

## **Falsework - Performance requirements and general design**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12812:2008 sisaldab Euroopa standardi EN 12812:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 18.08.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.07.2008.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 12812:2008 consists of the English text of the European standard EN 12812:2008.

This standard is ratified with the order of Estonian Centre for Standardisation dated 18.08.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 16.07.2008.

The standard is available from Estonian standardisation organisation.

ICS 91.220

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English Version

## Falsework - Performance requirements and general design

Etaisements - Exigences de performance et méthodes de conception et calculs

Traggerüste - Anforderungen, Bemessung und Entwurf

This European Standard was approved by CEN on 7 June 2008.

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## Foreword

This document (EN 12812:2008) 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of an identical text or by endorsement, at the latest by January 2009, and conflicting national standards shall be withdrawn at the latest by January 2009.

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

This document supersedes EN 12812:2004.

This European Standard is one of a package of standards that includes also EN 12810-1, EN 12810-2, EN 12811-1, EN 12811-2, EN 12811-3, EN 12813.

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

## Introduction

Most falsework is used:

- to carry the loads due to freshly poured concrete for permanent structures until these structures have reached a sufficient load bearing capacity;
- to absorb the loads from structural members, plant and equipment which arise during the erection, maintenance, alteration or removal of buildings or other structures;
- additionally, to provide support for the temporary storage of building materials, structural members and equipment.

This European Standard gives performance requirements for specifying and using falsework and gives methods to design falsework to meet those requirements. Clause 9 provides design methods. It also gives simplified design methods for falsework made of tubes and fittings. The information on structural design is supplementary to the relevant Structural Eurocodes.

The standard describes different design classes. This allows the designer to choose between more or less complex design methods, while achieving the same level of structural safety.

Provision for specific safety matters is dealt with in EN 12811-1 and other documents.

## 1 Scope

This European Standard specifies performance requirements and limit state design methods for two design classes of falsework.

It sets out the rules that have to be taken into account to produce a safe falsework structure.

It also provides information for falsework which is required to support a "permanent structure", or where the design or supply of falsework has to be commissioned.

This European Standard also gives information on foundations.

This European Standard does not specify requirements for formwork, although formwork may be a part of the falsework construction. Nor does it provide information on access and working scaffolds, which is given in EN 12811-1.

This European Standard does not provide information about site activities. It does not provide information about the use of some standardized products, including timber formwork beams conforming to EN 13377 and props conforming to EN 1065.

## 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 74-1, *Couplers, spigot pins and baseplates for use in falsework and scaffolds — Part 1: Couplers for tubes — Requirements and test procedures*

prEN 74-2, *Couplers, spigot pins and baseplates for use in falsework and scaffolds — Part 2: Special couplers — Requirements and test procedures*

EN 74-3, *Couplers, spigot pins and baseplates for use in falsework and scaffolds — Part 3: Plain base plates and spigot pins — Requirements and test procedures*

EN 1065:1998, *Adjustable telescopic steel props — Product specifications, design and assessment by calculation and tests*

EN 1090-2, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures*

EN 1090-3, *Execution of steel structures and aluminium structures - Part 3: Technical requirements for aluminium structures*

EN 1990, *Eurocode — Basis of structural design*

EN 1991 (all parts), *Eurocode 1 — Actions on structures*

EN 1993-1-1:2005, *Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings*

EN 1997 (all parts), *Eurocode 7 — Geotechnical design*

EN 1998 (all parts), *Eurocode 8 — Design of structures for earthquake resistance*

EN 1999 (all parts), *Eurocode 9 — Design of aluminium structures*

EN 12810-1:2003, *Facade scaffolds made of prefabricated components — Part 1: Product specifications*

EN 12811-1:2003, *Temporary works equipment — Part 1: Scaffolds — Performance requirements and general design*

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

EN 12813, *Temporary works equipment - Load bearing towers of prefabricated components - Particular methods of structural design*

EN 13377, *Prefabricated timber formwork beams — Requirements, classification and assessment*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions in EN 1993-1-1:2005 and the following apply.

#### 3.1

##### **brace**

component connecting two points of a structure to help stiffen it

#### 3.2

##### **design class**

class that defines the extent of design for falsework

#### 3.3

##### **falsework**

temporary support for a part of a structure while it is not self-supporting and for associated service loads

#### 3.4

##### **formwork**

part of temporary works used to give the required shape and support to in-situ concrete

#### 3.5

##### **foundation**

sub-structure needed to transmit loads into the ground

#### 3.6

##### **kentledge**

material placed on a structure to provide stability by the action of its dead weight

#### 3.7

##### **imperfections**

initial out of straightness (bow imperfection) or out of verticality (sway imperfection) of a structural component or of the structure used for calculations

NOTE 1 A bow imperfection can occur both in an individual member and in the complete tower or modular beam assembly. It arises because the member is not straight, is manufactured not straight or members are assembled out of alignment.

NOTE 2 These are the values for design purposes and may be more than the erection tolerance.

#### 3.8

##### **node**

theoretical intersection point of members