

“GRADING RULES”

A Paper prepared for the
AUSTRALIAN FORESTRY CONFERENCE
1949

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The grading of a great variety of articles of commerce, such as wool, fruit, oils, etc., is a common practice, and these are then sold according to their classification.

In no commodity is such grading more essential than in the case of timber, and probably in no instance is it more difficult to effect.

The primary division of timber by nature into different species is in itself a most important one. The first step by man is then to decide what are the limiting characteristics of a species, so that the timber from each species can be directed into the channel in which it will be of most value.

In older countries, this has usually been decided by trial and error, and field trials will no doubt remain the ultimate criterion in many cases, particularly where the question of durability is involved. Even in the matter of durability, however, considerable guidance can be obtained by laboratory work on the resistance of a species to fungus and termite attack.

Where it is important to gain knowledge quickly of the characteristics of an untested species, including its strength, laboratory tests are of particular importance.

This was exemplified during the war when it was found to be highly desirable to use hitherto untested species amongst the islands to the north of Australia for Army and Navy requirements, and Australian wood technologists were able to help in the matter very considerably.

When sufficient knowledge of a species has been accumulated, so that the purposes for which it is most suitable can be determined, there still remains to be decided the most desirable sizes in which it should be used, and the relation of defects to its serviceability.

In the early days of the timber industry in Western Australia, timber was plentiful and production costs were low.

Grading rules (or specifications) were introduced at an early date, but it is apparent from a perusal of these that they aimed at the protection of the buyer, with little or no thought of the prevention of unnecessary waste of timber nor the economics of production.

Thus perfect or near perfect timber of high grade species was often specified for low grade requirements.

During more recent years, investigation was made into the results of blemishes and defects in the timber after being put into use in various capacities.

Obviously it was undesirable to continue to supply clear timber if the use of timber with minor defects was not a serious deterrent.

After a great deal of investigation, new grading rules for Jarrah and Karri were prepared, and in 1935 were published by W.A. Forests Department in Bulletin 49.

These grading rules represented a cautious approach to the subject, which was essential at that time because industry generally was in the grip of a trade recession, and buyers were insisting on very high grade products. These grading rules were accepted as a step in the right direction, the producer realising that it represented an attempt to avoid waste, and the buyer that it would help to keep costs and prices from rising.

Further investigation resulted in the grading rules being revised and published in Bulletin 51 in 1938, having been adopted by the Standards Association of Australia.

Investigation was still carried on to watch the effects of these modified specifications, and now the effects of the various wood rots were also studied.

Up to that time, rots in Jarrah and Karri were all classed as serious and continuing in their effects.

Close mycological studies showed that the major rots which affected these timbers in the tree, died soon after the timber was milled, and had previously been confused with other rots, a *Stemphilium* and a *Coniophora*, both of which attack as secondary rots in certain localities when the timber is in contact with the ground. Many field tests with defective timber were carried out during the course of the investigation.

In 1948 a further revision of the grading rules was published (Bulletin 56) after investigations by officers of W.A. Forests Department and C.S.I.R. officers, and representatives of the major timber firms, and adoption by the Standards Association of Australia.

In this Bulletin, specifications for certain classes of timber which had been included in Bulletin 51 were omitted, because it was found in practice that they were rarely used.

Other specifications were added, including those for Karri sleepers, Wandoo sleepers, Jarrah piles, and Jarrah and Wandoo poles.

These specifications are published under the aegis of the Standards Association of Australia, as is indicated on the covers.

There is, however, a special issue with a cover prepared for the Forests Department of Western Australia and carrying the Bulletin number (56) which is a Forests Department number.

This issue is for the use of W.A. Forestry officers, and for overseas buyers.

The present Bulletin No. 56, contains the following specifications:—

A.S. No. 0.10 Railway Sleepers—

Part I. Jarrah.

Part II. Karri.

Part III. Wandoo.

A.S. No. 0.11 Railway Crossing Timbers—Jarrah.

A.S. No. 0.14 Structural Timber, Select Grade—Jarrah—

Part I. Sections up to 25 sq. in.

Part II. Sections over 25 sq. in.

A.S. No. 0.16 Structural Timber, Standard Grade—Jarrah—

Part I. Sections up to 25 sq. in.

Part II. Sections over 25 sq. in.

A.S. No. 0.17 Structural Timber, Select Grade—Karri—

Part I. Sections up to 25 sq. in.

Part II. Sections over 25 sq. in.

A.S. No. 0.19 Structural Timber, Standard Grade—Karri.

A.S. No. 0.20 Cross Arms.

A.S. No. 0.22 Mine Guides.

A.S. No. 0.24 Flooring, Select Grade—Jarrah—

Part I. Sawn boards for flooring.

Part II. Milled strip and T. & G. flooring.

A.S. No. 0.25 Flooring, Standard Grade—Jarrah—

Part I. Sawn boards for flooring.

Part II. Milled strip and T. & G. flooring.

A.S. No. 0.34 Lining, Select Grade—Jarrah—

Part I. Milled, single face.

Part II. Milled, double face.

A.S. No. 0.32 Flooring, Milled, End Matched—Jarrah.

A.S. No. 0.36 Joinery Stock—Jarrah and Karri.

A.S. No. 0.39 Weatherboards, Green, Standard Grade—Jarrah—

Part I. Sawn.

Part II. Milled.

A.S. No. 0.44 Piles—Jarrah.

A.S. No. 0.45 Poles—Jarrah and Wandoo.

Appendix A. Permissible Working Stresses for Jarrah and Karri.

Appendix B. Methods of differentiating Jarrah and Karri.

An inspection service is maintained by W.A. Forests Department, inspection being carried out at the request of either buyer or seller.

The applicant must state, when applying for inspection, which of the specifications is to be used.

Because of the severity of the very early grading rules, they were usually ignored in practice, and each timber inspector relied upon his own opinion of timber defects to guide him in his work.

As a result, a great deal of variation was to be found in the work of the inspectors. It was commonly claimed that a really satisfactory timber specification could not be written.

The aim of the grading rules now in use is to state as simply as possible the limiting defects which may be accepted in a piece of timber for a particular purpose.

It is still necessary for an inspector to have a sound knowledge of timber in order to apply the grading rules satisfactorily.

In Western Australia a chief inspector gives guidance in the application of the rules, and an interpretation when required.

Although the human element will always create some little variation in such application, variations between the work of inspectors have been greatly reduced.

It is realised that all parcels of timber for a particular order may not appear to be of the same standard, because timber varies in different districts. The most noticeable difference is that in some districts most trees have gum veins, whilst in other districts gum veins are rare.

Thus much of the timber from the former districts would not be considered suitable for joinery work because of the amount of gum present and would not be accepted for that purpose under the grading rules.

For less exacting requirements the presence of the gum, so long as it did not exceed the limit allowed under the grading rules, would not affect the serviceability of the piece and would be accepted.

The work of inspectors has been much easier to carry out now that the grading rules have been moulded upon a realistic basis, and friction which used formerly to occur periodically between the inspectors and interested parties has been practically eliminated.