



Designation: D6513 – 21

Standard Practice for Calculating the Superimposed Load on Wood-frame Walls for Standard Fire-Resistance Tests¹

This standard is issued under the fixed designation D6513; 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.

1. Scope

1.1 This practice covers procedures for calculating the superimposed axial load required to be applied to load-bearing wood-frame walls throughout standard fire-resistance and fire and hose-stream tests.

1.2 The calculations determine the maximum load allowed by design for wood-frame wall assemblies under nationally recognized structural design criteria.

1.3 This practice is only applicable to those wood-frame assemblies for which the nationally recognized structural design criteria are contained in the *National Design Specification for Wood Construction (NDS)*.²

1.4 The system of units to be used is that of the nationally recognized structural design criteria. For the NDS, the units are inch-pound.

1.5 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This practice is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.05 on Wood Assemblies.

Current edition approved July 1, 2021. Published August 2021. Originally approved in 2000. Last previous edition approved in 2014 as D6513 – 14. DOI: 10.1520/D6513-21.

² Available from American Wood Council, 222 Catocin Circle SE, Suite 201, Leesburg, VA 20175

2. Referenced Documents

2.1 *ASTM Standards*:³

D9 Terminology Relating to Wood and Wood-Based Products

E119 Test Methods for Fire Tests of Building Construction and Materials

E176 Terminology of Fire Standards

E1529 Test Methods for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies

2.2 *Other Standards*:²

ANSI/AWC–2018 National Design Specification (NDS) for Wood Construction

NDS Supplement Design Values for Wood Construction

3. Terminology

3.1 *Definitions*—Definitions used in this practice are in accordance with Terminology D9 and Terminology E176, unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *effective column length, n*—unbraced length of the vertical member, adjusted for end conditions.

3.2.2 *gross cross-sectional area, n*—area of cross section calculated from overall actual dimensions of member.

3.2.2.1 *Discussion*—For lumber, gross cross-sectional area is based on the standard dressed size of the member as given in the NDS Supplement for the nominal size member.

3.2.3 *net section area, n*—area of cross section calculated by deducting from the gross cross-sectional area the projected area of all materials removed by boring, grooving, dapping, notching, or other means.

3.2.3.1 *Discussion*—For nailed or screwed connections, the net section area equals the gross cross-sectional area.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.