

NATIONAL ANNEX

TO

CYS EN 1991 Eurocode 1: Actions on structures

Part 1-1: Specific weight of materials, self-weight of construction works and imposed loads for buildings

Final For Public Enquiry – 28 January 2026

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INTRODUCTION

This National Annex has been prepared by the CYS TC 18: Eurocodes National Standardisation Technical Committee of Cyprus Organisation for Standardisation. (CYS)

NA 1 SCOPE

This National Annex is to be used together with CYS EN 1991-1-1:2025

This National Annex gives:

(a) Nationally determined parameters for the following clauses of CYS EN 1991-1-1:2025 where National choice is allowed (see Section NA 2)

- 5.4.3 (1)
- 5.4.3 (2) – 2 choices
- 5.4.3 (3)
- 5.4.3 (4)
- 5.4.3 (5)
- 6.2.2 (1)
- 6.5.2 (1)
- 6.5.2 (2)
- 6.5.3.1 (3)
- 6.5.3.1 (4)
- 6.5.3.2 (2)
- 6.5.3.2 (4)
- 6.5.3.2 (5)
- 6.5.3.2 (6)
- 6.5.3.4 (3) – 3 choices
- 6.5.6.1 (1)
- 6.5.6.2 (1) – 2 choices
- 6.5.6.3 (1)
- 6.6.2 (1) – 2 choices
- 6.6.2 (2)
- 6.6.3 (1)

(b) Decisions on the use of the Informative Annex A (see Section NA 3)

(c) References to non-contradictory complementary information to assist the user to apply CYS EN 1991-1-1:2025. In this National Annex such information is provided for the following clauses in CYS EN 1991-1-1:2025 (see Section NA 4)

NA 2 NATIONALLY DETERMINED PARAMETERS

NA 2.1 Clause 5.4.3 (1) Additional provisions for bridges

Upper and lower characteristic values of specific weights for elements other than structural specific to bridges are not prescribed.

NA 2.2 Clause 5.4.3 (2) Additional provisions for bridges

A suitable value of the depth of ballast on railway bridges is not prescribed.

The deviation from the nominal depth is $\pm 30\%$.

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NA 2.3 Clause 5.4.3 (3) Additional provisions for bridges

The deviation of the total thickness from the nominal or other specified values for waterproofing, surfacing and other coatings for bridges, where the variability of their thickness can be high, is equal to $\pm 20\%$ if a post-execution coating is included in the nominal value, and to $+40\%$ and -20% if such a coating is not included.

NA 2.4 Clause 5.4.3 (4) Additional provisions for bridges

The deviation from the mean value of the self-weight for cables, pipes and service ducts is $\pm 20\%$.

NA 2.5 Clause 5.4.3 (5) Additional provisions for bridges

The characteristic value for the self-weight of elements such as

- handrails, safety barriers, parapets, kerbs and other bridge furniture
- joints/fasteners
- void formers

is the nominal value.

NA 2.6 Clause 6.2.2 (1) Additional provisions for dynamic actions

No further information is prescribed on the procedure to be used for structures that are susceptible to dynamic excitation.

NA 2.7 Clause 6.5.2 (1) Categories of use and characteristic values

The categories of imposed loads on buildings are those given in Table 6.1(CYS)

Table 6.1 (CYS) — Categories of use and values for q_k and Q_k

Category	Specific Use	Sub-categories with examples	q_k [kN/m ²]	Q_k [kN]	Typical dimension of the area loaded by Q_k expressed in (m × m)
A	Areas for domestic and residential activities	A1 Rooms in residential buildings and houses, including corridors.	2,0	2,0	0,05 × 0,05
		A2 Bedrooms, wards, dormitories, private bathrooms and toilets in hospitals, hotels, hostels and other institutional residential occupancies.	2,0	2,0	0,05 × 0,05
Ba	Public areas (not susceptible)	B1 Office areas for general use including corridors other than archive / storage areas (see Category E)	3,0	3,0	0,05 × 0,05

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Category	Specific Use	Sub-categories with examples	q_k [kN/m ²]	Q_k [kN]	Typical dimension of the area loaded by Q_k expressed in (m × m)
	to crowding)	B2 Kitchens, communal bathrooms and toilets in hospitals, hotels, hostels and other institutional residential occupancies.	3,0	3,0	0,05 × 0,05
C ^{b,c,d}	Public areas where people can congregate (with the exception of areas defined under category A, B, and D)	C1: Areas with tables, etc. e.g. areas in schools, cafés, restaurants, dining halls, reading rooms, receptions.	3,0	4,0	0,05 × 0,05
		C2: Areas with fixed seats, e.g. areas in churches, theatres, cinemas, conference rooms, lecture halls, assembly halls, waiting rooms.	4,0	4,0	0,05 × 0,05
		C3: Areas without obstacles for moving people, e.g. areas in museums, exhibition rooms, etc. and corridors to areas not belonging to categories A1, B1 and C5.	5,0	4,0	0,05 × 0,05
		C4: Areas with possible physical activities, e.g. dance halls, gymnastic rooms, stages.	5,0	7,0	0,05 × 0,05
		C5: Areas susceptible to large crowds, e.g. in buildings for public events including corridors like concert halls, sports halls including stands, and railway platforms.	7,5	4,5	0,05 × 0,05
D	Shopping areas	D1: Areas in retail shops	4,0	4,0	0,05 × 0,05
		D2: Areas in department stores	5,0	7,0	0,05 × 0,05
E	Areas for archive, storage and industrial use ^e	E1: Areas susceptible to accumulation of goods, including access areas ^f	7,5	7,0	a
		E2: Industrial use ^{g,h,i}	a		

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Category	Specific Use	Sub-categories with examples	q_k [kN/m ²]	Q_k [kN]	Typical dimension of the area loaded by Q_k expressed in (m × m)
F	Garages and vehicle traffic areas (excluding ordinary roads and bridges)	<u>Gross vehicle weight ≤ 30 kN:</u> F1 Traffic and parking areas for light vehicles (≤8 seats not including driver) e.g. garages; parking areas, parking halls	2,5	20	a
G		<u>30 kN < Gross vehicle weight ≤ 160 kN:</u> G1 Traffic and parking areas for medium vehicles (on 2 axles) e.g. access routes, delivery zones, zones accessible to fire engines	5,0	90	0,2 × 0,2
		<u>Gross vehicle weight > 160 kN:</u> G2 Traffic and parking areas for heavy vehicles k	a		
H	Roofs not accessible except for normal maintenance and repair		0,4	1,0	0,05 × 0,05
I	Roofs accessible with occupancy according to categories A to G		See categories A to G		
K	Roofs accessible for special services, such as classes HC for helicopter landing areas		5,0	See Table 6.4	
S	Stairs and landings	S1 Stairs and landings to areas belonging to category A1 and B1. m	See categories A1 and B1		0,05 × 0,05
		S2 Stairs and landings for tribunes without fixed seats that are defined as escape ways. m	7,5	3,0	0,05 × 0,05
		S3 Stairs and landings not belonging to category S1 or S2. m	5,0	2,0	0,05 × 0,05
T	Terraces and balconies	T1 Roof terraces, access balconies, balconies, loggias, etc. n	3,0	2,0	0,05 × 0,05

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Category	Specific Use	Sub-categories with examples	q_k [kN/m ²]	Q_k [kN]	Typical dimension of the area loaded by Q_k expressed in (m × m)
a	Specific imposed loading and their impact area may be specified by the relevant authority or, where not specified, agreed for a specific project by the relevant parties.				
b	Depending on their anticipated uses, areas likely to be categorized as C2, C3, C4 may be categorized as C5 in the event of a large crowd as agreed for a specific project by the relevant parties.				
c	Attention is drawn to dynamic effects, see 6.5.2(4) and 6.2.2, in particular for C4 and C5.				
d	For loadings on grandstands and stages, see 6.5.3.4.				
e	For concentrated loads from storage racks or from lifting equipment, Q_k should be determined for the individual case.				
f	Loads for storage areas for books and other documents should be determined from the loaded area and the height of the bookcases using the appropriate values for density. Presence of movable stands should be considered where relevant.				
g	For industrial use, see also 6.5.4.				
h	For actions induced by forklifts, see 6.5.4.2.				
i	For actions induced by transport vehicles, see 6.5.4.3.				
j	For actions induced by special devices for maintenance, see 6.5.4.4.				
k	For heavy vehicles, see also EN 1991-2.				
l	The characteristic values Q_k and q_k given in this table for roofs in category H are related to the projected area of the roof under consideration. They do not take into account uncontrolled accumulations of construction materials that can occur during maintenance, see also EN 1991-1-6.				
m	For stairs and landings, see 6.5.7.				
n	For terraces and balconies, see 6.5.8.				

NA 2.8 Clause 6.5.2 (2) Categories of use and characteristic values

The characteristic values q_k (uniformly distributed load) and/or Q_k (concentrated load) of imposed loads on buildings are those given in Table 6.1(CYS).

NA 2.9 Clause 6.5.3.1 (3) Partitions treated as imposed loads

Uniformly distributed load $q_{k,p}$ for partitions with a self-weight $Q_{k,p} \leq 3,0$ kN/m wall length is derived from Formula (6.1) :

$$q_{k,p} = \max \{0,35 \text{ kN/m}^2; (0,4/m) Q_{k,p}\} \tag{6.1}$$

where:

$Q_{k,p}$ is expressed in kN/m wall length.

$q_{k,p}$ is expressed in kN/m².

NA 2.10 Clause 6.5.3.1 (4) Partitions treated as imposed loads

No specific rules are set to derive the value of the uniformly distributed load $q_{k,p}$ for partitions with a self-weight $Q_{k,p} > 3,0$ kN/m wall length.

NA 2.11 Clause 6.5.3.2 (2) Reduction factors

The reduction factors α_A and α_n when dealing with multi-storey buildings can be mutually combined provided that the product $\alpha_A \times \alpha_n$ is not less than 0,50.

NA 2.12 Clause 6.5.3.2 (4) Reduction factors

The value for the reduction factor α_A for categories A, B, C, D and category I (accessible roofs) is determined from Formula (6.2)

$$\alpha_A = 0,5 + \frac{10}{A} \leq 1,0 \tag{6.2}$$

with the restriction for categories C and D: $\alpha_A \geq 0,6$

where A is the tributary area expressed in m².

NA 2.13 Clause 6.5.3.2 (5) Reduction factors

The values for α_n are calculated from Formula (6.3):

$$\alpha_n = 0,7 + \frac{0,6}{n} \leq 1,0 \tag{6.3}$$

where α_n is calculated for each floor considering the number of floors n above the column or wall under consideration.

NA 2.14 Clause 6.5.3.2 (6) Reduction factors

The two factors ψ and α_n can be combined.

NA 2.15 Clause 6.5.3.4 (3) Grandstands and stages

The minimum vertical static equivalent load is 5 kN/m².

The minimum notional horizontal load is 5 % of the design vertical imposed load applied to the area of stage floor on which the activity takes place

The minimum notional horizontal load is 2,5 % of the design vertical imposed load for other parts of the stage floor (for example areas used for workers and equipment).

NA 2.16 Clause 6.5.6.1(1) General rules

No specific rules are set for treatment of simultaneity of imposed loads with climatic actions.

NA 2.17 Clause 6.5.6.2 (1) Roofs not accessible except for normal maintenance and repair (category H)

No variation of the characteristic value q_k is prescribed, dependent upon the roof slope.

The area A_{ref} is equal to 10 m². No specific rules for considering the maintenance and repair conditions that are expected are specified.

NA 2.18 Clause 6.5.6.3 (1) Roofs accessible for special services (category K)

Q_k is taken from Table 6.4(CYS) according to the class of the helicopter.

Table 6.4 (CYS)— Imposed loads on roofs of category K for helicopters

Class of helicopter	Take-off load Q of helicopter	Take-off load Q_k	Dimension of the loaded area (m × m)
HC1	$Q \leq 20$ kN	$Q_k = 20$ kN	0,2 × 0,2
HC2	20 kN < $Q \leq 60$ kN	$Q_k = 60$ kN	0,3 × 0,3
HC3	60 kN < $Q \leq 120$ kN	$Q_k = 120$ kN	0,3 × 0,3

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NA 2.19 Clause 6.6.2 (1) Horizontal loads

The characteristic values of the line load q_k are given in Table 6.5 (CYS).

No additional concentrated loads Q_k and related loaded area, and/or hard or soft body impact specifications for analytical or experimental verification are prescribed.

Table 6.5 (CYS) — Horizontal loads on barriers (except guard rails for areas only accessible for maintenance and repair)

Category	Specific Use	q_k [kN/m]
A	Areas for domestic and residential activities	0,8
B	Public areas (not susceptible to crowding)	
C1	Areas with tables	
C2	Areas with fixed seats	1,0
C3	Areas without obstacles for moving people	
C4	Areas with possible physical activities	
D	Shopping areas	
C5	Areas susceptible to large crowds	3,0
E ^a	Areas for archive, storage and industrial use	2,0
F	Garages and vehicle traffic areas for gross vehicle weight ≤ 30 kN	See EN 1991-1-7
G	Garages and vehicle traffic areas for gross vehicle weight > 30 kN	See EN 1991-1-7
H	Roofs not accessible except for normal maintenance and repair	0,8
I	Roofs accessible with occupancy according to categories A to G	See categories A to G
K	Roofs accessible for special services, such as classes HC for helicopter landing areas	1,0
S	Stairs and landings	See categories A to G
T	Balconies and terraces	
^a For areas of category E, the horizontal loads depend on the occupancy. Therefore, the value of q_k is defined as a minimum value and should be checked for the specific occupancy and actual storage conditions.		

NA 2.20 Clause 6.6.2 (2) Horizontal loads

The value of Q_k is equal to 0,3 kN.

NA 2.21 Clause 6.6.3 (1) Vertical loads

The value of Q_k is equal to 1 kN and the value of q_k is equal to 0,6 kN/m.

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NA 3 DECISION ON USE OF THE INFORMATIVE ANNEX A

NA 3.1 Annex A

Annex A may be used

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

None