



Standard Specification for 2⁵/₈-in. and 4-in. Diameter Metal Shear Plates for Use in Wood Constructions¹

This standard is issued under the fixed designation D 5933; 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 specification covers standardizing the dimensions and materials for the manufacture of 2⁵/₈ and 4-in. diameter steel or cast iron shear plates used in the fabrication of connections in wood constructions. The referencing of this specification in design, construction, and purchase order documents gives the using parties assurance that the shear plates 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 shear plates encountered in the field and in fabricators' shops.

1.2 The values stated in inch-pound units are to be regarded as standard. The values in parentheses are for information only.

1.3 *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.

2. Referenced Documents

2.1 ASTM Standards:

A 47/A 47M Specification for Ferritic Malleable Iron Castings²

A 153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware³

A 570/A 570M Specification for Structural Steel, Sheet and Strip, Carbon, Hot-Rolled⁴

A 653/A 653M Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process³

A 924/A 924M Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process³

2.2 Other Document:

AISI/SAE No. 1010 Carbon Steel, Steel Products Manual, Plates, Iron and Steel Society

3. Terminology

3.1 Definition:

3.1.1 *shear plate*—A round, cast, or stamped disk-like load-transfer device having a flat base and a perimeter bearing rim protruding in one direction normal to the base, with a hole passing through the center of the disk to accommodate an attachment bolt or lag screw.

3.1.1.1 *Discussion*—The fastener hole at the center may have an additional bearing hub. If a bearing hub is present it projects in the same direction as the bearing rim. A shear plate is installed into one or more faces of a piece of wood to transfer shear forces between the member containing the shear plate or plates and adjacent members which may be of wood or steel. This shear transfer is accomplished through the bolt or lag screw.

4. Classification

4.1 This specification covers the two basic diameters of metal shear plates commonly used in North American timber construction—2⁵/₈ in. (66.7-mm) diameter stamped steel or malleable cast iron, and 4-in. (102.1-mm) diameter malleable cast iron. The use of these shear plates is covered in the National Design Specification for Wood Construction⁵ and other wood design documents.

5. Materials and Manufacture

5.1 General:

5.1.1 Cast iron shear plates shall be free from any casting defects such as voids, irregular holes or sharp burrs greater than 0.03 in. (0.8 mm), or any other casting defect that would hinder normal installation and performance. All residual metal at casting gate locations and any other protrusions that would prevent the proper installation and fit of the plates shall be ground smooth or otherwise removed.

¹ This specification is under the jurisdiction of ASTM Committee D7 on Wood and is the direct responsibility of Subcommittee D07.05 on Wood Assemblies. Current edition approved April 10, 1996. Published August 1996.

² *Annual Book of ASTM Standards*, Vol 01.02.

³ *Annual Book of ASTM Standards*, Vol 01.06.

⁴ *Annual Book of ASTM Standards*, Vol. 01.03.

⁵ Available from the American Forest and Paper Association, 1111 19th St., NW, Suite 800, Washington, DC 20036.