamic response analysis for wind actions, see Annex B.

- c) Similarly other elements than normative elements in the standard remain informative, unless these elements shall be read as normative if specified so in the current National Annex (e.g. notes and informative Annexes to the standard).

In this connection also the following applies.

Notes in the standard which refer to an informative Annex thereof to which informative Annex (or part thereof) the status 'normative' is assigned in this National Annex, shall be read as normative. The text of the Annex concerned shall consequently be read as normative text (except for notes therein unless specified otherwise in the current National Annex).

Notes in the standard that are indispensable for proper application of the standard shall be read as normative.

Clauses of administrative nature in the standard shall be regarded as not being addressed by the Dutch building regulations. This also applies to further non-technical requirements which are of no technical significance in view of article 2 of the Housing Act (*Woningwet*).

### Specific

The following is applicable to those articles of the relevant clauses in the standard that are indicated in the left-hand margin.

#### 2.1.1 Basic requirements

- (3)P Annex E shall be used for information on guy rupture.

#### 2.3.1 Wind actions

- (1) The additional rules in Annex B shall be used as supplements to NEN-EN 1991-4.

#### 2.3.2 Ice loads

- (1) Annex C shall be used for information on ice loading, the appropriate ice thickness, densities and distributions and appropriate combinations, and combination factors for wind and ice on towers and masts.

#### 2.3.6 Imposed loads

- (2) The value of the imposed loads on platforms and railings shall be taken as follows.

— The nominal value of imposed loads on platforms shall be taken  $2,0 \text{ kN/m}^2$ .

— The nominal value of horizontal loads on railings shall be taken  $0,5 \text{ kN/m}$ .

#### 2.3.7 Other actions

- (1) NEN-EN 1991-1-7 shall be used for accidental and collision actions.
- (4) No further information is given for actions arising from fitting and anchoring.

#### 2.5 Design assisted by testing

- (1) No further information is given for structures or elements that are subject to an agreed full-scale testing programme.

#### 2.6 Durability

- (1) The design service **life** shall be taken 30 years or more.

#### 4.1 Allowance for corrosion

- (1) No further information is given for suitable corrosion protection, appropriate to the location of the structure, its design **life** and maintenance regime.