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Pomični delovni odri na kolesih iz predizdelanih tipskih elementov - 1. del: Materiali, mere, obtežbe in varnostne zahteve

Mobile access and working towers made of prefabricated elements - Part 1: Materials, dimensions, design loads, safety and performance requirements

Fahrbare Arbeitsbühnen aus vorgefertigten Bauteilen - Werkstoffe, Maße, Lastannahmen und sicherheitstechnische Anforderungen

Tours d'accès et de travail roulantes en éléments préfabriqués - Matériaux, dimensions, charges de calcul et exigences de sécurité

Ta slovenski standard je istoveten z: **EN 1004-1:2020**

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Mobile access and working towers made of prefabricated elements - Part 1: Materials, dimensions, design loads, safety and performance requirements

Échafaudages roulants en éléments préfabriqués - Partie 1 : Matériaux, dimensions, calculs de charge, exigences de performance et de sécurité

Fahrbare Arbeitsbühnen aus vorgefertigten Bauteilen - Werkstoffe, Maße, Lastannahmen und sicherheitstechnische Anforderungen

This European Standard was approved by CEN on 14 March 2020.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 1004-1:2020) has been prepared by WG4 “Mobile access towers” under the direction of Technical Committee CEN/TC 53 “Temporary works equipment”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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.

This document supersedes EN 1004:2004.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The development of mobile access and working towers systems is from the following two roots:

— scaffold manufacturers placed prefabricated unanchored scaffolds on four legs and castors;

— ladder manufacturers began to construct mobile access towers with light-weight ladders using aluminium frames and castors.

Taking this into account, CEN/TC53 decided in 1980 to standardize the manufacture of mobile access and working towers in parallel with the European standardization of prefabricated service and working scaffolds EN 12810-2 and EN 12811-3.

For materials, this document refers only to valid documents. However, a large stock of equipment made of materials conforming to documents no longer valid is in use. This document does not cover this equipment.

Attention is drawn to the requirements of the European Council Directive 2009/104/EC (provisions concerning the use of work equipment provided for temporary work at a height).

The average height of people continues to increase and that consideration will have to be given in later revisions to altering vertical dimensions.

The wind load requirements of this standard (0,1 kN/m^2).

Consider the fact that mobile access towers are generally intended for shorter duration tasks and may be re-located or quickly dismantled. Attention is drawn to 3.1, Note 2 and to the requirements of EN 1298 regarding information relating to wind conditions.

Mobile access and working towers are not anchor points for personal fall arrest equipment unless they are specifically designed in accordance with relevant European standards by the manufacturer for that purpose.

1 Scope

This document applies to the design of mobile access and working towers made of prefabricated elements with dimensions which are fixed by the design and with a height up to 12 m (indoors) and up to 8 m (outdoors). This document applies to mobile access and working towers used as temporary work equipment.

This document:

— gives guidelines for the choice of the main dimensions and stabilizing methods,

— gives safety and performance requirements, and

— gives information on complete towers.

This product standard does not apply to scaffolds according to EN 12810-1 and EN 12811-1.

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 131-2, *Ladders — Part 2: Requirements, testing, marking*

EN 1298, *Mobile access and working towers — Rules and guidelines for the preparation of an instruction manual*

EN 1991-1-4:2005, *Eurocode 1: Actions on structures — Part 1-4: General actions - Wind actions*[1)]

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

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

EN 1999-1-1[2)], *Eurocode 9: Design of aluminium structures — Part 1-1: General structural rules*

EN 12810-2:2003, *Façade scaffolds made of prefabricated components — Part 2: Particular methods of structural design*

EN 12811-1, *Temporary works equipment — Part 1: Scaffolds — Performance requirements and general design*

EN 12811-2, *Temporary works equipment — Part 2: Information on materials*

EN 12811-3, *Temporary works equipment — Part 3: Load testing*

EN ISO 2081, *Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel (ISO 2081)*

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1) This document is impacted by the amendment EN 1991-1-4:2005/A1:2010.

2) This document is impacted by the amendments EN 1999-1-1:2007/A1:2009 and EN 1999-1-1:2007/A1:2013.

3 Terms and definitions

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

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

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

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

3.1
mobile access and working towers
temporary free-standing structures consisting of prefabricated elements, having dimensions fixed by the design and four legs with castors, providing one or more platforms

Note 1 to entry: Mobile access and working towers can have outriggers or stabilizers. They can be stabilized by supports on the ground or wall struts against a stable structures or ballast.

Note 2 to entry: Mobile access and working towers have castor wheels. Mobile access and working towers can be removed immediately, in case of arising wind greater than equivalent dynamic pressure 0,1 kN/m^2 or at the end of the work shift.

3.2
height (*h*)
distance from the ground to the upper surface of the uppermost platform

3.3
castor wheel
swivelling wheel secured to the base of a mobile access and working tower to enable the tower to be moved

3.4
adjustable leg
component incorporated into the structure of a mobile access and working tower at its base used for the purpose of levelling the structure when situated on uneven or sloping ground

3.5
platform unit
prefabricated unit which forms the platform or part of the platform, that supports a load on its own and might form a structural part of the mobile access and working tower

3.6
bracing member
means used to stiffen the structure

3.7
outrigger
component that increases the effective base dimensions of a tower, with provision for the attachment of a castor

3.8
stabilizer
component that increases the effective base dimensions of a tower, without provisions for the attachment of a castor

3.9
ballast
weights placed at the base of the tower to increase its resistance to overturning

3.10
wall strut
means for providing compressive restraint to prevent a tower overturning

Note 1 to entry: It is normally a horizontal tubular member, one end of which is connected to the tower, while the other end rests against a wall or other structure.

3.11
stairway
means of access intended for persons carrying tools or materials

3.12
stairladder
means of access intended for person's not carrying tools or materials

3.13
inclined ladder
means of access intended for persons not carrying tools or materials with an inclination from 60° to 75°

3.14
vertical ladder
means of access intended for persons not carrying tools or materials with an inclination of 90°

3.15
platform
one or more platform units placed side by side at the same level

3.16
platform length (*l*)
greater of the two plane dimensions at the platform level

Note 1 to entry: See Figure 1.

3.17
platform width (*w*)
lesser of the two plane dimensions at the platform level

Note 1 to entry: See Figure 1.

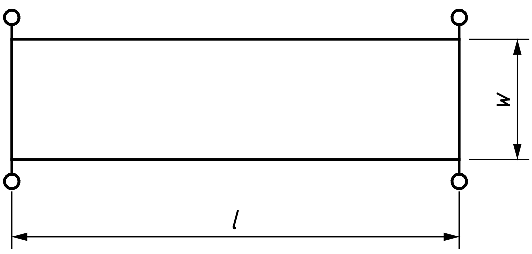


Figure 1 — Width and length of a platform

3.18
indoors
place where the tower will not be exposed to wind loads

3.19
outdoors
place where the tower might be exposed to wind loads

3.20
side protection
components forming a barrier to protect people from the risk of falling and to retain materials

3.21
working platform
platform in a mobile access and working tower from where the work will be carried out

3.22
intermediate platform
platform in a mobile access and working tower that is not a working platform

3.23
positive locking device
mechanical locking device not relying on friction which prevents unintentional disconnection

EXAMPLE A pin, bolt or protrusion.

4 Classification

4.1 Load classes

The classes of uniformly distributed load are given in Table 1.

Table 1 — Classes of uniformly distributed load

Load class	Uniformly distributed load q kN/m²
2	1,50
3	2,00

4.2 Access classes

Four options for access to the platform are described in 7.6.

4.3 Height classes

Two options for minimum clear height between platforms are described in 7.2.

5 Designation

The following data are required for the designation of all prefabricated mobile access and working towers:

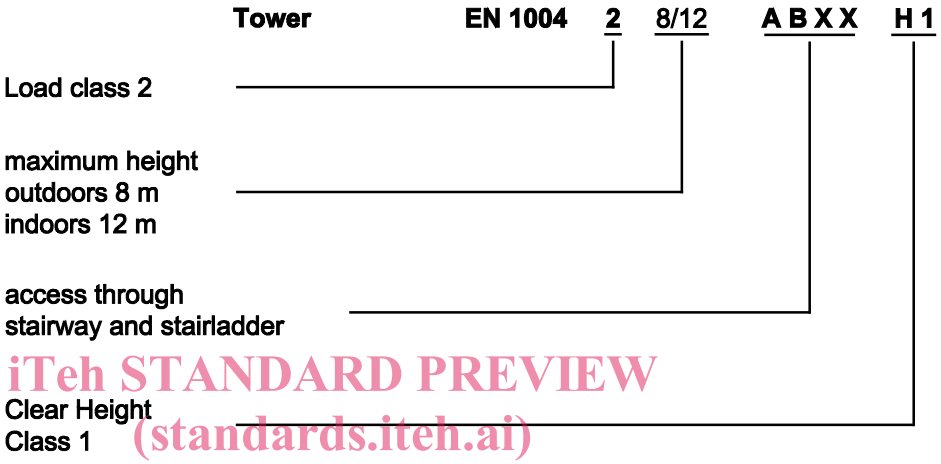
a) class of uniformly distributed load (see 4.1);

b) maximum height outdoors/indoors;

c) access classes (see 4.2);

d) clear height classes (see 4.3).

Example



6 Materials

Materials shall fulfil the requirements given in European standards, where design data are provided. If European standards do not exist, ISO standards can be applied.

Materials shall be sufficiently robust and durable to withstand normal working conditions.

Additional requirements for some materials are given in EN 12811-2.

When materials are used, whose properties in relation to the intended application (e.g. temperature, ageing, UV-degradation) are not given in any available standard an adequate assessment is required.

Steel shall be protected by one of the methods given in EN 12811-2, or zinc plated to the level required for the design service environment stated in EN ISO 2081.

7 General requirements

7.1 General

A mobile access and working tower shall only consist of a single-bay structure.

The mobile access and working tower shall be designed such that it can be assembled, altered and dismantled without the need for personal fall protection equipment.

Only one platform shall be a working platform at one time.

The mobile access and working tower shall be designed in such a way that the uppermost platform is a working platform and lower platforms are intermediate platforms.

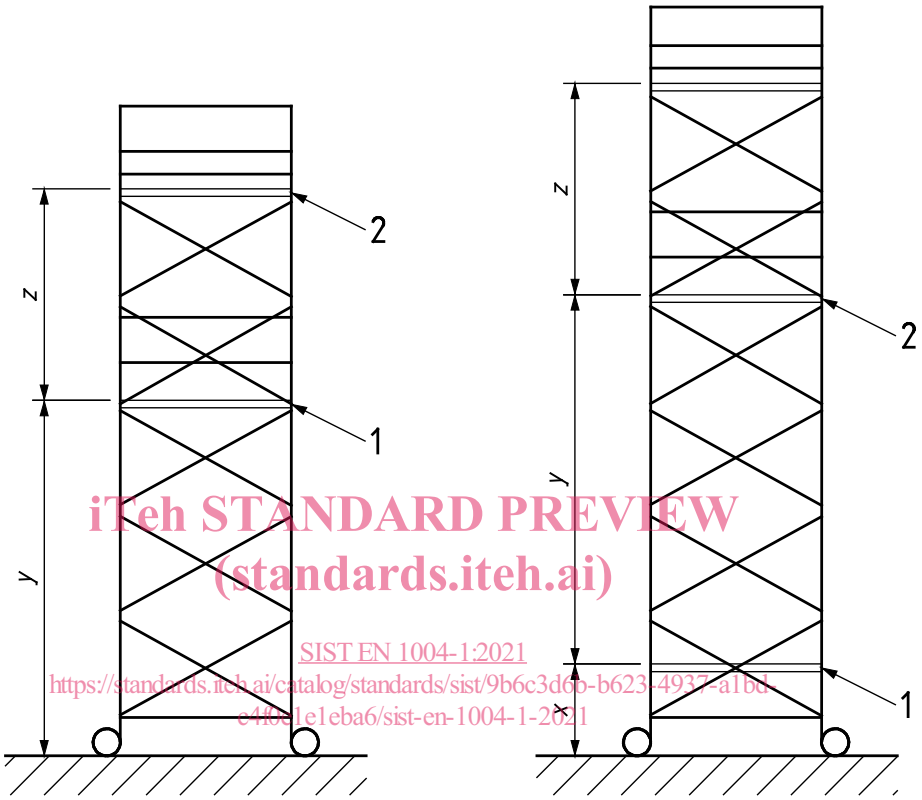
NOTE An intermediate platform can be changed to be the working platform if it is equipped with side protection, including toe boards.

The vertical distance between platforms shall be no greater than 2,25 m.

The vertical distance between the ground and the first platform shall be no greater than 3,40 m.

However, if a platform is placed ≤ 0,6 m from the ground, it is allowed to have a vertical distance no greater than 3,40 m between that platform and the next platform. See Figure 2.

If the mobile access and working tower cannot be entered from the inside of the structure, the requirements of 7.11 shall apply.



Key

x	≤ 0,6 m
y	≤ 3,40 m
z	≤ 2,25 m
1	first platform
2	second platform

NOTE Stabilizers are omitted from this figure for clarity.

Figure 2 — Maximum distance between platforms