



Designation: D8023 – 23

Standard Specification for Round Wood Dowels (Pegs) for Use in Wood Construction¹

This standard is issued under the fixed designation D8023; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This specification covers standardizing the dimensions and materials for the manufacture of round wood dowels (pegs) used in the fabrication of connections in wood construction. The referencing of this specification in design, construction, and purchase order documents is intended to provide some assurance that the round wood dowels to be used in an assembly meet minimum materials-quality standards and that dimensions for fabrication and finish can be relied on to ensure connection performance. This specification provides regulatory agencies with a set of standards by which to judge the acceptability of round wood dowels encountered in the field and in fabricators' shops.

1.2 This specification only addresses the standardization and manufacture of round wood dowels. Other types of wood dowels, such as sawn or cleaved pegs, are outside the scope of this specification.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 *Safety Hazards*—There are no known hazards with the use of this specification. The products manufactured to this specification should not be brittle or difficult to install with proper tools.

1.5 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This specification 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 Feb. 1, 2023. Published February 2023. Originally approved in 2017. Last previous edition approved in 2017 as D8023 – 17. DOI: 10.1520/D8023-23.

² 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.

D9 Terminology Relating to Wood and Wood-Based Products

D2395 Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials

E176 Terminology of Fire Standards

2.2 *Other Standards:*³

NDS National Design Specification 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 *round wood dowel*—cylindrical turned wood dowel.

3.2.1.1 *Discussion*—Wood dowels may be chamfered (or rounded) at either or both ends, to facilitate installation and give a more finished appearance when left protruding from the connected timber member surfaces.

3.2.2 *wood dowel (peg)*—cylindrical, turned, sawn, or cleaved load-transfer device, intended to transfer shear across planes between wood structural members that have been drilled with holes to accept the wood dowels (pegs).

4. Classification

4.1 This specification covers round wood dowels in diameters from 1/2 in. (12.5 mm) to 2 in. (51 mm). The use of these wood dowels is covered in wood design standards.

5. Materials and Manufacture

5.1 *General:*

5.1.1 Wood dowels shall be fabricated to ensure that the wood fibers are aligned with the longitudinal axis of the dowel.

5.1.2 Wood dowels shall be fabricated from any species of wood that has an oven dry specific gravity of at least 0.57, determined in accordance with Test Method D2395. Wood dowels provided under a species designation shall be fabricated from material that has a minimum oven dry specific gravity of not less than 98% of the NDS specific gravity value for that species designation.

³ Available from the American Wood Council, 222 Catocin Circle SE, Suite 201, Leesburg, VA 20175.

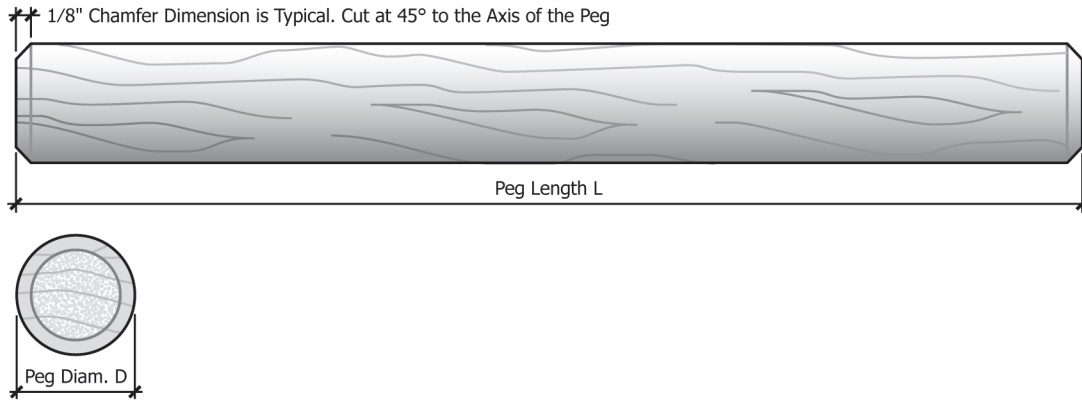


FIG. 1 Round Wood Dowel

5.1.3 Wood dowels shall be fabricated from wood that has been air-dried or kiln-dried to approximately constant weight before fabrication.

5.1.4 Wood dowels shall be protected with a treatment of paraffin wax, or similar sealing substance capable of inhibiting the absorption of moisture from the atmosphere.

5.2 Quality of Dowel:

5.2.1 Wood dowels shall be fabricated from clear, straight-grained, continuous (non-jointed) timber free from any form of decay.

5.2.2 Slope of grain resulting from either diagonal sawing or from spiral or twisted grain in the tree is measured by the angle between the direction of the fibers and the longitudinal axis of the dowel. Slope of grain shall not exceed 1 in 20.

NOTE 1—A slope of grain of 1 in 20 means that the grain deviates 1 in. (25.4 mm) in 20 in. (508 mm) of length or 1/2 in. (12.7 mm) in 10 in. (254 mm).

5.2.2.1 When both diagonal grain and spiral grain are present, the combined slope of grain is taken as the effective slope.

5.2.2.2 Local deviations shall be evaluated.

5.2.3 Knots or deviated grain associated with knots shall not be permitted in the dowel.

5.2.4 Shakes, checks, and splits shall not be permitted in the dowel.

5.3 Turned Wood Dowel Tolerances:

5.3.1 Diameters and lengths indicated in Fig. 1 shall be actual, not nominal.

5.3.2 Diameters shall not be more than 2 % oversize, nor less than 1 % undersize.

5.3.3 Diameters shall not vary, along a wood dowel length (other than deliberate chamfer) more than 1 %.

5.3.4 The ratio of any two diametrical dowel dimensions shall be within 0.98 and 1.02, when measured at the specified fabrication moisture content.

6. Keywords

6.1 connections; connectors; structural timber; timber joints; wood; wood construction

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, Tel: (978) 646-2600; http://www.copyright.com/