SLOVENSKI STANDARD
SIST EN 17879:2024

01-februar-2024

Strukture dogodkov - Varnostne zahteve

Event structures - Safety requirements

Event-Strukturen - Sicherheit

Structures événementielles - Exigences de sécurité

Ta slovenski standard je istoveten z: **EN 17879:2023**

ICS:

91.040.99	Druge stavbe	Other buildings
97.200.10	Gledališka, odrska in studijska oprema ter delovne postaje	Theatre, stage and studio equipment

SIST EN 17879:2024 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 17879

December 2023

ICS 91.040.99; 97.200.10

English Version

Event structures - Safety requirements

Structures événementielles - Exigences de sécurité

Event-Strukturen - Sicherheit

This European Standard was approved by CEN on 27 November 2023.

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

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Ref. No. EN 17879:2023 E

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European foreword

This document (EN 17879:2023) has been prepared by Technical Committee CEN/TC 152 “Fairground and amusement park machinery and structures – Safety”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

The object of this document is to provide safety requirements for event structures. Examples of event structures covered by this standard are, but not limited to, stage roofs, stage walls, stage platforms, support structures for entertainment technology equipment, technical accommodations, raised platforms for public and bespoke structures. These safety requirements are aimed to safe-guard persons and objects against damage caused by design, manufacturing and operation of these structures.

These safety requirements have been drawn up according to past experience and risk analysis. Existing national rules concerning health and safety of workers remain untouched.

Attentions is drawn to the fact that in certain countries additional/different requirements may be applicable due to existing national regulations or equivalent.

1 Scope

This document specifies the minimum requirements necessary to ensure the safe design, calculation, manufacture, assembly, operation, disassembly, inspection and maintenance of the following, but not limited to:

- structures e.g. stage roofs, stage floors, follow spot towers, PA towers,
- LED support structures,
- one-off event structures,
- hospitality structures,
- temporary spectator facilities.

The above hereafter called event structures are structures intended to be installed and dismantled specifically for an event.

This document does not cover:

- Spectator facilities – EN 13200-series,
- Temporary structure – Tents – safety by EN 13782,
- Fairground and amusement park machinery and structures as per EN 13814 series,
- Temporary works equipment covered by CEN/TC 53,
- Inflatable play equipment-safety requirements and test methods as per EN 14960,
- Entertainment Technology as described by CEN TC 433.

NOTE This document is not applicable to event structures which are designed, manufactured, placed on the market or put in service before the date of publication of this document by CEN.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1090, (all parts) *Execution of steel structures and aluminium structures*

EN 1990:2023, *Eurocode - Basis of structural and geotechnical design*

EN 1991-1-3, *Eurocode 1 - Actions on structures - Part 1-3: General actions - Snow loads*

EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*

EN 1993-1-1:2022, *Eurocode 3 - Design of steel structures - Part 1-1: General rules and rules for buildings*

EN 1993-1-8, *Eurocode 3: Design of steel structures - Part 1-8: Design of joints*

EN 1995-1-1, *Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings*

EN 1997-1,[1] *Eurocode 7: Geotechnical design – Part 1: General rules*

EN 1999-1-1:2023, *Eurocode 9 - Design of aluminium structures - Part 1-1: General rules*

EN 13200-6, *Spectator facilities - Part 6: Demountable stands*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire test*

EN 13782, *Temporary structure - Tents - Safety*

EN 15619, *Rubber or plastic coated fabrics - Safety of temporary structures (tents) - Specification for coated fabrics intended for tents and related structures*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
active viewing zone
part of the viewing platform where a crowd can congregate and has a clear line of sight to the external focus point

Note 1 to entry: The minimum depth of an active viewing zone is 1 m.

3.2
analysis of use
documented assessment of the use of a structure or a part of it in order to determine the necessary safety requirements, maximum loads, etc

Note 1 to entry: Examples are, but not limited to; extremely heavy scenery, excessive point loads, moving objects, performance areas with guaranteed low loads, etc.

3.3
approval
confirmation by a qualified person that the examination has been carried out with a positive result

3.4
competent person
competent person is a person who has sufficient training and experience to take responsibility for an identified task

3.5
depending action
action that cannot be considered without the presence of another action

[1] Under preparation. Stage at the time of publication prEN 1997-1.

Note 1 to entry: For example; if wind load on a video screen is part of a load combination, the weight of the screen will also be taken in account.

3.6
event structure
structure to be set-up for no more than 90 days to be used for events

Note 1 to entry: For the purpose of readability throughout this document, the “term” structure refers to an event structure unless otherwise stated.

3.7
event
public or private occasion at which visitors are present

Note 1 to entry: Examples are, but not limited to: artistic performances, product presentations, theatre shows, concerts, festivals, exhibitions, parties, meetings.

3.8
examination
comparison of the technical documentation and the set-up event structure

3.9
exclusive action
action that cannot occur in combination with another (specific) action

3.10
external focus point
place outside of the structure such as a sport event or (music) performance causing the risk of public gathering on active viewing zone of platform for viewing

3.11
guardrail
physical barrier to protect persons from falling off raised areas

Note 1 to entry: Examples are stages or platforms.

3.12
handrail
upper horizontal ledger of the guardrail

3.13
inspection
visual check for intactness of all components of an event structure carried out by a competent person

3.14
maintenance
measures to ensure the intactness of all components of an event structure following the instructions given in the technical documentation

Note 1 to entry: Examples of maintenance are adjustment, cleaning, regular replacement etc.

3.15
modification
any alteration of an event structure which results in a departure from the original design specification

3.16
one-off event structure
event structure designed to be used for one specific event only

3.17
Operational Management Plan
OMP
written compilation of all measures to be taken to provide safe operation of an event structure including set-up, operation, and dismantling

3.18
Operational Wind Speed
OWS
allowable 3 second gust wind speed that an event structure is designed to withstand in operational state

3.19
qualified person
qualified person is one who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project

3.20
repair
restorations of worn, damaged or decayed parts back to the original design specification

3.21
roof system
event structure covering a stage or spectator facilities in order to shelter performers, equipment and public from weather conditions

3.22
stage
raised platform intended to be used for performing and to support equipment

3.23
set-up
assembling of an event structure on site

3.24
service area
area where publicly accessible utilities are found

Note 1 to entry: This includes passages, concourses, ramps and stairs between the viewing area and the external area.

Note 2 to entry: Examples of utilities are: toilets, first aid, cafeterias, souvenirs shops.

3.25
sightline
line joining the eye of a spectator and the point of interest on the activity area without optical interruption

3.26
temporary (grand)stand
temporary, tiered structure providing a viewing area, set-up with the intention to provide a sightline for every spectator on the structure

Note 1 to entry: A temporary grand stand is having just one row of standing or seated spectators per tier.

3.27
temporary spectator facility
structure accessible for visitors of the event, possibly also providing area(s) designated for spectators to congregation/dance/interact without having a sightline

Note 1 to entry: This includes structures in service areas, where publicly accessible utilities are found.

3.28
user
person or organization that has the general control of an Event Structure

Note 1 to entry: The user can be a natural or legal person, which is the owner of the event structure or a concessionaire or tenant, to which the owner has given control over the Event structure for a certain time (event time, installation time).

3.29
Wind Management Plan
WMP
written compilation of all measures to be taken to maintain personal safety and structural safety of the event structure as part of an operational management plan

4 General requirements for design, analysis, documentation and verification

4.1 General

Materials used in event structures shall comply to the specifications defined in the relevant European Standards.

Materials not complying with this document may be used if their serviceability and characteristic data have been proven.

4.2 Design

4.2.1 Selection of structural materials

Structural materials, except timber and plywood used for spreaders, packing plates and floors (stages, stands, platforms, etc.) and their adjacent stairs, ramps and walkways, shall be at least fire retardant according to EN 13501-1, class B—S2, D0, or equivalent national standards on fire behaviour. Safety cables and cables for wind-bracing shall be of non-inflammable material.

4.2.2 Selection of covering materials

Rubber and plastic coated fabrics shall comply to EN 15619. A corresponding declaration or certificate shall be provided by the supplier.

For other fabric materials and cladding elements of:

- cotton fabrics;
- synthetic fabrics;

- solid covering and sheeting such as sectional metal sheets, wood or plastic panels and multi components elements.

The following requirements apply:

- fabric materials designated for structural use shall conform to EN standards or, in their absence, to agreement by the parties involved;
- it shall be ensured that the material and the connections specified, provide sufficient resistance against environmental influences and tensile strength to ensure safe and durable performance of the textile cover.

4.2.3 Design Classes

4.2.3.1 Reliability management (RC)

The reliability management shall be RC2 based on Table B.3 of EN 1990:2023.

4.2.3.2 Design working life

As a general rule the design working life shall be 15 years.

4.2.3.3 Consequence classes (CC)

The consequence classes shall be CC2 based on Table B.1 of EN 1990:2023.

4.2.4 Durability

4.2.4.1 Execution class (EXC)

The execution class shall be EXC2 when predominately statically loaded based on, EN1999-1-1:2023, Table A.3, EN 1993-1-1:2022, Table C.1, or according to the relevant EN-Standard.

4.2.4.2 Service Class (SC)

The service class shall be SC2, based on EN 1995-1-1.

4.2.4.3 Production category (PC)

The production class shall be PC2, based on EN 1999-1-1:2023, EN 1993-1-1:2022 or the relevant EN standard for welded structures.

4.3 Principles of analysis

Analysis shall follow the relevant parts of the Eurocode, if not otherwise stated in this document and shall comprise:

- limit states analysis (according to theory of 1st or 2nd order);
- stability limit state analysis: (i.e. bar buckling, plate and shell buckling);
- verification of deformation limit states (if required);
- verification of safety against overturning, sliding and uplift.

Event Structures shall be assumed to be predominantly statically loaded.