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BS EN 12811-4:2013



BSI Standards Publication

Temporary works equipment

Part 4: Protection fans for scaffolds — Performance requirements and product design

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Temporäre Konstruktionen für Bauwerke - Teil 4: Schutzdächer für Arbeitsgerüste - Leistungsanforderungen, Entwurf, Konstruktion und Bemessung des Produkts

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Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Classification 8
4.1 Rules for classification 8
4.2 Snow loading classification 8
4.3 Shape classification 8
4.4 Width classification 9

5 Designation 9

6 Materials 9
6.1 General 9
6.2 Specific material requirements 9
6.2.1 Steel 9
6.2.2 Timber 10

7 General requirements 10
7.1 General 10
7.2 Dimensions 10
7.2.1 Width 10
7.2.2 Minimum inclination of protection fan 11
7.3 Components and elements 11
7.3.1 Couplers 11
7.3.2 Steel scaffold tubes (circular) 11
7.3.3 Aluminium scaffold tubes (circular) 12

8 Requirements for design 12
8.1 Basic requirements 12
8.1.1 General 12
8.1.2 Arresting surface 12
8.1.3 External support 12
8.1.4 Fixings for protection fans 12
8.2 Structural design 12
8.2.1 Method of design 12
8.2.2 Special requirements for timber 12
8.2.3 Partial safety factor 13
8.3 Actions 13
8.3.1 General 13
8.3.2 Permanent and variable imposed loads 14
8.3.3 Variable Imposed loads: Class V1 14
8.4 Load combinations 15
8.5 Falling object impact loads 15

9 Testing to verify performance 15
9.1 Purpose of testing 15
9.2 General 16
9.3 General description of test components 16
9.3.1 Test sample 16

This is a preview of "BS EN 12811-4:2013". Click here to purchase the full version from the ANSI store.

9.3.2 Test impactor 16
9.4 Test 16
9.4.1 Principle of the test 16
9.4.2 Test set up 16
9.4.3 Test procedure 17
9.4.4 Results to be recorded 18
9.4.5 Compliance with the testing requirements 18
9.4.6 Test report 18
10 Assessment of compliance 18
11 Manuals 19
11.1 General 19
11.2 Content of a product manual 19
12 Marking 19
Bibliography 21

This is a preview of "BS EN 12811-4:2013". Click here to purchase the full version from the ANSI store.

Foreword

This document (EN 12811-4:2013) 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 May 2014, and conflicting national standards shall be withdrawn at the latest by May 2014.

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 European Standard is part of a series of standards EN 12811, *Temporary works equipment*, which consists of the following parts:

— *Part 1: Scaffolds — Performance requirements and general design;*

— *Part 2: Information on materials;*

— *Part 3: Load testing;*

— *Part 4: Protection fans for scaffolds — Performance requirements and product design.*

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

Each year, many objects fall from a height and strike people. Often, this leads to serious injury, because the impact is on the head. This statistic does not take into account the many near misses.

The dangers associated with falling objects has been recognized by the European Commission, which dealt with the matter by writing an amendment to the Work Equipment Directive (89/655/EEC) that deals exclusively with work at height (2001/45/EEC) and requires the prevention of objects falling off scaffolds.

Usually the provision for preventing such dangerous occurrences takes the form of a “toe-board” attached to the edge of the platform. However, toe-boards according to EN 12811-1 should be at least 150 mm high and statistics indicate that they are not always effective. Therefore, additional protection is often specified, by local by-laws, especially for scaffolds erected above areas where members of the public cannot be prevented from entering, for example in city and town centres.

One way of satisfying these local regulations is to provide a protection fan attached to the main scaffold at some distance below the working platform.

Because these protection fans are required to arrest the fall of substantial objects such as bricks, blocks, scaffold boards and the like, they could be considered as a necessary safety-critical accessory for scaffolds. This, coupled with the fact that they have to arrest the fall of significant objects, i.e. subjected to significant dynamic loads, puts them in the category of complex structures. Yet, in many European countries, there are no rules to govern the design and installation of protection fans.

Across much of Europe, protection fans are:

— erected in configurations that are not verified; and

— attached arbitrarily to scaffolds.

That is to say, the information related to protection fans, such as it is, is very basic. Under the suite of standards drawn up by CEN TC 53, Temporary works equipment has had its design formalized across Europe. The current situation is that un-designed and unverified components are being attached to scaffolds. Therefore, it is necessary to formalize the design and erection of protection fans.

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1 Scope

This European Standard specifies product requirements, methods of structural and general design and tests for protection fans for scaffolds to protect workers as well as members of public from objects that may fall off the outside edge of scaffolds being used close to where they are working or passing by.

This European Standard only applies to protection fans while the scaffold is being used as a working place.

Protection fans attached to structures other than scaffolds as defined in EN 12811-1 are outside the scope of this European Standard.

This European Standard applies only to protection fan systems on to which construction debris may fall from 24 m or less.

This European Standard ensures resistance of protection fans for most blunt falling objects representing an impacting energy not exceeding 720 J.

NOTE This energy corresponds to a 3 kg object falling from 24 m.

This European Standard does not cover the requirements for the total area to be protected against falling items.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 74 (all parts), *Couplers, spigots and baseplates for use in falsework and scaffolds*

EN 338, *Structural timber — Strength classes*

EN 1990, *Eurocode — Basis of structural design*

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 rules and rules for buildings*

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

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12811-1:2003 and the following apply (see also Figure 1).