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Designation: D2915 – 17

# Standard Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products[1]

This standard is issued under the fixed designation D2915; 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.

## INTRODUCTION

Sampling and data analysis should be integrated in the design and evaluation of wood and wood-based structural products. This practice is useful in assessing the appropriateness of the assigned properties and for checking the effectiveness of grading procedures. Statistical methodologies are provided to serve as a basis for the empirical establishment and evaluation of mean and near minimum property estimates. These population estimates are then used by product standards to assign structural design values for use with an established design methodology (that is, allowable stress design, load and resistance factor design, limit states design, etc.). Near-minimum property estimates are typically used by the product standards to define the performance for a variety of structural properties where strength is a primary consideration (that is, extreme fiber stress in bending, axial tension, axial compression, shear, and elasticity for buckling concerns). Population mean estimates are often used to assess serviceability design criteria where strength is not the primary design concern (that is, elasticity estimates used for deformation calculations, permissible compression stress at a deformation, etc.).

For situations where a manufactured product is sampled repeatedly or lot sizes are small, alternative test methods as described in Ref (**1**)[2] may be more applicable.

## 1. Scope

1.1 This practice covers sampling and analysis procedures for the investigation of specified populations of wood and wood-based structural products referred to in this standard as products. Appropriate product standards should be referenced for presentation requirements for data. Depending on the interest of the user, the population from which samples are taken may range from the products produced at a specific manufacturing site to all the products produced in a particular grade from a particular geographic area, during some specified interval of time. This practice generally assumes that the population is sufficiently large so that, for sampling purposes, it may be considered infinite. Where this assumption is inadequate, that is, the population is assumed finite, many of the provisions of this practice may be employed but the sampling and analysis procedure must be designed to reflect a finite population. The statistical techniques embodied in this practice provide procedures to summarize data so that logical judgments can be made. This practice does not specify the action to be taken after the results have been analyzed. The action to be taken depends on the particular requirements of the user of the product.

1.2 The values stated in inch-pound units are to be regarded as the standard.

1.3 This practice does not purport to address the adjustment factors needed to adjust test data to standardized mechanical and environmental conditions (that is, temperature, moisture, test span, or load duration). Additionally, it provides a basis for statistical estimates that will typically require further adjustment to determine design values for use with an accepted design methodology (that is, allowable stress, limit states, or load and resistance factor design). It shall be the responsibility of the user to seek out the appropriate adjustments in specific product standards.

1.4 *This practice 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.*

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

Current edition approved Oct. 1, 2017. Published October 2017. Originally approved in 1970 as D2915 – 70 T. Last previous edition approved in 2010 as D2915 –10. DOI: 10.1520/D2915-17.

[2] The boldface numbers in parentheses refer to the list of references at the end of this practice.

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