Designation: A857/A857M – 07 (Reapproved 2013)

Standard Specification for Steel Sheet Piling, Cold Formed, Light Gage[1]

This standard is issued under the fixed designation A857/A857M; 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 Department of Defense.

1. Scope

1.1 This specification covers cold-formed, light gage carbon steel sheet piling of structural quality for use in the construction of shore walls, trench shoring, wingwalls, bulkheads, and like applications.

1.2 The nominal thickness of material furnished under this specification shall be 0.25 in. [6.4 mm] or less.

1.3 When the sheet piling is to be welded, it is presupposed that a welding procedure suitable for the grade of steel and intended use or service will be used. See Appendix X3 of Specification A6/A6M for information on weldability.

1.4 The values stated in either inch-pound units or SI units are to be regarded as the standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A6/A6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

A1011/A1011M Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

A1018/A1018M Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Carbon, Commercial, Drawing, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

3. General Requirements for Delivery

3.1 Material furnished under this specification shall conform to the requirements of the current edition of Specification A6/A6M, for the ordered material, unless a conflict exists in which case this specification shall prevail.

4. Materials and Manufacture

4.1 Sheet piling shall be produced using one of the following processes:

4.1.1 Decoiling coiled material and feeding it through a multi-stand roll-forming mill at ambient temperature, or

4.1.2 Forming cut lengths of material into piling on a press break.

5. Chemical Composition

5.1 The chemical composition of the steel on heat analysis shall conform to the requirements listed in Table 1.

6. Tension Test

6.1 The source material or the sheet piling as provided in 6.2 and 6.3, as represented by the test specimens, shall conform to the tensile requirements for the grade specified as listed in Table 2.

6.2 Sheet and strip source materials shall be tested in accordance with the requirements of Specification A1011/A1011M or A1018/A1018M. The test specimens shall be taken from the source material or from the sheet piling. If test specimens are obtained from the sheet piling, they are to be taken from a nondeformed area.

6.3 Plate source material shall be tested in accordance with the requirements of Specification A6/A6M, except that the test specimen may be taken such that the longitudinal axis of the specimens are parallel to the final direction of rolling of the material. The test specimens shall be taken from the source or from the sheet piling on a nondeformed area.

7. Identification

7.1 Each piece of piling shall be marked with the manufacturer's name or trademark, this specification number, grade designation, heat number, and section size designation, except that secured lifts of piling less than 0.230 in. [5.8 mm] in

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.02 on Structural Steel for Bridges, Buildings, Rolling Stock and Ships.

Current edition approved April 1, 2013. Published May 2013. Originally approved in 1986. Last previous edition approved in 2007 as A857 – 07. DOI: 10.1520/A0857_A0857M-07R13.

[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.

TABLE 1 Chemical Requirements[A]

Element	Heat Analysis Composition, %
Carbon	0.25 max
Manganese	1.50 max
Phosphorus	0.035 max
Sulfur	0.04 max
Copper (when specified)	0.20 min

[A] Alloy elements, other than those shown in this table, may be added and shall be reported with the heat analysis.

TABLE 2 Tensile Requirements

	Yield Point, min		Tensile Strength, min		Elongation Percent, min	
Grade	ksi	MPa	ksi	MPa	in 8 in. or 200 mm	in 2 in. or 50 mm
30	30	[205]	49	[340]	17	23
33	33	[230]	52	[360]	16	22
36	36	[250]	53	[365]	15	21

thickness may have this identification shown on a tag of substantial size attached to each lift.

8. Keywords

8.1 bulkheads; cold-formed; light gage; sheet piling; shore walls; shoring; steel; structural steel; wingwalls

SUPPLEMENTARY REQUIREMENTS

Supplementary requirements shall not apply unless specified in the purchase order or contract. Standardized supplementary requirements for use at the option of the purchaser are listed in Specification A6/A6M. In addition, the following supplementary requirement is also suitable for use with this specification.

S51. *Interlock Strength*—The minimum strength of the interlocked joint required for certain services may be specified for certain sheet piling sections subject to specific agreement between the material purchaser and the manufacturer.