

[INCH-POUND]  
AA-B-2892  
March 14, 1997  
SUPERSEDING  
MIL-B-15228G  
17 November 1988  
AA-B-2825  
November 30, 1994

## FEDERAL SPECIFICATION

### BED, BUNK, STEEL, SINGLE AND DOUBLE-DECK (CONVERTIBLE TYPE)

The General Services Administration has authorized the use of this specification by all Federal agencies.

#### 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for component materials and their assembly into a single bunk bed with adapters for conversion to double-deck bunk beds.

1.2 Classification. The bunk beds covered by this specification will be of the following sizes as specified (see 6.2).

Size 1 - 36.0 inches  $\pm$  0.0625-inch (914.40 millimetre (mm)  $\pm$  1.59 mm) wide by 79.0 inches  $\pm$  0.125-inch (2 006.61 mm  $\pm$  3.18 mm) long overall.

Size 2 - 36.0 inches  $\pm$  0.0625-inch (914.40 mm  $\pm$  1.59 mm) wide by 84.0 inches  $\pm$  0.125-inch (2 133.61 mm  $\pm$  3.18 mm) long overall.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document should be sent to: Commanding Officer (Code 1581), Naval Construction Battalion Center, 1000 23rd Avenue, Port Hueneme, CA 93043-4301, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 7105

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### 2. APPLICABLE DOCUMENTS

2.1 Government publications. 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 Specification

TT-C-490 - Cleaning Methods for Ferrous Surfaces and Pretreatments for Organic Coatings.

#### Federal Standard

FED -STD- 151 - Metals, Test Methods.

(Copies of federal and military specifications, standards, and handbooks required by contractors in connection with specific procurement functions are obtained from Defense Automated Printing Services, Attn: DoDSSP, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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.

#### AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI - Steel Products Manual.

(Private sector and civil agencies may purchase copies of these voluntary standards from the American Iron and Steel Institute, 150 East 42nd Street, New York, NY 10017.)

#### AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

ANSI - A208.1 - Mat-formed Wood Particleboard.

ANSI - Z1.4 - Procedures, Sampling and Tables for Inspection by Attributes.

(Private sector and civil agencies may purchase copies of these voluntary standards from the American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036.)

#### ASTM

A 36 - Structural Steel.

A 366 - Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.

A 513 - Electric-Resistance Welded Carbon and Alloy Steel Mechanical Tubing.

A 569 - Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality.

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D 4317 - Polyvinyl Acetate-Based Emulsion Adhesives.

D 4690 - Urea-Formaldehyde Resin Adhesives.

(Private sector and civil agencies may purchase copies of these voluntary standards from the American Society for Testing Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

## NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

LD 3 - High-Pressure Decorative Laminates.

(Private sector and civil agencies may purchase copies of these voluntary standards from the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.)

(DoD activities may obtain copies of those adopted voluntary standards listed in the DoD Index of Specifications and Standards free of charge from Defense Automated Printing Services, Attn: DoDSSP, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Description. The bunk bed shall be of all steel three piece construction consisting of matching steel tube, head and foot ends, a wedge type corner lock with four bearing points, and a fully framed spring unit with sinuous (no-sag type) spring fabric. The bunk bed shall be of the size specified (see 6.2).

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.2.1).

3.3 Standard commercial product. The bunk beds shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the bunk beds being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.4 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

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3.4.1 System of measurement. The dimensions used in this specification are not intended to preclude the use of the metric system of measurement in the fabrication and production of the material, individual parts, and the finished product, provided form, fit, and function requirements are satisfied.

3.5 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.5.1 Steel. All steel shall be smooth, free from rust, scale, pits, scratches, laps, and buckles affecting strength and appearance. Unless otherwise specified herein, the gage numbers or thickness specified for steel are subject to standard tolerances. Steel shall be tested in accordance with 4.5 where applicable.

3.5.2 Steel tubing. Steel tubing for bed ends, adapters, and stretcher braces shall be in accordance with ASTM A 513, electric resistance welded type.

3.5.3 Steel angles. Steel angles for spring fabric frame shall be in accordance with ASTM A 36 and shall be 2.0 inches (50.80 mm) by 1.5 inches (38.10 mm) by 0.1875-inch (4.76 mm) thick. Edges of angles shall be slightly rounded to avoid sharpness.

3.5.4 Bed ends. Head and foot bed ends shall consist of two main posts, two horizontal tubes, four intermediate vertical tubes, two female corner locks, two steel caps, and two bed shoes. The female corner locks shall be placed on the end posts to match the male corner locks on the framed spring unit.

3.5.5 Framed spring unit. The framed spring unit shall consist of an all welded angle frame, sinuous (no-sag type) spring fabric, two tubular steel stretcher braces, and four male corner locks.

3.5.6 Spring fabric. Spring fabric shall be high carbon sinuous (no-sag type) furniture spring wire in accordance with table 7-55 of AISI Steel Products Manual. Spring wire shall be number 10 United States (US) Steel Wire Gage, 31.0 inches  $\pm$  0.50-inch (787.40 mm  $\pm$  12.70 mm) long in the flat position, containing 19 full loops including the "Z" hook ends. Spring fabric shall be fabricated to 7.50 inches  $\pm$  0.50-inch (190.50 mm  $\pm$  12.70 mm) diameter. Cut ends shall not have burrs or sharp projections.

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3.5.7 Spring fabric links. Spring fabric links shall be number 11 US Steel Wire Gage basic steel wire in accordance with table 7-48 of the AISI Steel Products Manual with galvanized finish.

3.5.8 Helical springs. Helical springs shall be number 12 US Steel Wire Gage steel premier wire with electrodeposited zinc coating. Tensile strength shall be in the range from 204,000 to 230,000 pounds per square inch (140 664.15 Newton per square centimetre (N/cm<sup>2</sup>) to 158 591.93 N/cm<sup>2</sup>).

3.5.9 Male and female corner locks. The corner locks shall be in accordance with ASTM A 569, hot-rolled sheet or strip, commercial quality steel, pickled and oiled. As an alternate, the male corner locks shall be in accordance with ASTM A 366, cold-rolled sheet, commercial quality, and oiled. Female corner locks shall be located 15 inches (381 mm) ± 0.125-inch (± 3.2 mm) from the bottom of the bed ends.

3.5.10 Male corner lock studs. Corner lock studs shall be designation C-1010 steel in accordance with AISI Steel Products Manual. When upset, the shank shall be annealed for riveting. When studs are machined, they shall conform to CF-B-1113, C-1213, or C-1215 steel in accordance with AISI Steel Products Manual.

3.5.11 End panel core. When specified (see 6.2), the end panel core shall be particleboard in accordance with ANSI A208.1, Grade 1-M-3, weight of 45 pounds per cubic foot (720.9 kilograms per cubic meter), and 0.75-inch (19.05 mm) thick.

### 3.6 Accessories.

3.6.1 End panels. When specified (see 6.2), two end panels shall be provided with each bed. The panels shall consist of a particleboard core (see 3.5.11) surfaced on each side with a high pressure decorative laminated plastic sheet (see 3.7.3). Laminated plastic sheets with a woodgrain pattern shall have the woodgrain in the horizontal direction.

3.6.2 Steel caps and bed shoes. Caps and shoes for closure of the top and bottom of bed posts shall be provided for each bed end post and shall be retained within the post by a retaining spring pressing against the post interior sides. Caps and shoes shall be removable without the use of tools.

3.6.3 Adapters. When specified (see 6.2), each pair of beds shall be provided with a set of four adapters for double-decking two beds. When installed, the adapters shall separate the framed spring units by 39 inches ± 0.25-inch (990.6 mm ± 6.4 mm).

3.7 Finish. All metal surfaces of the bunk beds, except plated steel shoes and panels, shall be painted. Application of finish shall produce smooth and uniform surfaces without runs or wrinkles and shall be free from objectionable defects such as scale under the finish, rust, or discoloring.

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3.7.1 Surface preparation. All surfaces to be painted shall be treated in accordance with type I or type II of TT-C-490, except phosphate coating may be applied in three stages and nonchromated final acidic rinse may be used.

3.7.2 Painting. All treated surfaces shall be painted with an epoxy-powder coating and applied and baked in accordance with the coating manufacturer's recommendations. The powder coat color shall be as specified (see 6.2).

3.7.3 High pressure decorative laminated plastic sheet. Decorative laminated plastic sheet used for surfacing end panels shall be in accordance with GP 32 of NEMA LD-3. Pattern, color, and finish shall be as specified (see 6.2).

3.7.4 Adhesive. Adhesive for bonding high pressure decorative laminated plastic sheets to panel cores shall be in accordance with ASTM D 4317 or ASTM D 4690.

3.8 Identification marking. Identification shall be permanently and legibly marked directly on the bunk bed or on a corrosion-resisting metal plate securely attached to the bunk bed at the source of manufacture. Identification shall include the manufacturer's model and serial number, name and trademark to be readily identifiable to the manufacturer.

3.9 Workmanship.

3.9.1 Steel fabrication. The steel used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the steel to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to ensure uniformity of size and shape.

3.9.2 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.9.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract, the contractor may use his own or

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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 ensure that supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

4.2.1 First article inspection. The first article inspection shall be performed on bunk beds when a first article is required (see 3.2 and 6.2). This inspection shall include the examination of 4.4 and the tests of 4.5. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.4, and the tests of 4.5. This inspection shall be performed on the samples selected in accordance with 4.3.

4.3 Sampling. Sampling and inspection procedures shall be in accordance with ANSI Z1.4. The unit of product shall be one complete bunk bed or two complete bunk beds and four adapters, when adapters are required. All bunk beds offered for delivery at one time shall be considered a lot for the purpose of inspection. Sampling for this inspection shall be as specified in the contract or purchase order (see 6.2).

4.4 Examination. Each bunk bed shall be examined for compliance with the requirements specified in section 3 of this document. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and

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suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirement or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.4.1 Bed assembly examination. Each sample shall be assembled to determine ease of assembly and proper fit of mating parts. In addition, the beds shall be double-decked, when adapters are required, to ensure proper overall dimensions among beds. Failure of studs and male corner lock extensions to fit properly, requiring excessive force or use of tools to assemble or inability to match top bed post bottoms and bottom bed top, when double-decking each, shall be cause for rejection.

4.4.2 Adapter assembly examination. When adapters are procured separately or with beds, samples shall be examined for ease of double-decking. Assembly and disassembly with beds or steel tubes of the same dimensions and wall thickness as bed posts as specified herein shall be performed manually without the use of tools and shall be snug fit.

#### 4.5 Tests.

4.5.1 Metals. Specimens of metal components shall be tested in accordance with FED-STD-151 wherever applicable.

4.5.2 Bed test. A load of 600 pounds (272 kg) shall be placed across the side angles of the spring unit of an assembled bed, midway between the bed ends. The test load bottom or base shall be approximately 18.0 inches (457.20 mm) wide. At the center of the spring unit, the deflection of the spring unit side angles shall be not greater than 0.0475-inch (11.11 mm) with the 600-pound (272 kg) load in place. Upon removal of the test load, the spring unit shall return to its original position with no visible distortion in the bed locks or spring unit frame.

### 5. PACKAGING

5.1 Packaging requirements. The preservation, packing, and marking shall be as specified in the contract or order.

### 6. NOTES

(This section contains information of a general or explanatory nature which is helpful, but is not mandatory.)

6.1 Intended use. The bunk beds covered by this specification are intended for use in unaccompanied enlisted personnel housing.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Size required (see 1.2 and 3.1).

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- c. When a first article is required for inspection and approval (see 3.2 and 4.2.1).
- d. When end panels are to be provided (see 3.6.1).
- e. When four adapters are to be provided with each pair of bunk beds (see 3.6.3).
- f. When adapters are to be procured separately (see 3.6.3).
- g. Color of finish coat (see 3.7.2).
- h. Pattern, color, and finish required for decorative laminated plastic sheet (see 3.7.3).
- i. Sampling plan for inspection (see 4.3).

6.3 Supersession data. This specification replaces Military Specification MIL-B-15228G dated 17 November 1988 and Federal Specification AA-B-2825 dated 30 November 1994.

6.4 Classification cross reference. Classifications used in this specification (see 1.2) are identical to those found in superseded Military Specification MIL-W-17122D dated 30 August 1991 and Federal Specification AA-B-2825 dated 30 November 1994.

6.5 Part or Identifying Numbers (PINs). The specification number, class, type, and size are combined to form PINs for bunk beds covered by this document (see 1.2). PINs for the bunk beds are established as follows:

|                              |         |    |
|------------------------------|---------|----|
|                              | AAB2892 | XX |
| Federal Specification Number |         |    |
| 01 for Size 1 bed            |         |    |
| 02 for size 2 bed            |         |    |

6.6 Subject term (key word) listing.

Adapters  
Convertible type

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to previous issue.

## MILITARY INTERESTS:

Custodians:

Navy-YD1

Air Force-99

Army - GL

Review Activities:

Air Force-84

## CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

## PREPARING ACTIVITY:

Navy-YD1

(Project 7105-0287)

# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

### I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER  
AA-B-2892

2. DOCUMENT DATE (YYMMDD)

### 3. DOCUMENT TITLE

BED, BUNK, STEEL, SINGLE AND DOUBLE-DECK (CONVERTIBLE TYPE)

### 4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

### 5. REASON FOR RECOMMENDATION

### 6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*

b. ORGANIZATION

c. ADDRESS *(Include Zip Code)*

d. TELEPHONE *(Include Area Code)*  
(1) Commercial  
(2) AUTOVON  
*(if applicable)*

7. DATE SUBMITTED  
(YYMMDD)

### 8. PREPARING ACTIVITY

a. NAME

ROMULO R. NICHOLAS

b. TELEPHONE *Include Area Code)*

(1) Commercial  
805-982-6063

(2) AUTOVON  
551-6063

c. ADDRESS *(Include Zip Code)*

COMMANDING OFFICER, NCBC CODE 15E2N  
1000 23RD AVENUE  
PORT HUENEME, CA 93043-4301

**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:**

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