SLOVENSKI STANDARD
SIST EN 846-4:2004

01-januar-2004

Metode preskuġanja dodatnih komponent zidovine ï 4. del: Doloļanje nosilnosti in lastnosti sila-pomik trakov

Methods of test for ancillary components for masonry - Part 4: Determination of load capacity and load-deflection characteristics of straps

Prüfverfahren für Ergänzungsbauteile für Mauerwerk - Teil 4: Bestimmung der Festigkeit und Last-Verformungs-Eigenschaften von Bändern

Méthodes d'essai des composants accessoires de maçonnerie - Partie 4: Détermination de la résistance et de la rigidité des brides de fixation

Ta slovenski standard je istoveten z: **EN 846-4:2001**

ICS:

91.080.30	Zidane konstrukcije	Masonry

SIST EN 846-4:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 846-4

November 2001

ICS 91.080.30

English version

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This European Standard was approved by CEN on 13 October 2001.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by March 2004.

This European Standard follows initial preparation by Working Group 4 "Test methods", taking into account the proposals submitted by Task Group 4 "Tests for ancillary components".

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

Introduction

Straps are used in buildings to provide horizontal and vertical restraint for floor and roof constructions against wind pressure and uplift forces.

1 Scope

This European Standard specifies methods for determining the load capacity and load-deflection characteristics of restraint straps fixed to timber joists, rafters and timber wall plates and masonry walls.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in by amendments or revision. For undated references the latest edition of the publication referred to applied (including amendments).

EN 336, *Structural timber – Coniferous and poplar – Sizes, permissible deviations.*

EN 338, *Structural timber - Strength classes.*

EN 845-1, *Specification for ancillary components for masonry - Part 1: Ties, tension straps, hangars and brackets.*

prEN 772-1, *Methods of test for masonry units - Part 1: Determination of compressive strength.*

prEN 772-10, *Methods of test for masonry units - Part 10: Determination of moisture content of calcium silicate and autoclaved aerated concrete units.*

prEN 998-2, *Specification for mortar for masonry - Part 2: Masonry mortar.*

EN 1015-3, *Methods of test for mortar for masonry - Part 3: Determination of consistence of fresh mortar (by flow table).*

EN 1015-7, *Methods of test for mortar for masonry - Part 7: Determination of air content of fresh mortar.*

EN 1015-11, *Methods of test for mortar for masonry - Part 11: Determination of flexural and compressive strength of hardened mortar.*

3 Principle

Straps are fixed to masonry walls, timber joists or rafters or to other floor/roof materials and loaded in a manner representative of their intended use.

4 Materials

4.1 Masonry units

4.1.1 Sampling

All of the masonry units for individual tests and for making the masonry specimens shall be taken from the same consignment.

4.1.2 Conditioning of the units

The conditioning of masonry units shall be as specified:

Record the method of conditioning the units prior to laying. Record the age of non autoclaved concrete units at the time of testing the strap specimens. Measure the moisture content by mass of autoclaved aerated concrete and calcium silicate masonry units in accordance with prEN 772-10.

4.1.3 Testing

Determine the compressive strength of a sample of masonry units using the method given in prEN 772-1. For non-autoclaved concrete units, determine the compressive strength at the time of testing the strap specimens.

NOTE Where the strength of the masonry units will change with time, the compressive strength test should be carried out on the same day as the test.

4.2 Mortar

The mortar, its mixing procedure and its flow value shall be as specified and conform with the requirements of prEN 998-2, unless otherwise specified and these shall be reported in the test report.

Take samples of mortar from the mason's board to make mortar specimens and determine the flow value of fresh mortar in accordance with EN 1015-3, the air-content of the fresh mortar in accordance with EN 1015-7 and the compressive strength of mortar in accordance with EN 1015-11 at the time of testing the masonry specimens.

4.3 Timber

Timber sections shall be of coniferous timber as specified in accordance with strength class C16 of EN 338 and a moisture content of not greater than 18 % by mass.

4.4 Fixings

Fixings shall be as specified by the manufacturer, in a clean dry uncontaminated state.

5 Apparatus

A device for clamping and applying axial tensile force to the strap. A typical arrangement is described below and is shown in Figure 1. The end of the strap to be loaded (1) is placed inside the strap connector (2) comprising a cylindrical steel bar, which has a slot (7) cut up its centre. Each connector or connector and associated packing pieces should be specially made to fit the strap to be tested: holes are drilled along its length with the same hole spacing and pattern as that of the strap. The strap is held in the connector by a number of bolts that pass through the strap and screw into the connector. The test load is applied axially to the strap through the bar. Alternatively a hydraulic clamp device may be suitable.

Load is applied to the strap by means of a hydraulic ram or screw (4), which reacts against a reaction frame (9), and is connected via a load cell (8) to the strap connector. The load measuring system (11) shall comprise a load cell device having a digital or analogue readout with a resolution of 2 % of the full scale reading or better. A typical arrangement for measuring movement of the strap is shown in Figure 2.