Designation: D 1990 – 00 (Reapproved 2002)$^{\epsilon 1}$

Standard Practice for Establishing Allowable Properties for Visually-Graded Dimension Lumber from In-Grade Tests of Full-Size Specimens[1]

This standard is issued under the fixed designation D 1990; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

ϵ^1 NOTE—Ref (14) was added in September 2002.

INTRODUCTION

Visual stress-grades of lumber manufactured in North America have evolved from the procedures of Practice D 245. Allowable stress and modulus of elasticity values were determined for these grades using the procedures of Practice D 245 and the appropriate clear wood values of Test Methods D 2555. The clear wood values of Test Methods D 2555 were developed from tests of small clear specimens.

Development of allowable stress and modulus of elasticity values from tests of full-size structural lumber as commercially produced and marketed has become possible with the development of suitable test equipment that permits rapid rates of loading to test large numbers of pieces from commercial lumber production. These tests can be carried out at the production sites or in a laboratory.

1. Scope

1.1 Due to the number of specimens involved and the number of mechanical properties to be evaluated, a methodology for evaluating the data and assigning allowable properties to both tested and untested grade/size cells is necessary. Sampling and analysis of tested cells are covered in Practice D 2915. The mechanical test methods are covered in Test Methods D 198 and D 4761. This practice covers the necessary procedures for assigning allowable stress and modulus of elasticity values to dimension lumber from In-Grade tests. The practice includes methods to permit assignment of allowable stress and modulus of elasticity values to untested sizes and grades, as well as some untested properties.

1.2 A basic assumption of the procedures used in this practice is that the samples selected and tested are representative of the entire global population being evaluated. This approach is consistent with the historical clear wood methodology of assigning an allowable property to visually-graded lumber which was representative of the entire growth range of a species or species group. Every effort shall be made to ensure the representativeness of the test sample.

1.3 This practice covers the principles and procedures for establishing allowable stress values for bending, tension parallel to grain, compression parallel to grain and modulus of elasticity values for structural design from "In-Grade" tests of full-size visually graded solid sawn dimension lumber. This practice is focused on, but is not limited to, grades which used the concepts incorporated in Practice D 245 and were developed and interpreted under American Softwood Lumber PS 20-70.

NOTE 1—In the implementation of the North American In-Grade test program, allowable stress values for compression perpendicular to grain and shear parallel to grain for structural design were calculated using the procedures of Practice D 245.

1.4 This practice only covers dimension lumber.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 9 Terminology Relating to Wood[2]

D 198 Methods of Static Tests of Timbers in Structural Sizes[2]

D 245 Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber[2]

D 1165 Nomenclature of Domestic Hardwoods and Softwoods[2]

[1] This practice is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D7.02 on Lumber and Engineered Wood Products.

Current edition approved April 10, 2000. Published June 2000. Originally published as D 1990 – 91. Last previous edition D 1990 – 97.

[2] *Annual Book of ASTM Standards*, Vol 04.10.

This document is now PUBLIC

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.