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Australian Standard 2440—1981

SAWN DOUGLAS FIR (OREGON) AND SAWN WESTERN HEMLOCK (CANADA PINE)

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Institute of Builders

Division of Forest Products, CSIRO

Forestry Commission of N.S.W.

Government Stores Department, N.S.W.

Lending Institutions

Master Builders Association

Royal Australian Institute of Architects

South Australian Housing Trust

Timber Merchants Associations

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AUSTRALIAN STANDARD

SAWN DOUGLAS FIR (OREGON) AND SAWN WESTERN HEMLOCK (CANADA PINE)

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PREFACE

This standard was prepared by the Association's Committee on Resawn Douglas Fir, to supersede AS O106—1971 and Supplement No 1 thereto.

The standard was first published in 1966 in interim form, was revised in 1969 and 1971, and subsequently metricated in 1973 by the issue of Supplement No 1. This edition incorporates the substance of that supplement, but is otherwise technically unchanged.

The purpose of the standard is to define the qualities of sawn Douglas fir (oregon) and western hemlock (Canada pine) intended for dresssing, general construction and engineering uses. The basis of the various grades defined is *visual grading*. This takes account of the effect of all significant defects in timber in the respective grades. In general, visual grading has proved reliable over many years as a sound basis for the satisfactory use of the dressing, general construction, and engineering grades of the species covered by this standard.

Parcels of western hemlock marketed in Australia contain small quantities of *Abies* species because these species grow with western hemlock and are logged and sawn with it, and there is no practicable commercial method of separating sawn timber of *Abies* species from western hemlock. Users of western hemlock are therefore warned to take this fact into account when deciding on working stresses for commercial hemlock for structural purposes.

In the 1969 edition, stress values, i.e. 'F' values, for four grades of construction timber covered by the standard were indicated, although the prime basis of the grade descriptions was that timber complying with the grade descriptions would have a strength equal to a specified percentage of the strength of the timber free from imperfections.

In this standard, the reference to percentage strengths is omitted, and 'F' values are cited only for structural grades. This is consistent with the practice adopted in AS 1684, SAA Timber Framing Code, and facilitated the preparation of tables of maximum allowable spans for Douglas fir and hemlock for inclusion in that standard.

Because of the need for the 1971 edition to be available coincidentally with the publication of the SAA Timber Framing Code, no attempt was made to review the requirements for dressing grades covered by the standard, nor was critical examination made of the requirements for structural timber other than those features which affect the assessment of the 'F' values. In assessing the 'F' values, particular cognizance was taken of available data applicable to Douglas fir grown on the west coast of North America. This, however, does not mean that this standard is restricted in application to timber from that area.

This standard requires reference to the following Australian standards:

AS 1148 Nomenclature of Commercial Timbers Imported into Australia
AS O1 Glossary of Terms Used in Timber Standards.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
SAWN DOUGLAS FIR (OREGON) AND SAWN WESTERN HEMLOCK (CANADA PINE)

SECTION 1. SCOPE AND GENERAL REQUIREMENTS

1.1 SCOPE. This standard applies to the visual grading of sawn Douglas fir (oregon) and sawn western hemlock (Canada pine) for construction and dressing purposes.

NOTES:

1. Timber marketed as western hemlock, hemlock or Canada pine includes a small percentage of *Abies* species and appropriate allowance is made for this throughout this specification. Hereinafter the term 'commercial hemlock' infers a mixture of western hemlock and *Abies* species.
2. The inclusion of requirements for Douglas fir and western hemlock in this one specification is not intended to imply that Douglas fir and western hemlock are necessarily interchangeable size for size for structural use or that they are of comparable durability.
3. The stress grades (F values) cited for Douglas fir in this standard are based on the strength properties of timber from the west coast of North America.

1.2 TIMBER SPECIES. The standard trade common names for the timbers covered by this specification are Douglas fir (oregon) and western hemlock (Canada pine). The standard botanical names of the species are as given in AS 1148.

1.3 APPLICATION. The specification for all grades of material covered by this specification shall include the requirements of Section 1.

Timber for construction purposes shall also comply with the requirements of Section 2, as appropriate to the ordered grade; i.e. merchantable grade, select merchantable grade, engineering grade, or select engineering grade.

Timber for dressing purposes shall also comply with the requirements of Section 3, as appropriate to the ordered grade; i.e. dressing grade or select dressing grade.

1.4 DEFINITIONS. The terms used in this specification shall be interpreted in accordance with AS O1: except for the following:

T—the thickness or edge dimension of a piece.

W—the width or face dimension of a piece.

Arris knot—a knot appearing on an adjoining face and edge of a piece which contains the intersection of these two longitudinal surfaces. The term arris knot refers to any type of knot appearing at the intersection of these two surfaces, e.g. spike or corner knot (see Appendix B).

Edge knot—a knot with its boundary contained wholly within the narrow face of the piece (see Appendix B).

Face knot—a knot with its boundary lying wholly within the wide face of the piece.

Margin knot—a knot touching or breaking through the arris of a piece (see Appendix B).

Resin streaks and blisters—accumulations of resin.

Slight sap stain—sap stain not liable to affect a clear finish.

Spike knot—a knot elongated in shape due to cutting an embedded branch in a lengthwise or nearly lengthwise direction. A spike knot cutting an arris is deemed to be an arris knot (see Appendix B).

Stress grade—a value assigned to a piece of structural timber to indicate primarily the basic working stress in bending under long duration loading, used in engineering design.

NOTE: A stress grade is designated in code form as 'F*X*', indicating that the rounded basic working stress in bending for such grade is *X* MPa; for example, F7 indicates that the rounded basic working stress in bending in 7 MPa. Exact values of basic working stresses in bending, shear, compression parallel to the grain, and modulus of elasticity applicable to each of the stress grades cited in this standard are given in Appendix E for information of users.

Through knot—a knot appearing on both the edge and face of a piece, but which does not contain the intersection of these two longitudinal surfaces.

1.5 MEASUREMENT OF KNOTS. Knots shall be measured in accordance with the following requirements:

(a) On surfaces up to 50 mm wide the size of knots and knot holes shall be measured to the nearest 2 mm. On surfaces over 50 mm wide the size of knots and knot holes shall be measured to the nearest 3 mm.

(b) The size of a round or oval knot in construction timber shall be taken as the width measured between lines enclosing the knot and parallel with the arrises of the piece (see Appendix B).

(c) The size of knots in clusters shall be measured as the distance between two lines drawn parallel with the edges of the piece and enclosing all the knots within a length of the piece equivalent to the width of the piece (see Appendix B).

(d) The size of knots in a group shall be taken as the sum of the distances between lines parallel with the edges of the piece and enclosing each individual knot in the group, except where two of these distances partly or wholly overlap (see Appendix B). A knot group shall be deemed to consist of all knots occurring within a length of a piece equivalent to the width of the piece.

(e) The size of a through knot shall be measured only on the face of the piece.

(f) The size of a margin knot shall be measured as the distance between the arris and a line parallel with the arris and touching the knot at a point furthest from the arris (see Appendix B).