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**FURNISH SPECIFICATION**  
**STEEL, WOOD**

This specification was approved by the Commissioner, Bureau of all Federal agencies.

**1. NAME AND CLASSIFICATION**

**1.1 NAME:** This specification covers hot and treated steels.

**1.2 CLASSIFICATION:**

**1.2.1 TYPE AND CLASS:** Steels shall be of the following types and classes, as specified in the following table:

- Type 1 - Structural  
 Class 1 - A36 steel  
 Class 2 - A572 steel  
 Class 3 - A570 steel

Type 2 - Cold-chamber die cast  
 Class 1 - 6061 aluminum

**1.2.2 GRADE:**

**1.2.2.1 GRADE:** Length of steels shall be as follows, and as specified in Table 1:

- Type 1 - A, B, C, D, E, and F steels; (D, E, and F are not used)  
 Class 2 - 6061 aluminum

**1.2.2.2 GRADE:** Length of steels shall be as follows, and as specified in Table 1:

- Type 2 - 6061 aluminum

**1.2.2.3 GRADE AND WIDTH:** Thickness and width of steels shall be as specified in Table 1, and as specified in Table 1.

TABLE 1. Material thickness and width

Type	Class	Thickness		Width	
		Min	Max	Min	Max
I	A	1/4	1/2	12	36
	B	1/4	1/2	12	36
	C	1/4	1/2	12	36
	D	1/4	1/2	12	36
II	1	1/8	1/2	12	36
	2	1/8	1/2	12	36

1. The thickness and width of steels shall be as specified in Table 1.

2. The thickness and width of steels shall be as specified in Table 1.

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## 2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on the date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

### Federal Specifications:

QQ-S-781 - Strapping, Steel, Flat and Seals.  
PPP-B-636 - Box, Fiberboard.

### Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

### Military Specification:

MIL-W-6110 - Wood; Determination of Moisture Content of.

### Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.  
MIL-STD-129 - Marking for Shipment and Storage.  
MIL-STD-147 - Palletized and Containerized Unit Loads 40 inch x 48 inch Pallets, Skids, Runners, or Pallet Type Base.

(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

### National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

### Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

## 3. REQUIREMENTS

3.1 Material. Unless otherwise specified (see 6.2), both types of stakes shall be any of the following species of wood:

3.1.1 Softwoods.

Baldcypress (cypress)

Cedar:

Alaska

Atlantic white (southern white and northern white)

Port Orford

Western red cedar

Incense cedar

Douglas fir

Fir:

Balsam

California, red, grand, noble, and white

Hemlock:

Eastern

Western (west coast hemlock)

Mountain

Larch, western

Pine:

Eastern white (northern white), ponderosa, sugar, western white (Idaho white),  
and jeffrey

Jack

Lodgepole

Red (Norway pine)

Southern yellow, medium dense

Southern yellow, dense

Redwood

Spruce:

Engelmann

Red, White, Sitka

Tamarack

3.1.2 Hardwoods.

Ash:

Black

Commercial white

Aspen

Beech, American

Birch, sweet, and yellow

Cottonwood, eastern

Elm:

American, and slippery (soft elm)

Rock

Hickory true, and pecan

Maple, black, and sugar (hard maple)

Oak, commercial red, and white

Sweetgum (gum, red gum, sap gum)

Tupelo, black (black gum), and water

Yellow-poplar (poplar)

3.2 Wood characteristics.3.2.1 Wane.3.2.1.1 Type I. Wane shall not exceed 1/4 the wide face and edge.3.2.1.2 Type II. Wane shall not exceed 1/4 the width of adjacent sides.3.2.2 Knots. Stakes shall be free from loose knots and knots over 1/4 inch (6.3 mm) in diameter on the 1 inch (2.5 cm) side of the stakes, and knots over 1/2 inch (1.3 cm) on the 2-inch (5.1 cm) side.3.2.3 Cross grain. Slope of grain shall not exceed 1 in 6.3.2.4 Decay. Stakes shall be free from decay except decay confined to knots.

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3.2.5 Pitch pockets and splits. Stakes shall not contain any pitch pockets or splits.

3.3 Surfaces. Both types of stakes shall be smooth sawn or planed on not less than 2 sides (S2S). Skip dressing shall be limited to 1/32 inch (0.70 mm) in depth on face and 1/16 inch (1.6 mm) on one edge only. Type I stakes shall be surfaced on the two wide faces (S2S), and type II stakes shall be surfaced on two opposite faces (S2S).

3.4 Pointed end.

3.4.1 Type I.

3.4.1.1 Classes A and B. Marker and lath stakes shall be pointed on two sides.

3.4.1.2 Class C. Wedge stakes, 2 by 2 shall be diagonally cut (saw sized) from 2 by 2 lumber, and 2 by 4 wedge stakes cut from 2 by 4 lumber.

3.4.2 Type II.

3.4.2.1 Class D. Hub stakes shall be pointed on four sides or shall have a conical end.

3.4.2.2 Class E. Hub stakes shall have a conical end.

3.4.3 Types I and II. The pointed ends of stakes shall have straight or curved sides, and the shape of the pointed end shall be at the manufacturer's option. Pointed ends shall be free from burrs splinters, and tears.

3.5 Dimensions and tolerances.

3.5.1 Points. The length of points measured along the stake center line on types I and II stakes shall be no less than 2-7/8 inches (7.3 cm). The difference in length between the two sides shall be 1/4 inch (6.3 mm) or less. Points shall be within 1/16 mm either side of center. Slightly blunt points, up to 1/8 inch flat (3.2 mm), shall be acceptable.

3.5.2 Dressed sizes. Stakes shall be dressed sizes in accordance with table II and tolerances for stakes shall be in accordance with table III.

TABLE II. Dressed sizes

Type	Class	Nominal size	Dressed size	
			Dry	Green
I	A	1 by 2 in.	3/4 by 1-1/2 in.	25/32 by 1-9/16 in.
		2.5 by 5.1 cm.	1.9 by 3.8 cm.	2 by 4.0 cm.
I	A	2 by 2 in.	1-1/2 by 1-1/2 in.	1-9/16 by 1-9/16 in.
		5.1 by 5.1 cm.	3.8 by 3.8 cm.	4.0 by 4.0 cm.
I	B	3/8 by 1-3/4 in.	5/16 by 1-3/8 in.	5/16 by 1-1/2 in.
		0.95 by 4.4 cm.	0.79 by 3.5 cm.	0.79 by 3.8 cm.
I	B	3/8 by 2 in.	5/16 by 1-1/2 in.	5/16 by 9/16 in.
		0.95 by 5.1 cm.	0.79 by 3.8 cm.	0.79 by 4.0 cm.
I	B	5/8 by 2 in.	9/16 by 1-1/2 in.	9/16 by 1-9/16 in.
		1.6 by 5.1 cm.	1.4 by 3.8 cm.	1.4 by 4.0 cm.
I	C	2 by 2 in.	1-1/2 by 1-1/4 in.	1-9/16 by 1-5/16 in.
		5.1 by 5.1 cm.	3.8 by 3.2 cm.	4.0 by 3.3 cm.
I	C	2 by 4 in.	1-1/2 by 3 in.	1-9/16 by 3-1/6 in.
		5.1 by 10 cm.	3/8 by 7.6 cm.	4.0 by 7.8 cm.
II	D	2 by 2 in.	1-1/2 by 1-1/2 in.	1-9/16 by 1-9/16 in.
		5.1 by 5.1 cm.	3.8 by 3.8 cm.	4.0 by 4.0 cm.

TABLE III. Dimensional tolerances

Dimension	Tolerances			
	Plus		Minus	
	Inch	Cm	Inch	Cm
Length of points	1	2.5	1/2	1.3
Length of stakes	3/4	1.9	3/4	1.9
Dressed thickness 5/16 inch (0.79 cm)	1/32	0.079	1/32	0.079

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TABLE III. Dimensional tolerances (continued)

Dimension	Tolerances			
	Plus		Minus	
	Inch	Cm	Inch	Cm
9/16 inch (1.4 cm)	1/16	0.16	1/16	0.16
3/4 inch (1.9 cm)	1/16	.16	1/16	.16
1 inch (2.5 cm) $\frac{1}{2}$	3/8	.95	3/8	.95
1 3/8 inch (3.5 cm)	1/8	.32	1/8	.32
1 1/2 inch (3.8 cm)	1/8	.32	1/8	.32
2 inch (5.1 cm) $\frac{1}{2}$	1/2	1.3	1/2	1.3

$\frac{1}{2}$  Tolerances for 1 and 2-inch (2.5 and 5.1 cm) thickness are for wedge stakes.

3.6 Moisture content. Type I and II stakes shall be in the dry or green condition, as specified (see 6.2). At time of dressing, the moisture content of dry stakes shall be 19 percent or less, while the moisture content of green stakes may be in excess of 19 percent (see 4.4.1).

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

#### 4.2 Sampling.

4.2.1 Lot. Unless otherwise specified (see 6.2), a lot shall consist of all stakes of the same type and class submitted for inspection at the same time.

4.2.2 Dimensional and Visual examination. Sampling for dimensional and visual examination shall be in accordance with level S-2 in MII-STD-105.

#### 4.3 Examination.

4.3.1 Defects. Stakes shall be examined for defects listed in table IV. The acceptable quality levels (AQL's) for defects shall be 2.5 percent defective for major defects and 10.0 percent defective for total defects.

TABLE IV. Classification of defects

Defects	Major	Minor
Type, style, and size not as specified.	X	
Wane greater 1/4 the wide face and edge for type I, and greater than 1/4 the width of adjacent sides for type II.	X	
Stakes not free from loose knots, and tight knots over 1/4 inch (6.3 mm.) in diameter on the narrow side and over 1/2 inch (1.3 cm.) on the wide side.	X	
Cross grain exceeds 1 in 6.	X	
Splits in stakes.	X	
Skip dressing greater than 1/32 inch (0.79 mm.) in depth on face, and greater than 1/16 inch (1.6 mm.) on a side.		X
Pitch pockets in stakes.	X	
Stakes surfaced on one side only.		X
Dimensions not with tolerances.	X	
Damage or defects affecting function or serviceability.	X	
Damage or defects not affecting function or serviceability.		X

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4.3.2 Measuring points. Use a rule graduated in at least 1/16 inch (1.6 mm.) increments. Measure length of point along the central axis of the stake from the tip of the point to a line across the stake where the slope of the point meets the side of the stake. Measure difference in length between sides by placing a square across the stake aligned where the slope on one side meets the side of the stake, and measure distance along the opposite edge of the stake from the square to the slope. Determine whether point is centered by measuring distance between parallel lines, one on centerline of stake, and other from point of stake (see 3.5.1).

4.3.3 Inspection of preparation for delivery. An inspection shall be made to determine that the packing, palletization, and marking comply with the requirements in section 5 of this specification. Defects shall be scored in accordance with table V. Sampling shall be in accordance with MIL-STD-105. Defects of closure listed shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 with an AQL of 4.0 defects per hundred units.

TABLE V. Classification of preparation for delivery defects

Examine	Defects
Markings	Omitted; incorrect; illegible; improper size, location, sequence, or method of application.
Materials	Any component missing or damaged.
Contents	Net weight exceeds the weight limitations of the box specification.
Workmanship	Inadequate application of components such as incomplete closure of container flaps; loose strapping, or distortion of container.

#### 4.4. Test method.

4.4.1 Moisture content. Determine moisture content by the oven drying or electrical meter method in accordance with MIL-W-6110 (see 3.6).

### 5. PREPARATION FOR DELIVERY

5.1 Packing. Packing shall be level A, B or C as specified (see 6.2).

5.1.1 Level A. Fifty type I or twenty-five type II stakes of like description shall be packed in a close fitting box conforming to PPP-B-636, class weather resistant, grade V3c. The box shall be closed, sealed and strapped in accordance with the appendix to PPP-B-636.

5.1.2 Level B. Unless otherwise specified (see 6.2), fifty type I or twenty-five type II stakes shall be packed as specified in 5.1.1 except that the box shall conform to PPP-B-636, class domestic, grade 200.

5.1.3 Level C. Stakes shall be packed to insure carrier acceptance and safe arrival at destination in containers complying with the National Motor Freight Classification rules and the Uniform Freight Classification rules.

5.2 Palletization. When specified in the contract or order (see 6.2) stakes packed as specified in 5.1 shall be palletized in accordance with MIL-STD-147, load type I.

5.3 Marking. In addition to any special marking required by the contract or order, all markings shall be in accordance with Fed. Std. No. 123 or MIL-S70-129, as applicable (see 6.2).

### 6 NOTES

#### 6.1 Intended use.

6.1.1 Type I. Location stakes are intended for use in laying out foundations for buildings and other structures, and trail marking.

6.1.2 Type II. Hub stakes are intended for use in surveying applications such as land and building foundations.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number and date of this specification.

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- (b) Type and class (see 1.2.1).
- (c) Size (see 1.2.2).
- (d) Species of wood (see 3.1).
- (e) Whether stakes shall be in dry or green condition (see 3.6 and 6.3).
- (f) Size of lot, if different from 4.2.1.
- (g) Selection of applicable level of packing required (see 5.1 and 5.2).
- (h) Marking (see 5.3).

6.3 Dry and green stakes. Dry stakes have a moisture content of 19 percent or less, and green stakes have a moisture content in excess of 19 percent.

6.4 The metric equivalents to dimensional requirements are for information only and are not intended to be used for determining acceptance or rejection of items otherwise conforming to the requirements of the specification.

Preparing activity.

GSA-FSS

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Orders for this publication are to be placed with the General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.

