



## Designation: D25 – 12 (Reapproved 2022)

# Standard Specification for Round Timber Piles<sup>1</sup>

This standard is issued under the fixed designation D25; 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.

*This standard has been approved for use by agencies of the U.S. Department of Defense.*

## 1. Scope

1.1 This specification covers the physical characteristics of unused round timber piles to be used either treated or untreated.

1.2 This specification is not intended for preused piles unless the piles have the quality specified by this specification and design stresses equal to or greater than those derived from Method [D2899](#).

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 *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.*

1.5 *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:<sup>2</sup>

[D9 Terminology Relating to Wood and Wood-Based Products](#)

[D2555 Practice for Establishing Clear Wood Strength Values](#)

[D2899 Practice for Establishing Allowable Stresses for Round Timber Piles](#)

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee [D07](#) on Wood and is under the jurisdiction of Subcommittee [D07.04](#) on Pole and Pile Products.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## 3. Species of Wood

3.1 Piles shall be of any species of wood for which clear wood strength values are given in Test Methods [D2555](#).

## 4. Classification

4.1 Timber piles are commonly used to transfer structural loads to sub surface soil bearing strata by way of friction or tip end bearing forces, or both.

4.2 Method [D2899](#) provides a basis for specifying the pile size. This standard gives a procedure for estimating the design stress at any location along the pile length. As design stress must always exceed that imposed under service conditions, the quotient of the structural loads divided by the design stress gives an estimate of the minimum section property required at any location.

4.3 Under this specification, pile size requirements estimated at a critical location are extrapolated to either the tip or butt end assuming a linear taper. For this specification, piles are classified by nominal circumference and length.

## 5. Quality Requirement (All Piles)

5.1 Piles shall be of sound wood, free of decay, insect attack, marine borer attack, and *Limnoria* damage, except as herein allowed in [13.2](#) and [14.1](#).

5.2 Piles shall be cut above the ground swell and have a taper from butt to tip.

5.3 Piles shall have an average rate of growth measured in the outer 50 % of the radius at the pile tip of not less than 6 rings per inch and shall have an average summerwood content of not less than 33.3 % in the outer 50 % of the tip radius. Exception: Piles with less than 6 rings per inch are acceptable if the average is 50 % or more summerwood present in the outer 50 % of the pile tip radius.

5.4 Piles that cannot be adequately inspected for the physical requirements specified in this specification due to adhering barnacles or other material shall not be permitted.

## 6. Lengths

6.1 All piles shall be furnished in lengths specified, except that tolerances shall be allowed as follows:

6.1.1 Piles 40 ft (12.2 m) and shorter—plus 1 ft (0.3 m), minus 6 in. (152 mm).

6.1.2 Piles 41 ft (12.5 m) or longer—plus 2 ft (0.6 m), minus 6 in. (152 mm).

## 7. Sizes

7.1 Pile sizes are specified according to nominal circumference 3 ft from the butt or at the tip. Tables are provided in Appendix X1.1 to facilitate the selection of pile dimensions.

7.2 The out-of-round ratio (maximum to minimum diameter) at the butt or the tip shall not exceed 1.2.

7.3 All circumference measurements shall be taken under the bark.

7.4 Circumference at the butt shall not exceed circumference 3 ft (0.9 m) from the butt by more than 8 in. (203 mm).

7.5 Circumferences given in Tables X1.2-X1.5 are minimum values. No more than 10 % of piles in any shipment shall have tip circumferences less than the tabulated values. Of those that are below tabulated values, none shall vary from tabulated values by more than 2 in. (51 mm).

## 8. Sapwood

8.1 Wood piles for preservative treatment shall have sufficient sapwood to meet minimum penetration requirements.

## 9. Cutting and Trimming

9.1 Butts and tips of piles shall be sawed square with the axis of the piles and shall not be out of square by more than 1/10 in./in. (100 mm/m) of diameter.

9.2 All knots and limbs shall be cut flush with the surface of the pile, except that knots may be hand-trimmed flush with the surface of the swell surrounding the knot.

## 10. Peeling (Shaving)

10.1 Piles are classified according to the extent of bark removal as clean-peeled, rough-peeled, or unpeeled.

10.1.1 Clean-peeled piles require the removal of all outer bark. In addition, at least 80 % of the inner bark, well-distributed over the surface of the pile, shall be removed. Piles for preservative treatment shall have no strip of inner bark larger than 1 in. by 6 in. (25 mm by 152 mm).

10.1.2 Rough-peeled piles require the complete removal of all outer bark.

10.1.3 Unpeeled piles require no bark removal.

## 11. Straightness

11.1 A straight line from the center of the butt to the center of the tip shall lie entirely within the body of the pile.

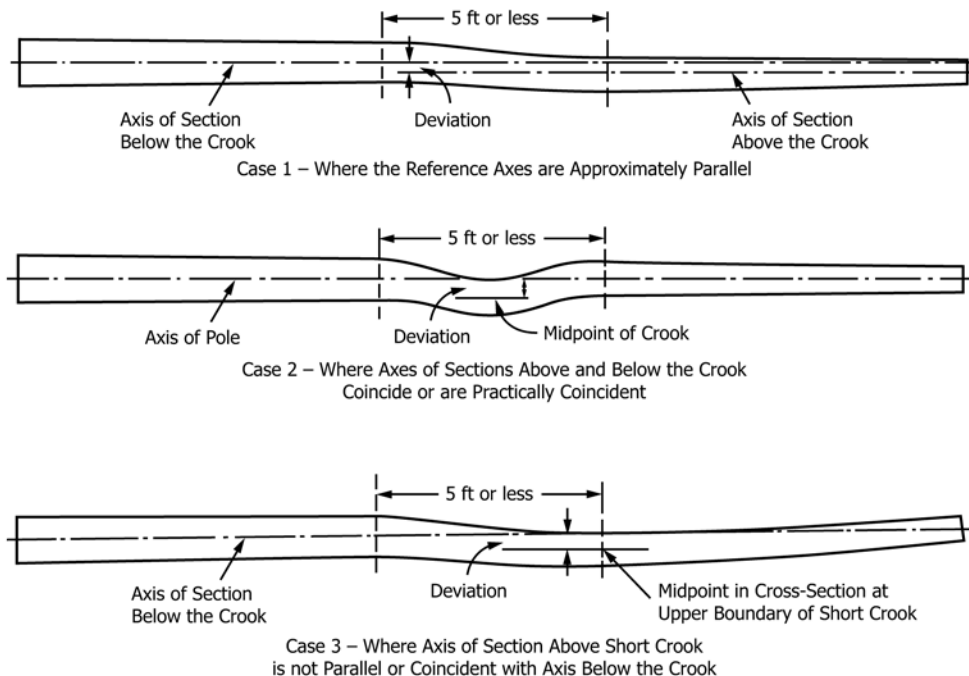
11.2 Piles shall be free from short crooks that deviate more than 2 1/2 in. (64 mm) from straightness in any 5 ft (1.5 m) length (see Fig. 1).

## 12. Twist of Grain

12.1 Spiral grain shall not exceed 180 deg of twist when measured over any 20 ft (6.1 m) section of the pile.

## 13. Knots

13.1 Sound knots shall be no larger than one sixth the circumference of the pile located where the knot occurs.



The three cases shown are typical, and are intended to establish the principle of measuring shorty crooks. There may be other cases not exactly like those illustrated.

NOTE 1—5 ft = 1.5 m

FIG. 1 Measurement of Short Crook