

**NATIONAL ANNEX  
TO  
CYS EN 1991-3:2006 Eurocode 1: Actions on structures  
Part 3: Actions induced by cranes and machinery**

**Public Enquiry Draft**

**Period of Enquiry**

**November 19<sup>th</sup> 2007 to January 14<sup>th</sup> 2008**

**Readers are advised that this is a draft document and subject to change**

**Prepared by: Eurocodes Committee  
Ministry of Interior / Technical Chamber of Cyprus**

## PUBLIC ENQUIRY DRAFT

National Annex to CYS EN 1991-3:2006 Eurocode 1: Actions on Structures  
Part 3: Actions induced by cranes and machinery

## INTRODUCTION

This National Annex has been prepared by the Eurocodes Committee of the Technical Chamber of Cyprus which was commissioned by the Ministry of Interior of the Republic of Cyprus

## NA 1 SCOPE

This National Annex is to be used together with CYS EN 1991-3:2006

This National Annex gives:

- (a) Nationally determined parameters for the following clauses of CYS EN 1991-3:2006 where National choice is allowed (see Section NA 2)
  - 2.1 (2)
  - 2.5.2.1 (2)
  - 2.5.3 (2)
  - 2.7.3 (3)
  - A2.2 (1)
  - A2.2 (2)
  - A2.3 (1)
- (b) Decisions on the use of the Informative Annex B (see Section NA 3)
- (c) References to non-contradictory complementary information to assist the user to apply CYS EN 1991-3:2006. In this National Annex such information is provided for the following clauses in CYS EN 1991-3:2006 (see Section NA 4)

## NA 2 NATIONALLY DETERMINED PARAMETERS

### NA 2.1 Clause 2.1 (2) Field of application

Where the crane supplier is known at the time of design of the crane runway, more accurate data may be applied for the individual project. No information is given in this National Annex on the procedure to facilitate the exchange of data with crane suppliers in order to apply more accurate data for the individual project.

### NA 2.2 Clause 2.5.2.1 (2) Vertical loads – eccentricity of wheel loads

The adopted value of the eccentricity of application of wheel load to a rail is  $e = 0,25 b_r$ .

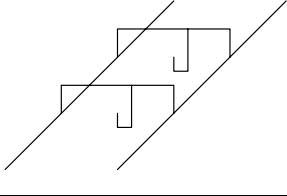
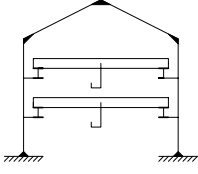
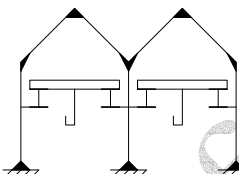
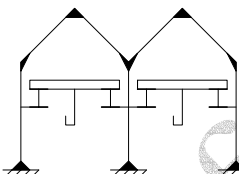
### NA 2.3 Clause 2.5.3 (2) Multiple crane action

The maximum number of cranes to be considered in the most unfavourable position is given in Table 2.3 (CYS)

**PUBLIC ENQUIRY DRAFT**

National Annex to CYS EN 1991-3:2006 Eurocode 1: Actions on Structures  
Part 3: Actions induced by cranes and machinery

**Table 2.3 (CYS) —Maximum number of cranes to be considered in the most unfavourable position**

	Cranes to each runway	Cranes in each shop bay	Cranes in multi – bay buildings	
				
Vertical crane action	3	4	4	2
Horizontal crane action	2	2	2	2

**NA 2.4 Clause 2.7.3 (3) Drive force K – value of friction factor**

The values of the friction factor are:

$$\mu = 0,2 \text{ for steel – steel}$$

$$\mu = 0,5 \text{ for steel - rubber}$$

**NA 2.5 Clause A.2.2 (1) Partial factors – definition of  $\gamma$ -values for cases STR and GEO**

The adopted  $\gamma$ -values are given in Table A.1(CYS) and they cover cases STR and GEO specified for buildings in 6.4.1(1) of EN 1990.

**Table A.1(CYS) — Recommended values of  $\gamma$ -factors**

Action	Symbol	Situation	
		P/T	A
<b>Permanent crane actions</b>			
- unfavourable	$\gamma_{G\text{sup}}$	1,35	1,00
- favourable	$\gamma_{G\text{inf}}$	1,00	1,00
<b>Variable crane actions</b>			
- unfavourable	$\gamma_{Q\text{sup}}$	1,35	1,00
- favourable	$\gamma_{Q\text{inf}}$		
crane present		1,00	1,00
crane not present		0,00	0,00
<b>Other variable actions</b>	$\gamma_Q$		
- unfavourable		1,50	1,00
- favourable		0,00	0,00
<b>Accidental actions</b>	$\gamma_A$		1,00

P - Persistent situation    T - Transient situation    A - Accidental situation

**PUBLIC ENQUIRY DRAFT**

National Annex to CYS EN 1991-3:2006 Eurocode 1: Actions on Structures  
Part 3: Actions induced by cranes and machinery

**NA 2.6 Clause A.2.2 (2) Partial factors – definition of  $\gamma$ -values for case EQU**

The  $\gamma$ -values to be used for verifications with regard to loss of static equilibrium and uplift of bearings are:

$$\gamma_{G\text{sup}} = 1,05$$

$$\gamma_{G\text{inf}} = 0,95$$

**NA 2.7 Clause A.2.3 (1)  $\psi$ -factors for crane loads – definition of  $\psi$ -values**

The following  $\psi$ -factors are adopted:

$$\psi_0 = 1,0$$

$$\psi_1 = 0,9$$

$$\psi_2 = \text{ratio between the permanent crane action and the total crane action.}$$

**NA 3 DECISION ON USE OF THE ANNEXES**

**NA 3.1 Annex A**

Annex A is normative and shall be used

**NA 3.2 Annex B**

Annex B is informative and may be used

**NA 4 REFERENCES TO NON-CONTRADICTORY COMPLEMENTARY INFORMATION**

None