



**NSAI**  
Standards

Irish Standard  
I.S. EN 14081-3:2012

# Timber structures - Strength graded structural timber with rectangular cross section - Part 3: Machine grading; additional requirements for factory production control

## I.S. EN 14081-3:2012

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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English Version

**Timber structures - Strength graded structural timber with  
rectangular cross section - Part 3: Machine grading; additional  
requirements for factory production control**

Structures en bois - Bois de structure à section  
rectangulaire classé pour sa résistance - Partie 3:  
Classement mécanique - Exigences complémentaires  
relatives au contrôle de la production en usine

Holzbauwerke - Nach Festigkeit sortiertes Bauholz für  
tragende Zwecke mit rechteckigem Querschnitt - Teil 3:  
Maschinelle Sortierung, zusätzliche Anforderungen an die  
werkseigene Produktionskontrolle

This European Standard was approved by CEN on 16 December 2011.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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## Foreword

This document (EN 14081-3:2012) has been prepared by Technical Committee CEN/TC124 “Timber structures”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

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 14081-3:2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Other parts of the series of EN 14081 are:

- EN 14081-1, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*;
- EN 14081-2, *Timber structures — Strength graded structural timber with rectangular cross section — Part 2: Machine grading; additional requirements for initial type testing*;
- EN 14081-4, *Timber structures — Strength graded structural timber with rectangular cross section — Part 4: Machine grading — Grading machine settings for machine controlled systems*.

Compared to EN 14081-3:2005 the following modifications have been made:

- the additional factory production control requirements for output controlled systems are transferred in Annex B (informative);
- in Annex A, the requirements for using control planks are updated.

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, 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.

## **Introduction**

Machine grading is in common use in a number of countries. The countries use two basic systems, referred to as 'output controlled' and 'machine controlled'. Both systems require a visual override inspection to cater for strength-reducing characteristics that are not automatically sensed by the machine.

The output-controlled system is suitable for use where the grading machines are situated in sawmills grading limited sizes, species and grades in repeated production runs of around one working shift or more. This enables the system to be controlled by testing timber specimens from the daily output. These tests together with statistical procedures are used to monitor and adjust the machine settings to maintain the required strength properties for each strength class. With this system it is permissible for machine approval requirements to be less demanding and for machines of the same type to have non-identical performance.

The machine controlled system was developed in Europe. Because of the large number of sizes, species and grades used it was not possible to carry out quality-control tests on timber specimens drawn from production. The system relies therefore on the machines being strictly assessed and controlled, and on considerable research effort to derive the machines settings, which remain constant for all machines of the same type.

The acceptability of grading machines and the derivation of settings rely on statistical procedures and the results will therefore depend on the method used. For this reason, this European Standard gives appropriate statistical procedures.

The requirements in this European Standard are based on machines in current use and on future types of machines as far as these can be foreseen. It is recognised that additional clauses or standards may be required if unforeseen developments take place.

## 1 Scope

This European Standard specifies requirements additional to those given in EN 14081-1 for factory production control of machine graded structural timber with rectangular cross-sections shaped by sawing, planing or other methods, and having deviations from the target sizes corresponding to EN 336.

## 2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 408, *Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties*

EN 14081-1, *Timber structures — Strength graded structural timber with rectangular cross section — Part 1: General requirements*

EN 14081-2, *Timber structures — Strength graded structural timber with rectangular cross section — Part 2: Machine grading; additional requirements for initial type testing*

## 3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 14081-1 and the following apply.

### 3.1

#### **depth**

dimension perpendicular to the longitudinal axis of a timber beam, in the plane of the bending forces

### 3.2

#### **grade determining property**

mechanical or physical property for which a particular value of that property has to be achieved for the material to be assigned to that grade, e.g. bending strength, mean modulus of elasticity and density for the strength classes of EN 338

### 3.3

#### **indicating property**

measurement or combination of measurements made by the grading machine, which are closely related to one or more of the grade determining properties. For grading machines which compute and predict values of the grade determining properties directly from numerous measuring devices, the indicating property may be a predicted value of a grade determining property

### 3.4

#### **sample**

number of specimens of timber of one size and representative of one species population

## 4 Symbols

$A$                 cusum control parameter

$B$                 cusum control parameter

$B_a$              cusum parameter associated with acceptable quality level

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