Australian Standard®

TIMBER—CLASSIFICATION INTO STRENGTH GROUPS

This Australian standard was prepared by Committee TM/101, Structural Timber Products. It was approved on behalf of the Council of the Standards Association of Australia on 1 May 1986 and published on 7 July 1986.

The following interests are represented on committee TM/101:

Association of Consulting Engineers Australia
Australian Federation of Timber Merchants Associations
Australian Institute of Building
CSIRO, Division of Chemical and Wood Technology
Department of Housing, New South Wales
Department of Local Government and Lands, New South Wales
Department of Public Works, New South Wales
Forest Products Association of Western Australia
Housing Commission, Queensland
Lending institutions
Master Builders Federation of Australia
National Association of Australian State Road Authorities
National Timber Industry Training Committee
New South Wales Timber Advisory Council
Radiata Pine Research Institute Inc.
Royal Australian Institute of Architects
Sawmillers Associations
State Forestry Departments
Tasmanian Timber Promotion Board
Timber Promotion Council
Timber Development Association of South Australia
Timber Merchants Associations
Timber Research and Development Advisory Council
Universities

Representatives of the SAA Timber Engineering Committee also participated in the drafting of this standard.

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First published (as SAA MP45) 1979
AS 2878 first published 1986

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 4221 7

PREFACE

This standard was prepared by the Association's Committee on Structural Timber Products and supersedes SAA MP45-1979, Report on Strength Grouping of Timbers.

Over the years a large quantity of data has been generated by programs of mechanical testing of timber conducted by the Council for Scientific and Industrial Research (CSIR), its successor, the Commonwealth Scientific and Industrial Research Organization (CSIRO), and the forest products laboratories of the New South Wales and Queensland forest services. Strength grouping was introduced in 1939 and has since been developed and refined to simplify the presentation and utilization of this information obtained on some hundreds of timber species.

A strength group may be visualized as a nominal species with established clear-wood strength properties representing a collection of actual timber species that have similar and generally slightly higher mean strength values. The group limits have been chosen so that the ratio between representative strength values of groups is constant.

Where the wood of several species is virtually identical, they have been grouped under one standard trade name in AS 2543, Nomenclature of Australian Timbers. Because no purpose is served in separating them, timbers so grouped are regarded as a 'species group'. This is not to be confused with a 'species mixture' which is a marketing term for a mixture of species and for which the strength group is that of the lowest species strength group in the mixture.

To cater for normal commercial timber production, visual structural grading rules have been developed with the ratio of strength values between the grades being the same as that between the strength groups. Consequently the interaction of strength groups and visual grades leads to a limited number of design values, termed stress grades.

CONTENTS

FOREWORD

This standard presents the current methods for the classification of timber species into strength groups. It also lists the majority of structural timbers used in Australia and their strength groups. The standard does not deal with the role these strength groups play in the determination of stress grades and basic working stresses or with alternative means of determining stress grades of timber.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
TIMBERS—CLASSIFICATION INTO STRENGTH GROUPS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard establishes a procedure for the classification of timber species into strength groups based either on the values obtained from testing small clear specimens or on the species mean density at 12 percent moisture content. It specifies the unseasoned and seasoned strength groups of most of the timber species used in Australia.

1.2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1148 Nomenclature of Commercial Timbers imported into Australia

AS 2543 Nomenclature of Australian Timbers.

1.3 DEFINITIONS. For the purpose of this standard the following definitions apply:

1.3.1 Species group—amalgamation, under one standard trade name where the wood of several species is so similar that there is no merit in separating them (see AS 2543).

NOTE: Where there is a variation of strength group within a species group, the lowest strength group has been recorded.

1.3.2 Species mean—the mean value of a given property estimated from a representative sample (see Appendix A).

1.3.3 Strength group—the classification into which a timber species or species group, as listed in Table 3.1 and 3.2, is assigned on the basis of the mechanical properties of defect free material or density determination of the species.

NOTE: In descending order there are seven strength groups for unseasoned timber (S1 to S7) and eight strength groups for seasoned timber (SD1 to SD8). Depending on the nature and amount of data on which the classification is made, a strength group may be termed 'positive' or 'provisional' (see Clause 1.3.4 and 1.3.5).

1.3.4 Positive strength group—the group to which a timber species is assigned on the basis of the testing of small clear specimens to determine mechanical strength properties for five or more trees (see Appendix A) and tested in accordance with the standard methods referred to in Appendix B.

1.3.5 Provisional strength group—the group to which a timber species is assigned on the basis of density or limited mechanical test data.

NOTE: In Tables 3.1 and 3.2, the provisional strength groups are shown within brackets, e.g. (S6).