SLOVENSKI STANDARD

SIST EN 1004:2005

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Nadomeģ a:

SIST HD 1004:2000

Pomiļ ni delovni odri na kolesih iz predizdelanih tipskih elementov - Materiali, mere, obteģbe in varnostne zahteve

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

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

Échafaudages roulants de service en éléments préfabriqués - Matériaux, dimensions, charges de calcul et exigences de sécurité

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91.220

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EUROPEAN STANDARD

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EN 1004

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This European Standard was approved by CEN on 12 November 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 1004:2004) has been prepared by 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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document supersedes HD 1004:1992.

The development of mobile access and working towers system is from two roots:

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

— 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.

During discussion of the draft it was noted that the average height of people is increasing and that consideration will have to be given in later editions to altering vertical dimensions.

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

1 Scope

This document applies to the design of mobile access and working towers made of prefabricated elements with a height from 2,5 m to 12,0 m (indoors) and from 2,5 m to 8,0 m (outdoors).

This document:

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

— gives safety and performance requirements; and

— gives some information on complete towers.

NOTE In this document "indoors" means that the towers is not be exposed to wind, and "outdoors" means that the towers may be exposed to wind.

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 74, *Couplers, loose spigots and base-plates for use in working scaffolds and falsework made of steel tubes – Requirements and test procedures*

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

EN 1991-2-4, *Eurocode 1: Basis of design and actions on structures- Part 2-4: Actions on structures - Wind actions*

EN 1993-1-1:2005, *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 rules and rules for building*

EN 1999-1-1, *Eurocode 9: Design of aluminium structures – Part 1-1: General rules - General rules and rules for buildings*

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

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

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

3 Terms and definitions

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

3.1
mobile access and working towers
scaffold structures which:

— are capable of being used free-standing;

— have one or more working platforms;

— are assembled using prefabricated components;

— have the dimensions fixed by the design;

— have normally four legs with at least four castors;

— are stable, by supports on the ground and if necessary by support to a vertical construction by wall strut

3.2
height (H)
distance from the ground to the upper surface of the top platform

3.3
castor wheel
swivelling wheel secured to the base of a member to enable the tower to be moved

3.4
adjustable leg
incorporated into the structure only for plumbing a tower when situated on uneven or sloping ground. An adjustable leg may be fitted with either a castor wheel or a base plate

3.5
platform component
unit of platform that supports a load on its own

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. It is normally a horizontal tubular member, one end of which is coupled 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 persons 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 components forming a working area

3.16
length (*L*)
greater of the two plane dimensions at the platform level (see Figure 1)

3.17
width (*W*)
lesser of the two plane dimensions at the platform level (see Figure 1)

Figure 1 —Width (*W*) and length (*L*)

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/m^2
2	1,50
3	2,00

4.2 Access classes

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

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).

EXAMPLE

Tower EN 1004 2 8/12 A B X X

class 2

maximum height
outdoors 8 m
indoors 12 m

access through
stairway and stairladder

6 Materials

Materials shall fulfil the requirements given in documents where design data are provided. Information for the most commonly used materials are given in EN 12811-2.

Steel shall be protected by one of the methods given in EN 12811-2, Clause 8 or zinc coated with an average thickness of 15 µm.

7 General requirements

7.1 General

The following subclauses specify the minimum requirements for the mobile access and working tower including platforms.

It shall be possible to fix platforms for erection and dismantling purposes with vertical distances between platforms not exceeding 2,10 m

7.2 Dimensions

The minimum width, *W*, of the platform shall be 0,60 m and the minimum length, *L*, shall be 1,00 m.

The minimum clear height between platforms “H” shall be in accordance with Table 2.

Table 2 — Clear height classes

Clear height class	Minimum clear height H in m
H_1	1,85
H_2	1,90

7.3 Apertures within platforms

The aperture shall be as small as practicable, and it shall have a minimum clear opening of:

0,40 m wide x 0,60 m long

Apertures in platforms shall not exceed 25 mm in width. This does not apply to apertures like hand holes in hatches.

Access to a working platform through an aperture in a platform shall be provided with means to prevent falling through.

7.4 Side protection

7.4.1 General

For allowable dimensions see Figure 2.

Dimensions in millimetres unless otherwise stated

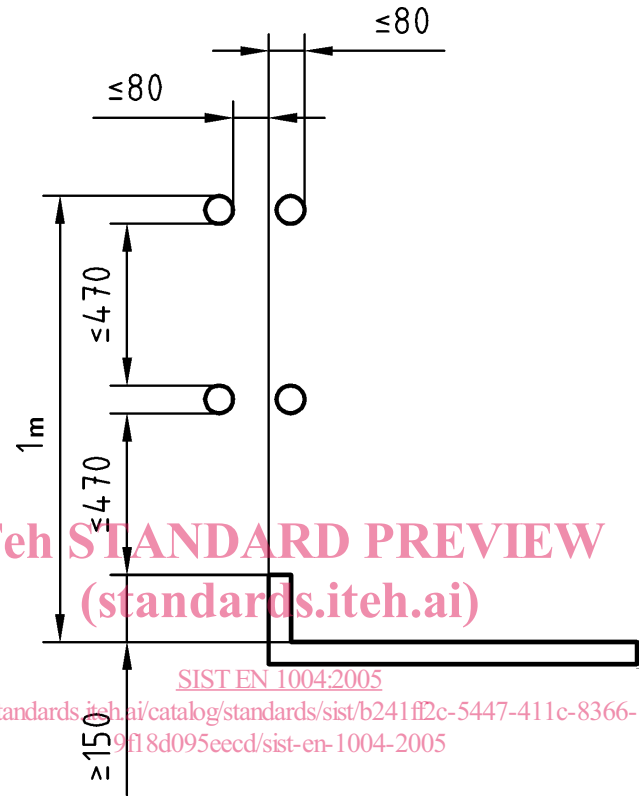

Figure 2 — Side protection dimensions

Side protection components shall be incapable of removal except by direct intentional action.

It shall be possible to erect protection at platform edges comprising:

a) at least one principal guardrail and intermediate side protection;

b) toe-board;

7.4.2 Principal guardrail

The principal guardrail shall be fixed so that its top surface is 1 m or more above the adjacent level of the working area everywhere (minimum height 950 mm).[1)]

1) See A-deviation.

7.4.3 Intermediate side protection

Intermediate side protection shall be fixed between the principal guardrail and the toe-board.

Intermediate side protection may consist of:

— one or more intermediate guardrails, or

— a frame, or

— a frame of which the principal guardrail forms the top edge, or

— a fencing structure.

Openings in the side protection shall be so dimensioned so that a sphere with a diameter of 470 mm will not pass through them.

7.4.4 Toe-board

It shall be possible to fix a solid toe-board such that its top edge is at least 150 mm above the adjacent platform level.

7.5 Castor wheels

7.5.1 General

Castor wheels shall be fixed to the tower in such a way that they cannot be accidentally detached.

7.5.2 Brakes

All castors shall have wheel brakes. They shall have swivel brakes unless by their design they are not eccentric when locked.

The brake mechanism shall be designed in such a way that it can only be unlocked by a deliberate action. The brake mechanism shall effectively prevent any rotation of the wheel when a horizontal force of 0,30 kN is applied through the vertical swivel axis of the castor as close as possible above the castor housing and in the rolling direction of the castor. The full value of the specified service load per castor wheel is to be applied when testing the castor brakes. A minimum of five control tests shall be carried out.