



**SLOVENSKI STANDARD**  
**kSIST-TP FprCEN/TR 1317-6:2011**  
**01-december-2011**

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**Oprema cest - 6. del: Varnostne ograje za pešce - Ograje za pešce**

Road restraint systems - Part 6: Pedestrian restraint system - Pedestrian parapets

Rückhaltesysteme an Straßen - Teil 6: Fußgängerrückhaltesysteme, Brückengeländer

**Ta slovenski standard je istoveten z: FprCEN/TR 1317-6**

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**ICS:**

13.200	Preprečevanje nesreč in katastrof	Accident and disaster control
93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations

**kSIST-TP FprCEN/TR 1317-6:2011**      **en,fr,de**



TECHNICAL REPORT  
RAPPORT TECHNIQUE  
TECHNISCHER BERICHT

**FINAL DRAFT**  
**FprCEN/TR 1317-6**

October 2011

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ICS

English Version

## Road restraint systems - Part 6: Pedestrian restraint system - Pedestrian parapets

Rückhaltesysteme an Straßen - Teil 6:  
Fußgängerrückhaltesysteme, Brückengeländer

This draft Technical Report is submitted to CEN members for Technical Committee Approval. It has been drawn up by the Technical Committee CEN/TC 226.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (FprCEN/TR 1317-6:2011) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

This document is currently submitted to the Technical Committee Approval.

The series of standards EN 1317 on “*Road restraint systems*” contains the following parts:

- *Part 1: Terminology and general criteria for test methods;*
- *Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets;*
- *Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions;*
- *Part 4: Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers <sup>1)</sup>;*
- *Part 5: Product requirements and evaluation of conformity for vehicle restraint systems;*
- *Part 6: Pedestrian restraint systems — Pedestrian parapets <sup>2)</sup>;*
- *Part 7: Performance classes, impact test acceptance criteria and test methods for terminals of safety barriers <sup>2)</sup>;*
- *Part 8: Motorcycle road restraint systems which reduce the impact severity of motorcyclist collisions with safety barriers <sup>2)</sup>.*

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1) ENV 1317-4:2001 will be superseded by future EN 1317-4, *Road restraint systems — Part 4: Performance classes, impact test acceptance criteria and test methods for transitions of safety barriers* (under preparation).

2) Under preparation.

## Introduction

The safety considerations of pedestrians using road bridges, footbridges and similar elevated structures require the installation of special road restraint systems, so called pedestrian restraint systems or pedestrian parapets.

Pedestrian parapets are used to prevent people from falling off a bridge or other type of elevated structure

Aspects included in the Technical Report are

- a) safety in use for pedestrians and other highway users (excluding motor vehicles),
- b) the safety considerations of pedestrians using road bridges and footbridges and similar structures
- c) analysis and test methods,
- d) durability,
- e) labelling and marking.

## FprCEN/TR 1317-6:2011 (E)

### 1 Scope

This Technical Report specifies geometrical and technical requirements for the design and manufacture for pedestrian parapets on road bridges, on footbridges, on top of retaining walls and on similar elevated structures.

This Technical Report also specifies test methods and provision for the labelling and marking of these products.

This Technical Report does not cover

- vehicle restraint systems
- pedestrian restraint systems in residential, commercial or industrial buildings and within their perimeter,
- non-rigid rails i.e. rope, cables.

This Technical Report may be used for pedestrian parapets on structures which crossover railways, rivers and canals.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1317-1:2010, *Road restraint systems — Part 1: Terminology and general criteria for test methods*

EN 1990:2002, *Eurocode — Basis of structural design*

EN 10204, *Metallic products — Types of inspection documents*

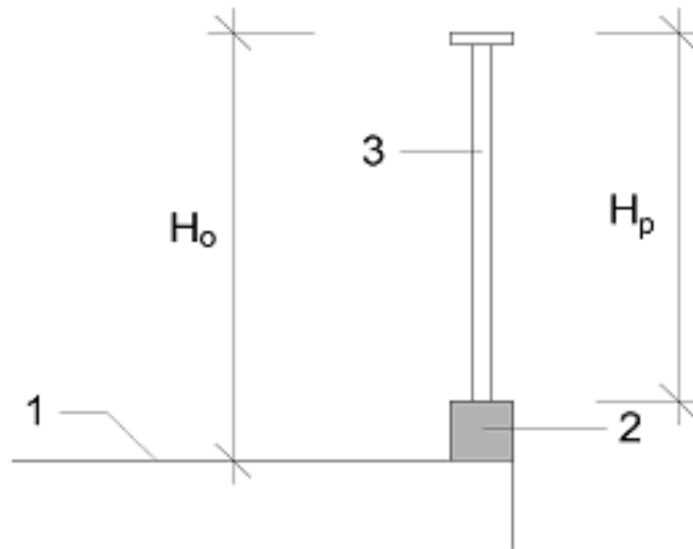
EN 12767, *Passive safety of support structures for road equipment — Requirements, classification and test methods*



### 3 Terms, definitions, symbols and abbreviations

#### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1317-1:2010 and the following apply.



#### Key

- 1 pedestrian walking surface
- 2 plinth (concrete, steel, or other material)
- 3 manufactured pedestrian parapet covered by this Technical Report (manufactured product in steel, aluminium, wood, or other material which is capable of meeting the requirements of this Technical Report)

**Figure 1 — Pedestrian parapet**

NOTE See informative Annex E for examples of parapets, Figure E.1 and E.2.

##### 3.1.1

#### **base-plate**

plate attached to the base of a pedestrian parapet post, which is used to fix the pedestrian parapet to the structure

##### 3.1.2

#### **design working life**

period of time in which the product or component is required to maintain the declared performance characteristics and will not require repair or withdrawal from service under normal maintenance and intended use conditions

##### 3.1.3

#### **handrail**

rigid rail attached to or part of a pedestrian parapet to assist and guide pedestrians

NOTE The top rail may also function as the handrail.

##### 3.1.4

#### **infilling**

material that is fixed to posts and/or rails of a pedestrian parapet in order to reduce the size of openings (voids)

## FprCEN/TR 1317-6:2011 (E)

### 3.1.5

#### **kicking plate**

continuous upstand which can be attached to the bottom of the pedestrian parapet

### 3.1.6

#### **overall working height**

$H_o$

total working height (regulatory height) of the pedestrian parapet above the pedestrian walking surface

NOTE See Figure 1.

### 3.1.7

#### **panel**

section of a pedestrian parapet bounded by two posts

NOTE The panel includes any surrounding posts and rails.

### 3.1.8

#### **pedestrian parapet**

pedestrian or other users restraint system along or on top of a bridge, retaining wall or similar structure which is not intended to act as a road vehicle restraint system

### 3.1.9

#### **pedestrian restraint system**

product designed to meet the requirements of this Technical Report

### 3.1.10

#### **plinth**

continuous upstand which supports the posts of the pedestrian parapet and which is part of the main structure to which it is attached

### 3.1.11

#### **post**

vertical or inclined member of a pedestrian parapet which withstands both horizontal and vertical forces and transmits these forces to the supporting structure

### 3.1.12

#### **product height**

$H_p$

overall height of the manufactured product including base-plate if provided

NOTE See Figure 1.

### 3.1.13

#### **rail**

member of a pedestrian parapet that transmits vertical and horizontal forces to the posts

NOTE Top and other rails are included.

### 3.1.14

#### **spaces, gaps and voids**

space formed by the surrounding infilling of posts and rails

### 3.1.15

#### **traffic loads**

non-vehicular loads caused by pedestrians and other highway users e.g. cyclists and equestrians

## 3.2 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply:

### 3.2.1 Latin upper case letters

$A_d$	Design value of an accidental action
$C_d$	Limiting design value of the relevant serviceability criterion
$D_s$	Declared dimension(s) of spaces and voids
$D_b$	Diameter of spherical object which defines the dimensions of the spaces and voids
$E$	Energy
$E_d$	Design value of effect of actions
$F_d$	Design value of an action (load)
$F_{dc}$	Design value of connection to main structure
$F_{hk}$	Characteristic horizontal point load caused by traffic
$F_{pdn}$	Design load perpendicular on the infill
$F_T$	Test load
$F_{T,S}$	Test load at serviceability level
$F_{T,U}$	Test load at ultimate level
$F_w$	Resultant Wind force
$G_k$	Characteristic value of a permanent action
$H_O$	Overall height in metres of the pedestrian parapet above the pedestrian walking surface
$H_P$	The vertical height of the manufactured pedestrian parapet
$Q_{hk}$	Characteristic value of the concentrated horizontal traffic loads
$Q_{vk}$	Characteristic value of the concentrated vertical traffic loads
$R_d$	Design resistance
$R_k$	Characteristic resistance
$R_T$	Resistance derived from testing
$S$	Slope of load/deformation curve
$S_{n,dyn}$	Load from snow removal machinery
$S_n$	Snow load
$SLS$	Serviceability Limit State
$ULS$	Ultimate Limit State

## FprCEN/TR 1317-6:2011 (E)

### 3.2.2 Latin lower case letters

$b$	Width of footway
$q_{hk}$	Characteristic value of the uniformly distributed horizontal traffic loads (line load or patch load)-top rail
$q_{hki}$	Characteristic value of the uniformly distributed horizontal traffic loads (line load or patch load)-other rails
$q_{vk}$	Characteristic value of the uniformly distributed vertical traffic loads (line load or patch load)

### 3.2.3 Greek lower case letters

$\alpha$	Test resistance reduction factor (and bag angle B.4.4)
$\gamma$	Partial factor
$\gamma_A$	Partial factor for accidental actions
$\gamma_{Gs}$	Partial factor for permanent actions (e.g. self weight permanent actions)
$\gamma_M$	Partial factor for a material property
$\gamma_Q$	Partial factor for variable actions (traffic loads, wind loads, snow loads)
$\delta_h$	Horizontal deformation or deflection
$\psi$	Combination factor
$\psi_0$	Factor for the combination value of a variable action
$\psi_1$	Factor for the frequent value of a variable action

## 4 Requirements

### 4.1 General

Pedestrian parapets should be designed and/or tested and should conform to the requirements of this Technical Report.

NOTE 1 Where a vehicle restraint system is required to function also as a pedestrian parapet, the requirements of EN 1317-5 should be met.

Figures in Annex E illustrate the constituent parts of a pedestrian parapet.

NOTE 2 Manufacturers may provide other design types which are not shown in Annex E provided they comply with the requirements of this Technical Report.