AS 2858—1986

Australian Standard®

Timber—Softwood—Visually stress-graded for structural purposes

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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 22 April 1986 and published on 5 May 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
Australian Timber Importers' Federation
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
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Sawmillers Associations
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Timber—Softwood—Visually stress-graded for structural purposes

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AS 1648 1974
AS 2099 1977
AS 2440 (Section 2 only) 1981
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PREFACE

This standard was prepared by the Association's Committee on Structural Timber Products. It supersedes the following standards:

AS 1490-1973	Visually Stress Graded Radiata Pine for Structural Purposes
AS 1648-1974	Visually Stress Graded Cypress Pine for Structural Purposes
AS 2099-1977	Visually Stress-graded Seasoned Australian-grown Softwood (Conifers) for Structural Purposes (Excluding Radiata Pine and Cypress Pine)

It also supersedes Section 2, Construction Timber, of AS 2440—1981, Sawn Douglas Fir (Oregon) and Sawn Western Hemlock (Canada Pine).

A comparison of knot sizes and sloping grain in the above standards for visually stress-graded timber revealed a general consistency in these requirements, with differences of 10 to 12 percentage units in single knots and knot groups on the face occurring in AS 2440—1981.

For the first time in Australia, this new standard has adopted the knot-area ratio (K.A.R.) method of knot assessment and has simplified the number of knot classifications. This is consistent with the general order of accuracy of determining stress grades by visual inspection.

The grade nomenclature first used in AS 2082, Visually Stress-graded Hardwood for Structural Purposes, and continued in AS 2099 has been adopted in this standard. Derived from the five Structural Grades are Stud Grades and Lintel Grades, which provide the straighter material required for studs and lintels, and Structural Appearance Grades, which have limitations on the visual blemishes allowed in structural members exposed to view. Because of the subjective nature of the aesthetic requirements for Structural Appearance Grades, different limitations may be specified by the purchaser, provided that all the requirements dictated by strength considerations are complied with.

In the ordering and marketing of structural timber, it is preferable to nominate the required stress grade rather than the structural grade.

Stress grades for cypress pine have been determined from tests on full size scantlings. This has resulted in the separate grade descriptions for that species given in Section 3.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
TIMBER—SOFTWOOD—VISUALLY STRESS-GRADED FOR STRUCTURAL PURPOSES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for softwood which is intended for structural purposes and stress-graded by visual means.

This standard does not apply to timber species with an average density, at 12 percent moisture content, below 360 kg/m^3.

NOTES:

1. The coverage by this standard in Appendix A of species listed in Table A1 or species mixtures listed in Table A2 does not imply their availability or the availability of any particular grade of any species or species mixture.
2. Information on the relationship between strength groups, structural grades and stress grades is given in Appendix E.

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

AS 1080 Methods of Testing Timber
1080.2.1—Determination of Slope of Grain by Scribe
1080.2.2—Determination of Slope of Grain by Reference to Surface Checks
1080.2.3—Determination of Slope of Grain by Splintering

AS 1080 Methods of Test for Timber
Part 1—Moisture Content

AS 1148 Nomenclature of Commercial Timbers Imported into Australia

AS 1604 Preservative Treatment for Sawn Timber, Veneer and Plywood

AS 1684 SAA Timber Framing Code

AS 1720 SAA Timber Engineering Code

AS 2543 Nomenclature of Australian Timbers

AS 2878 Timbers—Classification into Strength Groups

AS O1 Glossary of Terms Used in Timber Standards

Radiata Pine Industry Standard 100—1979 High Temperature Seasoning Under Restraint of Heart-in, Radiata Pine, Structural Material

1.3 TIMBER SPECIES AND STRESS GRADES. The standard grade names of species covered by this standard shall be interpreted in accordance with AS 1148 or AS 2543, as appropriate.

The stress grades of the major species covered by this standard are listed in Tables A1 and A2 of Appendix A.

The stress grade applicable to a parcel of mixed species, shall be that of the species with the lowest stress grade present in the parcel (see Tables A2 and A4 of Appendix A).

The stress grades applicable to unidentified softwoods shall be as given in Table A1 and Table A3 of Appendix A but no timber species with an average density at 12 percent moisture content below 360 kg/m^3 shall be accepted, nor shall any piece with a density at 12 percent moisture content below 300 kg/m^3 be accepted (see Clause 1.6.1).

NOTES:

1. The stress grades given in Tables A1 and A2 of Appendix A do not preclude the specific mechanical properties of species being used for design purposes (see AS 1720).
2. The lower density species need extra caution in regard to assessing nail and connector holding capacity.
3. Where it is intended to use preservative treated timber at a moisture content in excess of 18 percent the appropriate stress grade is determined by reference to Table E2 of Appendix E, having first obtained the particular species unseasoned strength group from AS 2878.

This standard may be used for the grading of species other than those listed in Table A1 of Appendix A provided that the appropriate stress grades for the species have been determined beforehand by the appropriate SAA Committee.

1.4 GRADES.

1.4.1 Grades of structural softwood (excluding cypress pine). The grades of structural softwood (excluding cypress pine) shall be as follows:

Structural Grade No 1
Structural Grade No 2
Structural Grade No 3
Structural Grade No 4
Structural Grade No 5
Stud Grades
Lintel Grades
Structural Appearance Grades

1.4.2 Grades of structural cypress pine. The grades of structural cypress pine shall be as follows:

Stress Grade F7
Stress Grade F5
Stress Grade F4
Stud Grade

NOTES:

1. Stud and lintel grades require a greater amount of straightness, while structural appearance grades have additional requirements for those factors affecting the appearance of structural members exposed to view.
2. The assumed relationship between the structural grades and stress grades of seasoned softwood (excluding cypress pine) is given in Table E1 of Appendix E and that of unseasoned softwood (excluding cypress pine) is given in Table E2 of Appendix E.

1.5 APPLICATION. The specification of any grade shall consist of the requirements of this Section, together with the relevant grade description given in Section 2 or Section 3, as appropriate.

1.6 DEFINITIONS. For the purpose of this standard, the definitions given in AS O1 and the following apply: