MIL-B-26195C
15 May 1987
SUPERSEDING
MIL-B-26195B
26 July 1974

MILITARY SPECIFICATION

BOXES, WOOD-CLEATED, SKIDDED, LOAD-BEARING BASE

This specification is approved for use within the Department of Defense and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers the requirements for new wood boxes, wood-cleated with skidded load-bearing bases. Boxes covered herein are designed for domestic and overseas shipments of loads less than 2,500 pounds and not greater than 16 feet in length.

1.2 Classification. Boxes shall be of the following types, styles, and classes, as specified (see 6.2):

Type I -- For Domestic Shipment
Type II -- For Overseas Shipment

Style A -- Regular Cleating Arrangement (see Figure 1)
Style B -- Lock Corner Cleating Arrangement (see Figure 1)

Class 1 -- Plywood Base (see Figure 2)
Class 2 -- Lumber Base (see Figure 2)

Grade I -- Standard
Grade II -- Fire Retardant

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Air Force Packaging Evaluation Agency (HQ AFLC/DSTZ), Wright-Patterson AFB OH 45433, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 8115

AMSC N/A

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

Federal

FF-B-561	Bolts, (Screw), Lag
FF-B-584	Bolts, Finned Neck; Key Head; Machine: Ribbed Neck; Square Neck: Tee Head
FF-N-105	Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
FF-W-92	Washer, Flat (Plain)
NN-P-530	Plywood, Flat Panel
TT-W-572	Wood Preservative: Water-Repellent
PPP-B-576	Boxes, Wood, Cleated, Veneer, Paper Overlaid
PPP-B-591	Boxes, Shipping, Fiberboard, Wood-Cleated
PPP-B-601	Boxes, Wood, Cleated-Plywood
PPP-F-320	Fiberboard: Corrugated and Solid, Sheet Stock (Container Grade), and Cut Shapes
PPP-V-205	Veneer, Paper Overlaid, Container Grade
QQ-S-781	Strapping, Steel and Seals

Military

MIL-C-16173	Corrosion Preventive Compound, Solvent Cutback, Cold-Application
MIL-L-19140	Lumber and Plywood, Fire-Retardant Treated

STANDARDS

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-731	Quality of Wood Members for Containers and Pallets

(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

U.S. Department of Commerce:

PS 1 Construction and Industrial Plywood

(Applications for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.)

2.2 Other publications. The following document form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

American National Standards Institute (ANSI):

HP 1983 American National Standard for Hardwood and Decorated Plywood

(Applications for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York NY 10018.)

American Society for Testing and Materials (ASTM):

E380 Metric Practice

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race St., Philadelphia PA 19103.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the reference cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specified exemption has been obtained.

3. REQUIREMENTS

3.1 Materials. When specified (see 6.2), materials shall be fire-retardant treated in accordance with MIL-L-19140. Metric conversions of physical properties of materials are in accordance with ASTM E380 and shown in Table VII. (See 4.4.1).

3.1.1 Lumber. Lumber for all components shall conform to the requirements of MIL-STD-731. Lumber for superstructure components shall conform to the requirements for cleated panel boxes and lumber for base components to those for crates. (See 4.4.1).

3.1.2 Plywood. Unless otherwise specified, plywood used in the fabrication of Type I boxes shall conform to ANSI/HPMA HP 1983, Type II, Grade 3-4; or PS 1, interior, Grade C-D. Plywood used to fabricate Type II boxes shall conform to ANSI/HPMA HP 1983, Type I, Grade 3-4; PS 1, interior with exterior glue; or PS 1, exterior, Grade C-C. Minimum acceptable grade and type plywood shall conform to NN-P-530 referenced commercial and product standards. (Plywood is furnished unsanded and untreated. The contract or purchase order should specify sanding or treatment if such is required (see 6.2). Water repellent conforming to TT-W- 572 shall be used when treatment is specified.) (See 4.4.1).

3.1.3 Fiberboard. Unless otherwise specified, fiberboard shall conform to PPP-F-320. Type SF, class domestic, grade 5 or 600 shall be used in the fabrication of Type I boxes. Type SF, class weather-resistant, grade V2s, V3s, or V4s shall be used in the fabrication of Type II boxes. (See 4.4.1).

3.1.4 Paper-overlaid veneer. Unless otherwise specified, paper-overlaid veneer for Type I and Type II boxes shall be in accordance with PPP-V-205, Type I and Type II, respectively. (See 4.4.1).

3.1.5 Fasteners. Nails and staples shall be steel and shall be in accordance with the applicable requirements of FF-N-105. Unclinched nails shall be cement coated or chemically etched. Lag bolts shall be in accordance with the requirements of FF-B-561. Carriage bolts shall be Type I, class 1, style A with nuts in accordance with FF-B-584. Washers for lag and carriage bolts shall conform to Type A, grade I, class A, blackoxide coated of FF-W-92. (See 4.4.1).

3.2 Base components. The base components are illustrated in Figure 2. Lumber used in the skids shall be in accordance with the requirements of 3.1.1, except that group I woods shall not be used. The dimensions of skids shall be as shown in Table I, and those with rectangular cross sections are intended to be used flatwise. For boxes whose outside width does not exceed

36 inches, 2 skids shall be required. When the outside width exceeds 36 inches, a third skid conforming to Table I shall be placed equidistant between and parallel with the outer skids. When specified (see 6.2), the lower one-third of the ends of each skid and the adjacent corner of the side panel shall be beveled 45 ± 5 degrees. Lumber used for load-bearing floor members shall be in accordance with the requirements of 3.1.1 and shall be selected in accordance with Table II. When the container width is 24 inches or less, the length 36-60 inches and height is 72 inches or greater, place skids crosswise (widthwise) rather than lengthwise and adjust the other base components accordingly (headers, base, etc.). (See 4.4.1).

TABLE I. Nominal Sizes 1/ and Maximum Lengths of Skids.

Weight of Contents (Pounds)	Load Condition 2/	Nominal Sizes (Inches) 1/					
		2 x 4	2 x 6	2 x 8	4 x 4	4 x 6	6 x 6
		Maximum length of skid (feet)					
0 - 100	A	16	-	-	-	-	-
	B	16	-	-	-	-	-
	C	16	-	-	-	-	-
	D	16	-	-	-	-	-
	E	16	-	-	-	-	-
101 - 200	A	16	-	-	-	-	-
	B	16	-	-	-	-	-
	C	16	-	-	-	-	-
	D	16	-	-	-	-	-
	E	16	-	-	-	-	-
201 - 400	A	11	15	16	-	-	-
	B	13	16	-	-	-	-
	C	8	12	16	-	-	-
	D	10	15	16	-	-	-
	E	13	16	-	-	-	-
401 - 600	A	8	11	14	16	-	-
	B	9	14	16	-	-	-
	C	5	8	11	16	-	-
	D	7	10	14	16	-	-
	E	9	14	16	-	-	-
601 - 800	A	7	9	11	16	-	-
	B	7	10	14	16	-	-
	C	4	6	8	16	-	-
	D	5	8	10	16	-	-
	E	7	10	14	16	-	-

TABLE I. Nominal Sizes 1/ and Maximum Lengths of Skids (Continued).

Weight of Contents (Pounds)	Load Condition 2/	Nominal Sizes (Inches) 1/					
		2 x 4	2 x 6	2 x 8	4 x 4	4 x 6	6 x 6
		Maximum Length of Skid (Feet)					
801 - 1000	A	6	8	10	16	-	-
	B	5	8	11	16	-	-
	C	3	5	7	16	-	-
	D	4	6	8	16	-	-
	E	5	8	11	16	-	-
1001 - 1200	A	6	7	8	16	-	-
	B	4	7	9	16	-	-
	C	3	4	5	13	16	-
	D	3	5	7	16	-	-
	E	4	7	9	16	-	-
1201 - 1400	A	5	7	8	14	16	-
	B	5	6	8	16	-	-
	C	0	4	5	11	16	-
	D	3	4	6	14	16	-
	E	5	6	8	16	-	-
1401 - 1600	A	5	6	7	13	16	-
	B	3	5	7	16	-	-
	C	0	3	4	18	15	16
	D	3	4	5	12	16	-
	E	3	5	7	16	-	-
1601 - 1800	A	5	6	7	12	16	-
	B	3	5	6	15	16	-
	C	0	3	4	9	14	16
	D	0	3	4	11	16	-
	E	3	5	6	15	16	-
1801 - 2000	A	4	5	6	11	15	16
	B	3	4	5	13	16	-
	C	0	0	3	8	12	16
	D	0	3	4	10	15	16
	E	3	4	5	13	16	-
2001 - 2200	A	4	5	6	10	14	16
	B	0	4	5	12	16	-
	C	0	0	3	7	11	16
	D	0	3	4	9	14	16
	E	0	4	5	12	16	-

TABLE I. Nominal Sizes 1/ and Maximum Lengths of Skids (Continued).

Weight of Contents (Pounds)	Load Condition 2/	Nominal Sizes (Inches) 1/					
		2 x 4	2 x 6	2 x 8	4 x 4	4 x 6	6 x 6
		Maximum Length of Skid (Feet)					
2201 - 2400	A	4	5	6	10	13	16
	B	0	3	4	11	16	16
	C	0	0	3	7	10	16
	D	0	0	3	8	13	16
	E	0	3	4	11	16	-
2401 - 2500	A	4	5	6	9	13	16
	B	0	3	4	10	16	-
	C	0	0	3	6	10	16
	D	0	0	3	8	12	16
	E	0	3	4	10	16	-

1/ See 6.3 for definition.

2/ The load condition is determined by the manner in which the load is applied to the skids (see Figures 3 and 4).

TABLE II. Allowable load (pounds) per inch of width of load-bearing floor members.

Length between outside skids (inches)	Nominal 1/ 1-inch thick boards (lbs per inch)		Nominal 1/ 2-inch thick boards (lbs per inch)		Nominal 1/ 3-inch thick boards (lbs per inch)	
	Wood Groups		Wood Groups		Wood Groups	
	I or II	III or IV	I or II	III or IV	I or II	III or IV
12	38	46	176	211	459	551
18	26	31	118	142	306	367
24	19	23	88	106	230	276
30	15	18	70	84	183	220
36	13	16	58	70	154	185
42	11	13	52	62	131	157
48	10	12	44	53	115	138
54	9	11	39	47	102	122
60	7	8	35	42	92	110

1/ See 6.3 for definition.

3.2.1 Lumber-floored base. Lumber used for floorboards shall be as specified in 3.1.1. Floorboards shall not be less than 1 inch (nominal) thick nor less than 4 inches (nominal) wide. (See 4.4.1).

3.2.2 Plywood base. Plywood base shall be in accordance with 3.1.2. The minimum thickness of the plywood shall be 3/8 inch. (See 4.4.1).

3.2.3 Headers. End headers shall be placed at the ends of all bases. They shall be of nominal size lumber conforming to 3.1.1 and shall be unspliced. When the container width is 36 inches or less, 2 x 4 inch headers shall be used. When container width exceeds 36 inches, 4 x 4 inch headers shall be used. (See 4.4.1).

3.2.4 Rubbing strips for skids. Unless otherwise specified (see 6.2), rubbing strips shall be applied to skids to provide a minimum forklift opening height of 3 inches (-1/8 inch) and shall be applied to skids to facilitate forklift entry. Rubbing strips shall be applied with two staggered rows of twelve-penny nails spaced 12 inches apart in each row. When rubbing strips are used, the skids shall not be beveled. All rubbing strip ends shall be half beveled at 45±5 degrees and set back from ends of skids a distance of 2-1/2 to 4 inches to allow for sling placement. Openings for forklift access shall be a minimum 12 inches wide, 28 inches center to center, and positioned to straddle the center of gravity of the loaded container. The center pieces of rubbing strips shall be 16 inches in length. On short crates (less than 60 inches in length), forklift openings may be substituted for sling openings. (See 4.4.1).

3.2.5 Superstructure components. The sides, tops, and ends shall be of cleated panel construction. Panels shall be plywood, fiberboard or paper overlaid veneer as specified (see 6.2) and shall meet the material requirements of 3.1.2, 3.1.3, or 3.1.4, respectively. The sizes of the components for the cleated plywood, cleated fiberboard, and cleated paper-overlaid veneer superstructures shall comply with the applicable requirements of PPP-B-601, PPP-B-591, and PPP-B-576, respectively. The maximum size components given in those specifications shall be used for net weights in excess of 1,000 pounds. Cleating shall be external only. (See 4.4.1).

3.2.5.1 Cleats. Cleat arrangement on top, side and end panels (see Figure 1) as well as filler cleat tolerance and drainage provisions shall be in accordance with PPP-B-601. (See 4.4.1).

3.2.5.2 Joists. Unless otherwise specified (see 6.2), joists shall be provided for all boxes in excess of 36 inches long and 24 inches wide. Lumber used for joists shall be in accordance with the requirements of 3.1.1. Joists shall be applied with their narrow surfaces in contact with the panel of the top and shall be spaced equal distances apart along the length of the

box, but not to exceed 24 inches apart (center to center). The sizes of the joists shall be in accordance with Table III. When joists are required, they shall be supported vertically by supports which shall be in accordance with the provisions of 3.3.3.1.2 and laterally by supports which shall be in accordance with 3.3.3.1.3. (See 4.4.1).

TABLE III. Selection of Joists.

Nominal joist size (Inches)	Outside width of box (Inches)
None required	24
1 x 4	25-36
2 x 4	37-60

3.3 Fabrication requirements. Nominal dimensions shall be as specified in 5.1 of FED-STD-731. (See 4.4.1).

3.3.1 Dimensions. Dimensions shall be specified by length, width, and height (see 6.2). Inside dimensions shall specify the inside length from the inside of the end panels (outside of headers); the inside width shall be equal to the width of the base (outside of outer skids); and the inside height shall be measured from the top of base/flooring to the bottom of the top panel. (See 4.4.1).

3.3.2 Base fabrication.

3.3.2.1 Plywood flooring to skids. The plywood may be the full length and width of the container base or it may be a centrally located square piece with each side equal to the base width as illustrated in Figure 2. Plywood flooring shall be oriented so that the grain direction of face plies are perpendicular to skid length. If more than 1 plywood panel is used, a spacing of 1/4 inch shall be left between panels for drainage. Nailing of the plywood to the skids shall be as illustrated in Figure 5. Side edges of all plywood flooring shall be flush with the outer edges of the outside skids. When the plywood flooring is the full length of the base, end headers and load-bearing floor members shall be placed on top of the plywood and bolted to the skids. A drainage hole 1/2 inch in diameter shall be drilled in each corner of full length plywood bases. An additional drainage hole shall be placed along the sides of the plywood base for each 3 feet of the inside length. When load-bearing floor members are placed over plywood bases, at least one drainage hole shall be placed on each side of the plywood base between the load-bearing floor members. (See 4.4.1).

3.3.2.2 Lumber flooring to skids. Nailing of lumber flooring to the skids shall be as illustrated in Figure 5. Lumber shall be laid at right angles to the skids. The edges of adjacent boards shall be separated 1/8 to 1/4 inch to allow for swelling and drainage. The ends of boards shall be flush with the outer edges of the skids. (See 4.4.1).

3.3.2.3 Load-bearing floor members to skids. Load-bearing floor members over 2 inches thick and up to 4 inches in width shall be bolted to each skid with one carriage bolt. Load-bearing floor members over 2 inches thick and over 4 inches wide shall be bolted to each skid with 2 carriage bolts. The load- bearing floor members shall be fastened to the skids with 3/8 inch carriage bolts. Bolt holes shall be of the same diameter as the shank of the bolt. Plain washers in accordance with 3.1.5 shall be placed under the nuts of all bolts. After tightening, nuts shall be prevented from turning by the application of unthinned lead paint or equivalent locking means to projecting threads. Load-bearing members less than 2 inches in thickness shall be nailed to the skids. Nails shall be as large as possible without splitting the piece. The load-bearing floor members shall be flush with the outer edges of the skids. (See 4.4.1).

3.3.2.4 End headers to skids. End headers in accordance with 3.2.3 shall be fastened to the skids with 3/8 inch carriage bolts. Headers shall be placed back from the ends of the skids a distance equal to the thickness of the end panels as illustrated in Figure 2, and shall be flush with the outer edges of the skids as illustrated in Figure 6. When plywood is used full length of the base, headers shall be placed on the plywood. (See 4.4.1).

3.3.3 Superstructure fabrication. Except as noted in 3.2.5.1 and 3.3.3.1, fabrication of cleated plywood, cleated fiberboard, and cleated paper-overlaid veneer panels, which form the superstructure, shall conform to the applicable requirements of PPP-B-601, PPP-B-591, and PPP-B-576, respectively. (See 4.4.1).

3.3.3.1 Fabrication of side panel.

3.3.3.1.1 Joist supports. When top bracing joists are used, vertical and lateral joist supports shall be affixed to the side panels as illustrated in figure 7. The vertical and lateral supports shall conform to the material requirements for cleat stock except that the thickness shall not be less than 1 inch nominal for container loads up to 1,000 pounds and not less than 2 inch nominal for loads in excess of 1,000 pounds. (See 4.4.1).

3.3.3.1.2 Vertical joist supports. The vertical joist supports shall be fastened to the side panels with nails spaced not greater than 3 inches on centers (see Figure 7). The nails shall be staggered as shown. Nails shall be of sufficient length to pass through the joist support, the panel, the intermediate cleat of the side panel when matching occurs, and permit a clinch of not less than 1/8 inch when group II, III, or IV woods are used and 1/4 inch when group I woods are used. The supports shall be of sufficient length to extend from the under surface of the joist to the upper surface of the base decking or floor boards. (See 4.4.1).

3.3.3.1.3 Lateral joist supports. The lateral joist supports shall be fastened to the side panels with not less than two nails. Nails shall be of sufficient length to pass through the support block, the panel, the longitudinal cleat of the side panel, and permit a clinch of not less than 1/8 inch when group II, III, or IV woods are used and 1/4 inch when group I woods are used. These support blocks shall not be less than 3-1/2 inches long. (See 4.4.1).

3.4 Assembly requirements.

3.4.1 Assembly of superstructure panels. Assembly of cleated plywood, cleated fiberboard, and cleated paper-overlaid veneer superstructures shall comply with the applicable requirements of PPP-B-601, PPP-B-591, and PPP-B-576, respectively. (See 4.4.1).

3.4.2 Assembly of superstructure to base. The end and side panels shall be assembled to the base with lag bolts specified in 3.1.5 and as illustrated in Figure 6. Side panels shall not extend below the bottom of the skids. When specified, boxes may be furnished assembled (see 6.2). (See 4.4.1).

3.4.2.1 Side to skid. A lag bolt shall be placed through each end of the lower longitudinal cleat of the side panel and into the skid at a distance of not less than 2 nor more than 3 inches from the end of the cleat. Additional lag bolts shall be equally spaced between the two end bolts with no distance exceeding 12 inches. (See 4.4.1).

3.4.2.2 End to header. A lag bolt shall be placed through each end of the lower filler cleat and into the end header at a distance not less than 2 inches nor more than 3 inches from the end of the filler cleat. Additional lag bolts shall be equally spaced between the end bolts with no distance exceeding 12 inches. A minimum of two lag bolts are required through each end filler cleat. (See 4.4.1).

3.4.2.3 Size and placement of lag bolts. Lag bolts shall be 3/8 inch in diameter and 3 inches in length. Entry holes for lag bolts shall be 3/8 inch in diameter. Lead holes shall be 1/4 inch in diameter for group I, II, and III woods and 5/16 inch in diameter for group IV woods (see Figure 6). The combined depth of the entry and lead holes shall equal the total length of the shank and threaded portions. Lag bolts shall be turned in their holes the full distance. They shall not be driven by hammer. If the threads in the lead holes become stripped, the lag bolt shall be removed and placed in a new hole near the old position. A washer in accordance with 3.1.5 shall be placed under the head of each lag bolt. Countersinking for lag bolts shall not be permitted. (See 4.4.1).

3.4.2.4 Corner straps. When specified (see 6.2), corner straps shall conform to QQ-S-781, Class 1, Type I or II, Regular duty, Finish A, not less than 3/4 inch wide by 0.020 inch thick by 12 inches in length. Corner strapping shall be prepunched or drilled with 1/8 inch holes at 1 inch intervals. Nails shall conform to FF-N-105, Type II, Style 19 or 20, blued or galvanized finish. Length of the nails shall be 7/8 to 1-1/8 inches. A minimum of three nails shall be used for each strap leg and strapping shall be located so that nailing is in a cleat. When intermediate cleats are required on the sides and top or on the ends, an additional strap shall be placed over each intermediate cleat. See Figure 8 for placement of straps. (See 4.4.1).

3.5 Ventilation. When specified (see 6.2), boxes shall be provided with ventilating holes or slots which shall be located at each end, or at ends and sides or around the perimeter of the box. These ventilating holes or slots shall be located immediately below the top cleats and be provided with a baffle as shown in Figure 9 for each ventilating area. In boxes over 10 feet in length, the ventilation area shall be divided equally between the sides and ends of the box with a baffle. The ventilating area on the ends shall be placed as near the midpoint as practical. On the sides, the ventilation area will be placed as near the center between the intermediate and edge vertical cleats as practical. Single holes do not require baffles but, shall be sloped at 45 degrees to drain outward. No holes or slots shall be cut in any cleat. (See 4.4.1).

3.5.1 Ventilation slots. When required (see 6.2), the ventilation slots shall be provided with baffles and screens as shown in Figure 9. The required ventilating area shall comply with Table IV. In small boxes, 3/4-inch-diameter holes may be substituted for the slots in the proportion of two holes for each square inch of required area. (See 4.4.1).

3.5.2 Ventilation holes. When required (see 6.2), boxes shall be provided with ventilating holes, 3/4 inch in diameter. All splinters and chips shall be removed from the holes. Ventilation holes shall be provided in each end in one or more clusters, placed near the upper cleats, provided with a baffle, and spaced 2 inches on center as shown in Figure 9. As an alternative to end ventilation, the ventilating holes may be spaced evenly around the perimeter of the crate just under the top cleats and drilled at a 45 degree angle to drain outward. The total number of holes shall comply with Table IV. (See 4.4.1).

TABLE IV. Ventilation hole requirements.

Volume of box (cu.ft.)	End ventilation minimum number of 3/4 inch diameter holes required in each end (place in clusters and use baffle)	Perimeter ventilation (alternate) Total minimum number of 3/4 inch diameter holes required around perimeter (space evenly and slope to drain out)	Area required in each end (Use baffle and screen) (sq. in.)
0-100	3	6	7
100-150	4	8	10
150-200	5	10	14
200-400	9	18	27
400-600	14	27	40

3.6 Workmanship. All boxes and components shall be free from imperfections which may affect their utility. Boxes shall be free from defects which will result in damage to the contents. (See 4.4.1).

3.7 Special markings. The following marking in minimum 1 inch high letters shall be placed on the ends and side panels of the boxes (see 4.4.1):

CAUTION: LIFT BY BASE ONLY_____
_____ 1 inch
TO OPEN REMOVE BOTTOM LAG BOLTS

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase 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 supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of section 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of inspections. The inspection requirements specified herein shall conform to the end item inspection in 4.4.

4.3 Inspection conditions. Unless otherwise specified, sampling for inspection and acceptance shall be in accordance with provisions of MIL-STD-105.

4.4 End item inspection. Examination of the end item shall be made in accordance with the classification of defects (Table V) and 4.4.3. The lot size for the purpose of determining the sample size shall be expressed in units of boxes for examinations under 4.4.1 and in units of bundles, pallet loads, or shipping containers of knocked-down boxes, as applicable, for examination in 4.4.2.

4.4.1 Quality conformance inspection sampling. The sample unit shall be carefully examined to determine conformance with materials, construction, appearance and workmanship requirements of section 3 (see Table V). The sample unit for this examination shall be one completely fabricated box, including box top. The inspection level, major and minor defects shall conform to 4.4.3.

TABLE V. Classification of Defects.

Examine	Defect	Category Major	Category Minor
Material	Materials not as specified.....	101	
	Fasteners not type and size specified; not cement coated or chemically etched.....	102	
	Plywood less than specified thickness.....	103	
	Cleats less than specified width and thickness.....	104	
Base	Base components not as specified (see 3.2).....	105	
	Skids not in accordance with requirements (see 3.2).....	106	
	Rubbing strips improperly spaced, beveled, sized or missing.....	107	
	Carriage bolts not as specified (see 3.3.2.3).....	108	
	Lag bolts improperly spaced or missing.....	109	
Splicing of panel	Panel up to and including 48 inch width by 72 inch length made up of more than one piece of plywood..		201
	Note: Panels which exceed either of the above dimensions may be of one or two pieces and lap or butt joined. Lap joint of two-piece panel less than 3 inches and either piece greater than 3/16 inch in thickness.		
	Lap joint not secured by two rows of metal stitches passing through both pieces.....	110	
	Stitches not parallel.....		202

TABLE V. Classification of Defects (Continued).

Examine	Defect	Category Major	Category Minor
Splicing of panel (cont'd)	Stitches spaced less than 2 inches apart.....		203
	Spacing of stitches more than 4 inches apart.....	111	
	Butt joint of 2-piece panel not secured with wood cleat centered over joint.....	112	
	Cleat not fastened to each piece of panel as required for fabrication of panels (see 3.2.5.1).....	113	
	Joint cleat for domestic type box or for overseas type box, as applicable, not as specified.....	114	
Construction of panel	Cleat not properly positioned.....	115	
	Cleat not of sufficient length....		204
	Intermediate or additional cleat missing where required (see 3.2.5.1).....	116	
	Assembly not in true alignment....		205
	Staple or other fastener not fully and securely driven through adjoining members as specified....	117	
	Staple leg or other fastener point not completely clinched 1/8 inch or more	118	
	Protrusion of fastener point side member.....	119	
	Fastener does not pass through plywood and cleat as applicable to permit clinching.....	120	

TABLE V. Classification of Defects (Continued).

Examine	Defect	Category Major	Category Minor
Construction of panel (cont'd)	Bearing surface of staple crown or nail head overdriven in excess of 1/32 inch in plywood less than 1/4 inch thick.....	121	
	Joint and joist supports not as specified.....	122	
Box	Box not type and style specified	123	
	Spacing between metal fasteners in excess of maximum length specified		206
	Fasteners positioned lengthwise of cleats not staggered where possible to form two parallel rows.....		207
	Less than 3/8 inch between nearest edge of fastener and edge of cleat.....	124	

4.4.2 Examination of packaging. Examination shall be made to determine that packing and marking comply with the requirements of section 5, Table VI and special requirement of contract, when applicable. The sample unit shall be one shipping crate or bundle of unassembled boxes.

TABLE VI. Examination of Packaging.

Examine	Defect	Category Major	Category Minor
Packing	All unassembled units not complete (Base, side panels, end panels and assembling hardware) within bundle, pallet load or shipping container.....	101	
	Units not uniform, neat, or securely bundled, palletized or crated.....	102	

TABLE VI. Examination of Packaging (Continued).

Examine	Defect	Category Major	Category Minor
Packing (cont'd)	Overall height of stacked units not within 43 inch limitation....	103	
Identification marking	Bundle, pallet load, or shipping container not marked to identify contents.....	104	
Marking for shipment	Omitted, incomplete, incorrect, illegible, of improper size, location, sequence, or method of application.....	105	

4.4.3 Inspection levels and AQLs for examinations. The inspection levels for the purpose of determining the sample size and the AQLs expressed in defects per hundred units shall be as follows:

Examination paragraph	Inspection level	AQL Major	AQL Minor
4.4.1	S-4	2.5	6.5
4.4.2	S-2	4.0	4.0

5. PACKAGING

5.1 Packing Unless otherwise specified (see 6.2), packing shall be level C. (See 4.4.2).

5.1.1 Level C. Level C pack shall be used immediately at the first receiving activity. Boxes shall be shipped assembled or unassembled (see 6.2). The assembled or unassembled unit will consist of the complete fabricated top, sides, and end panels, secured to the base. Unit(s) shall be bundled, palletized, or crated in a manner which will ensure carrier acceptance and safe delivery to the destination specified in the acquisition document. The hardware shall be placed in a container (box, bag, envelope) of suitable strength and size in a protected location and secured to prevent separation from the packed unit. Provisions for strapping shall be in accordance with PPP-B-601. Stacking of the unassembled box units shall not exceed 43 inches in height. (See 4.4.2).

5.2 Preservation. The hardware, for unassembled boxes, required for final assembly of the box shall be treated with corrosion preventive compound, grade 1 of MIL-C-16173.

5.3 Marking for shipment. In addition to any special marking required in contract or purchase order (see 6.2), shipments shall be marked in accordance with the requirements of MIL-STD-129. (See 4.4.2).

6. NOTES

6.1 Intended use. Boxes covered by this specification are intended to be used for items which can be attached to a load-bearing base. It is intended that the entire load be carried on the base, the superstructure providing only for superimposed loads and protection against the elements. When the physical protection afforded by the superstructure is not required for storage and shipment, the superstructure may be removed. It is not intended for the box to be lifted and moved other than by the base.

6.2 Ordering data. Acquisition documents should specify the following:

(a) Title, number, and data of this specification.
(b) Type, style, and class of box required (see 1.2).
(c) Type of flooring for base (see 1.2).
(d) Whether fire-retardant materials are required (see 3.1).
(e) Plywood sanded (see 3.1.2).
(f) Plywood treated (see 3.1.2).
(g) If beveling of skids is required (see 3.2).
(h) Weight of contents (see Table I).
(i) If rubbing strips are required (see 3.2.4).
(j) Type of superstructure (see 3.2.5).
(k) Joist requirement (see 3.2.5.2).
(l) Inside dimensions specified in inches to the nearest 1/2 inch in order of: length by width by depth (see 3.3.1).
(m) Assembled or knocked-down (see 3.4.2 and 5.1.1).
(n) When corner straps are required (see 3.4.2.4).
(o) Whether ventilation holes or slots are required (see 3.7).
(p) Packing instructions if different (see 5.1).
(q) Special marking if required (see 5.2).
(r) Load condition (see Figures 3 and 4).

6.3 Metric conversions. Metric conversions are compiled in Table VII, which conforms to ASTM E380.

Table VII. Metric Conversions.

English	Metric	Reference
2500 lbs	1134 kg	1.1, Table I
16 ft	4.9 m	1.1, Table I
36 in or 3 ft	91 cm	3.2, Table II, 3.2.3, 3.2.5.2, 3.3.2.1
24 in	61 cm	3.2, Tables II & III, 3.2.5.2
60 in	152 cm	3.2, Tables II & III, 3.2.4
72 in	183 cm	3.2 Table V
100 lbs	45 kg	Table I
101 lbs	46 kg	Table I
200 lbs	91 kg	Table I
201 lbs	91 kg	Table I
400 lbs	181 kg	Table I
401 lbs	182 kg	Table I
600 lbs	272 kg	Table I
601 lbs	273 kg	Table I
800 lbs	363 kg	Table I
801 lbs	363 kg	Table I
1000 lbs	454 kg	Table I, 3.2.5, 3.3.3.1.1
1001 lbs	454 kg	Table I
1200 lbs	544 kg	Table I
1201 lbs	545 kg	Table I
1400 lbs	635 kg	Table I
1401 lbs	635 kg	Table I
1600 lbs	726 kg	Table I
1601 lbs	726 kg	Table I
1800 lbs	816 kg	Table I
1801 lbs	817 kg	Table I
2000 lbs	907 kg	Table I
2001 lbs	908 kg	Table I
2200 lbs	998 kg	Table I
2201 lbs	998 kg	Table I
2400 lbs	1089 kg	Table I
2401 lbs	1089 kg	Table I
2 in	5 cm	Tables I, III & V, 3.2.3, 3.3.2.3, 3.3.3.1.1, 3.4.2.1, 3.4.2.2, 3.5.2, Figs 6, 9
4 in	10 cm	Table I, III & V, 3.2.1, 3.2.3, 3.2.4, 3.3.2.3, Figs 2, 5, 6, 9
6 in	15 cm	Table I, Fig 5
8 in	20 cm	Table I, Fig 5
48 in or 4 ft	122 cm	Tables I, II & V
5 ft	1.5 m	Table I

Table VII. Metric Conversions (Continued).

English	Metric	Reference
6 ft	1.8 m	Table I
7 ft	2.1 m	Table I
8 ft	2.4 m	Table I
9 ft	2.7 m	Table I
10 ft	3.0 m	Table I, 3.5
11 ft	3.4 m	Table I
12 ft	3.7 m	Table I
13 ft	4.0 m	Table I
14 ft	4.3 m	Table I
15 ft	4.6 m	Table I
18 ft	5.5 m	Table I
1 in	2.5 cm	Tables II & III, 3.2.1, 3.3.3.1.1, 3.4.2.4, 3.7, Fig 9
3 in	8 cm	Tables II & V, 3.2.4, 3.3.3.1.2, 3.4.2.1, 3.4.2.2, 3.4.2.3, Figs 6,7
12 in	30 cm	Table II, 3.2.4, 3.4.2.1, 3.4.2.2, 3.4.2.4, Figs 6, 9
18 in	46 cm	Table II
30 in	76 cm	Table II
42 in	107 cm	Table II
54 in	137 cm	Table II
38 lbs/in	6.8 kg/cm	Table II
26 lbs/in	6.4 kg/cm	Table II
19 lbs/in	3.4 kg/cm	Table II
15 lbs/in	2.7 kg/cm	Table II
13 lbs/in	2.3 kg/cm	Table II
11 lbs/in	2.0 kg/cm	Table II
10 lbs/in	1.8 kg/cm	Table II
9 lbs/in	1.6 kg/cm	Table II
7 lbs/in	1.3 kg/cm	Table II
46 lbs/in	8.2 kg/cm	Table II
31 lbs/in	5.5 kg/cm	Table II
23 lbs/in	4.1 kg/cm	Table II
18 lbs/in	3.2 kg/cm	Table II
16 lbs/in	2.9 kg/cm	Table II
12 lbs/in	2.1 kg/cm	Table II
8 lbs/in	1.4 kg/cm	Table II
176 lbs/in	31.5 kg/cm	Table II
118 lbs/in	21.1 kg/cm	Table II
88 lbs/in	15.7 kg/cm	Table II
70 lbs/in	12.6 kg/cm	Table II
58 lbs/in	10.4 kg/cm	Table II
52 lbs/in	9.3 kg/cm	Table II
44 lbs/in	7.9 kg/cm	Table II
39 lbs/in	7.0 kg/cm	Table II

Table VII. Metric Conversions (Continued).

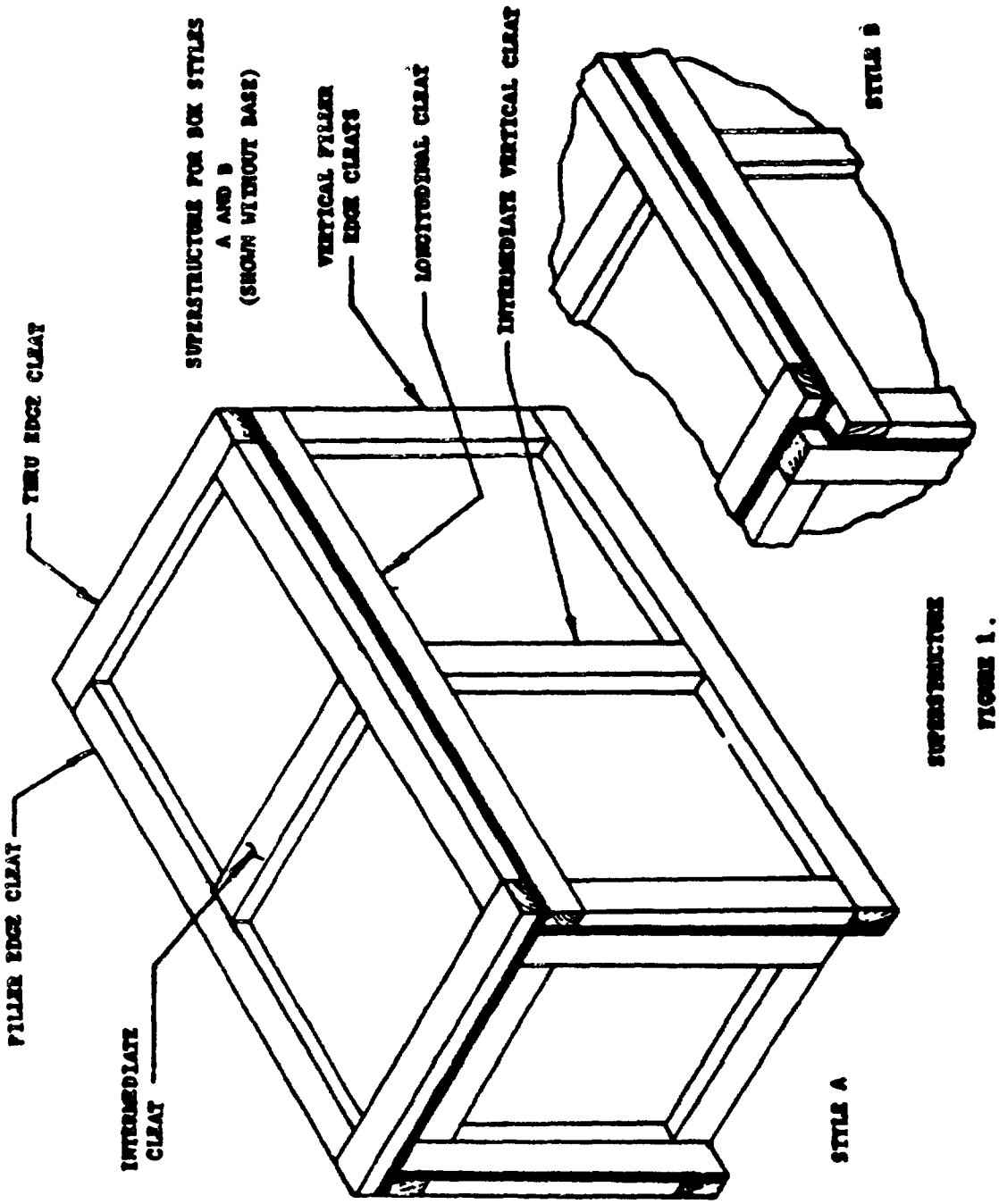
English	Metric	Reference
35 lbs/in	6.3 kg/cm	Table II
211 lbs/in	37.7 kg/cm	Table II
142 lbs/in	25.4 kg/cm	Table II
106 lbs/in	18.9 kg/cm	Table II
84 lbs/in	15.0 kg/cm	Table II
62 lbs/in	11.1 kg/cm	Table II
53 lbs/in	9.5 kg/cm	Table II
47 lbs/in	8.4 kg/cm	Table II
42 lbs/in	7.5 kg/cm	Table II
459 lbs/in	82.0 kg/cm	Table II
306 lbs/in	54.6 kg/cm	Table II
230 lbs/in	41.1 kg/cm	Table II
183 lbs/in	32.7 kg/cm	Table II
154 lbs/in	27.5 kg/cm	Table II
131 lbs/in	23.4 kg/cm	Table II
115 lbs/in	20.5 kg/cm	Table II
102 lbs/in	18.2 kg/cm	Table II
92 lbs/in	16.4 kg/cm	Table II
551 lbs/in	98.4 kg/cm	Table II
367 lbs/in	65.5 kg/cm	Table II
276 lbs/in	49.3 kg/cm	Table II
220 lbs/in	39.3 kg/cm	Table II
185 lbs/in	33.0 kg/cm	Table II
157 lbs/in	28.0 kg/cm	Table II
138 lbs/in	24.6 kg/cm	Table II
122 lbs/in	21.8 kg/cm	Table II
110 lbs/in	19.6 kg/cm	Table II
3/8 in	0.95 cm	3.2.2, 3.3.2.3, 3.3.2.4, 3.4.2.3, Table V, Figs 5, 9
1/8 in	0.32 cm	3.2.4, 3.3.2.2, 3.3.3.1.2, 3.3.3.1.3, 3.4.2.4, Table V, Figs 2, 5
2-1/2 in	6.4 cm	3.2.4
28 in	71 cm	3.2.4
16 in	41 cm	3.2.4
25 in	64 cm	Table III
37 in	94 cm	Table III
1/4 in	0.64 cm	3.3.2.1, 3.3.2.2, 3.3.3.1.2, 3.3.3.1.3, 3.4.2.3, Table V, Figs 2, 5, 9
1/2 in	1.3 cm	3.3.2.1, 6.2
3-1/2 in	8.9 cm	3.3.3.1.3
15/16 in	2.38 cm	3.4.2.3
3/4 in	1.91 cm	3.4.2.4, 3.5, 3.5.2, Table IV, Figs 5, 9

Table VII. Metric Conversions (Continued).

English	Metric	Reference
0.020 in	0.05 cm	3.4.2.4
7/8 in	2.22 cm	3.4.2.4
1-1/8 in	2.87 cm	3.4.2.4
1 sq in	6.45 sq cm	3.5
100 cu ft	2.83 cu m	Table IV
150 cu ft	4.25 cu m	Table IV
200 cu ft	5.66 cu m	Table IV
400 cu ft	11.3 cu m	Table IV
600 cu ft	17.0 cu m	Table IV
7 sq in	45 sq cm	Table IV
10 sq in	65 sq cm	Table IV
14 sq in	90 sq cm	Table IV
27 sq in	174 sq cm	Table IV
40 sq in	258 sq cm	Table IV
3/16 in	0.48 cm	Table V
1/32 in	0.03 cm	Table V
43 in	109 cm	Table VI, 5.1.1

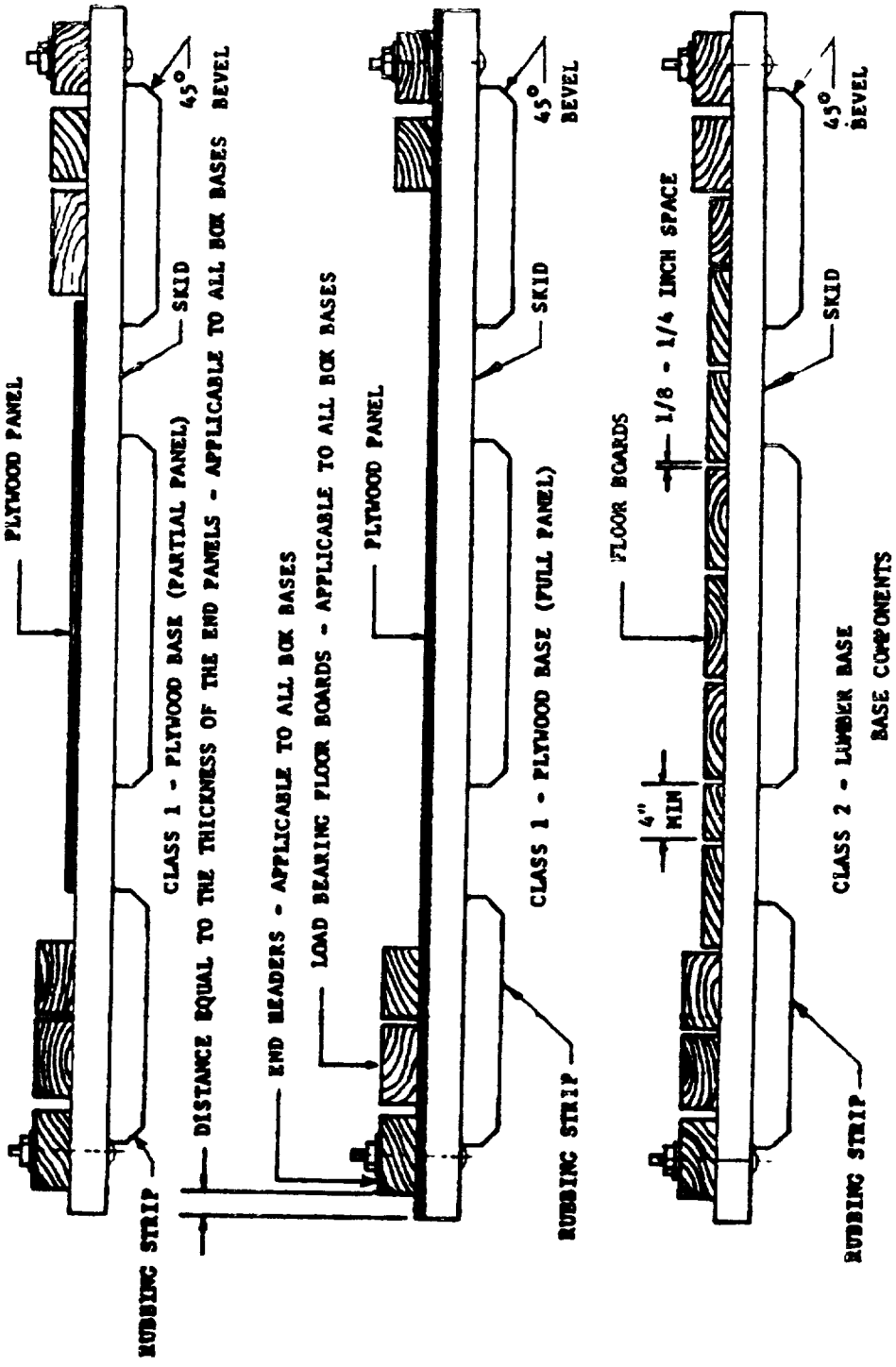
6.4 Subject term (key word) listing.
Boxes
Boxes, wood-cleated, skidded, load-bearing base
Container
Container, load-bearing base
Packaging
Packaging, boxes
Packaging, container
Packaging, load-bearing base
Packaging, wood-cleated
Packaging, skidded

6.5 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.



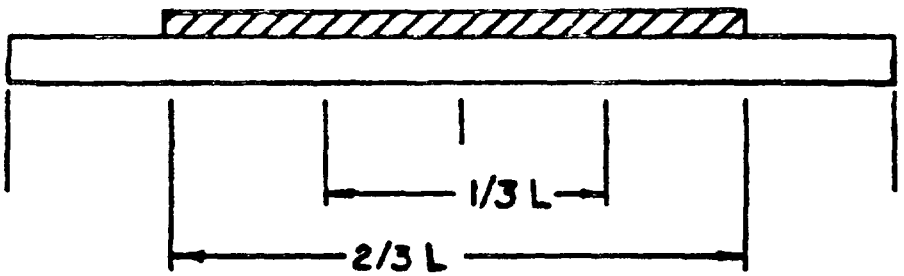
SUPERSTRUCTURE

FIGURE 1.

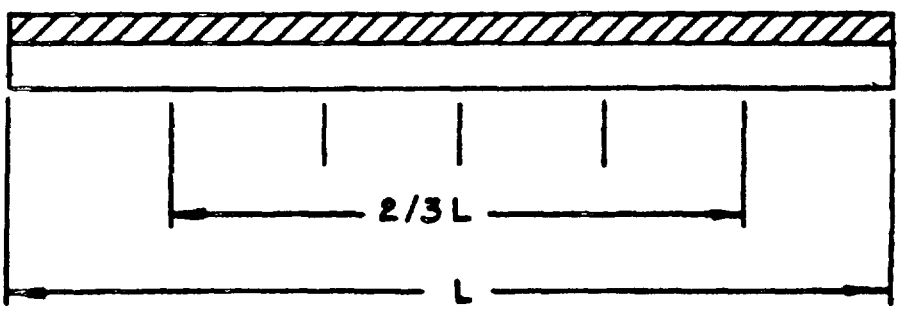


BASE COMPONENTS

FIGURE 2.

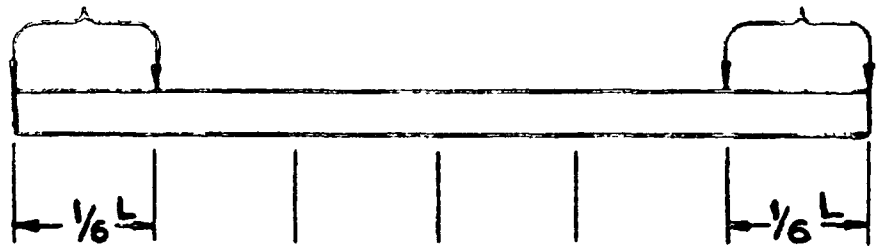


LOAD CONDITION D - LOAD EVENLY DISTRIBUTED OVER MORE THAN CENTRAL ONE-THIRD OF SKID LENGTH BUT NOT OVER MORE THAN CENTRAL TWO-THIRDS OF SKID LENGTH

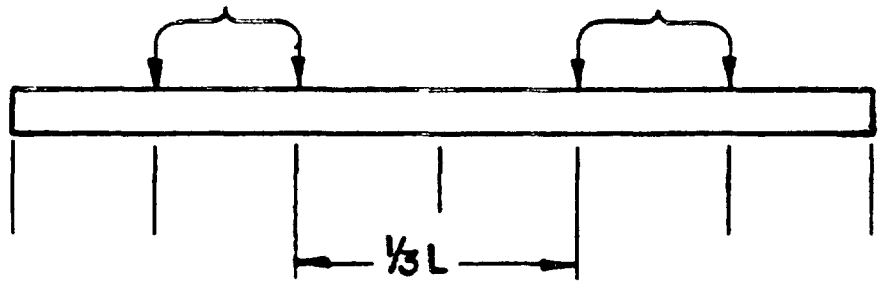


LOAD CONDITION E - LOAD EVENLY DISTRIBUTED OVER MORE THAN CENTRAL TWO-THIRDS OF SKID LENGTH

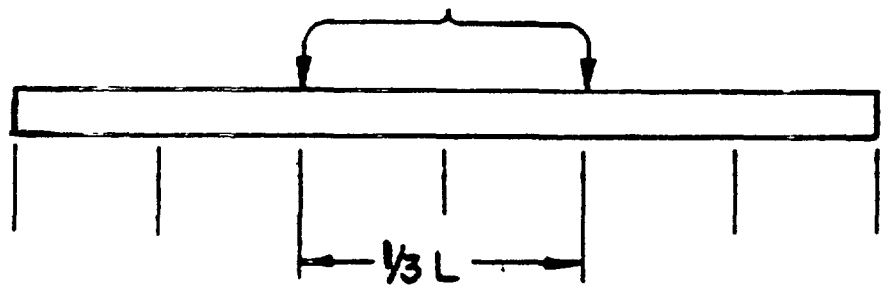
FIGURE 3. LOAD CONDITIONS D AND E



LOAD CONDITION A - LOAD BEARING POINTS ON OUTER ONE-SIXTHS OF SKID LENGTH

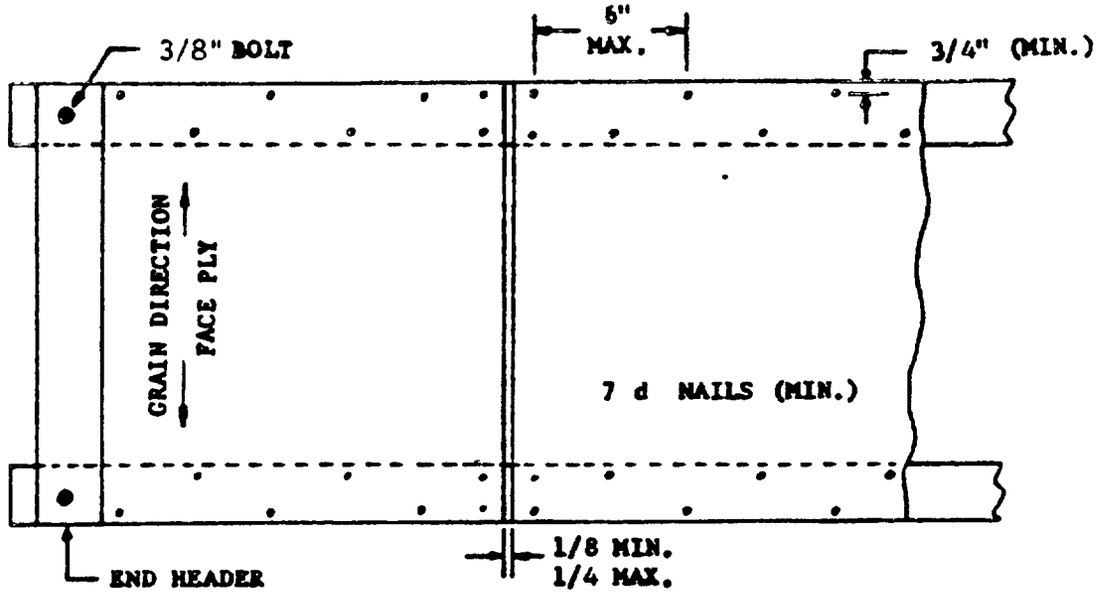


LOAD CONDITION B - LOAD BEARING POINTS OUTSIDE OF CENTRAL ONE-THIRD OF SKID LENGTH BUT NOT IN OUTER ONE-SIXTHS OF SKID LENGTH

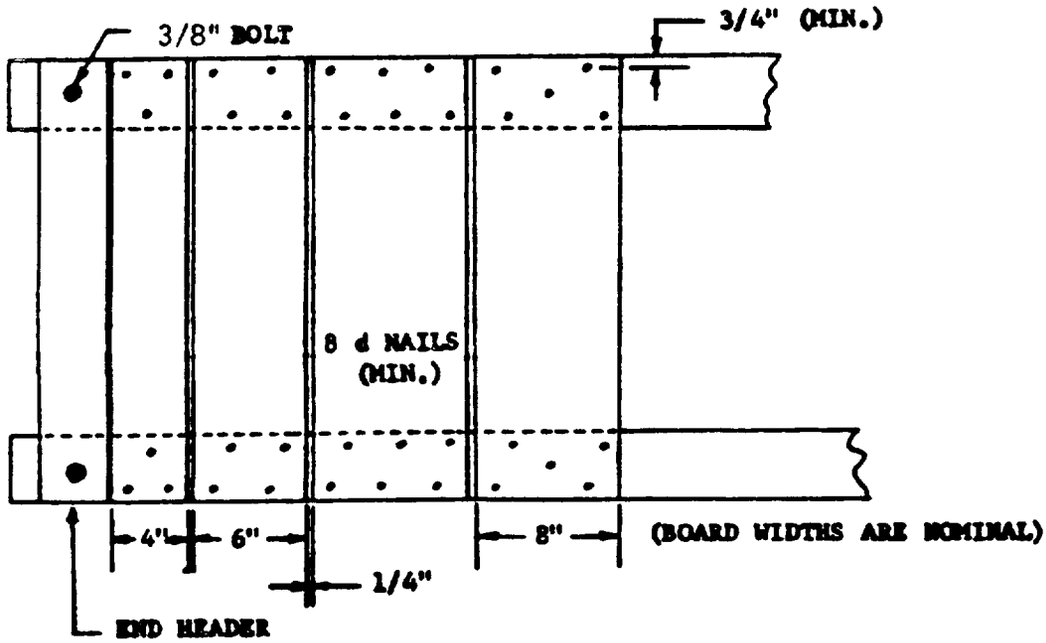


LOAD CONDITION C - LOAD BEARING POINTS WITHIN CENTRAL ONE-THIRD OF SKID LENGTH OR LOAD EVENLY DISTRIBUTED WITHIN CENTRAL ONE-THIRD OF SKID LENGTH

FIGURE 4. LOAD CONDITIONS A, B, AND C



PLYWOOD FLOORING



LUMBER FLOORING

NAILING PATTERN FOR BASE

FIGURE 5.

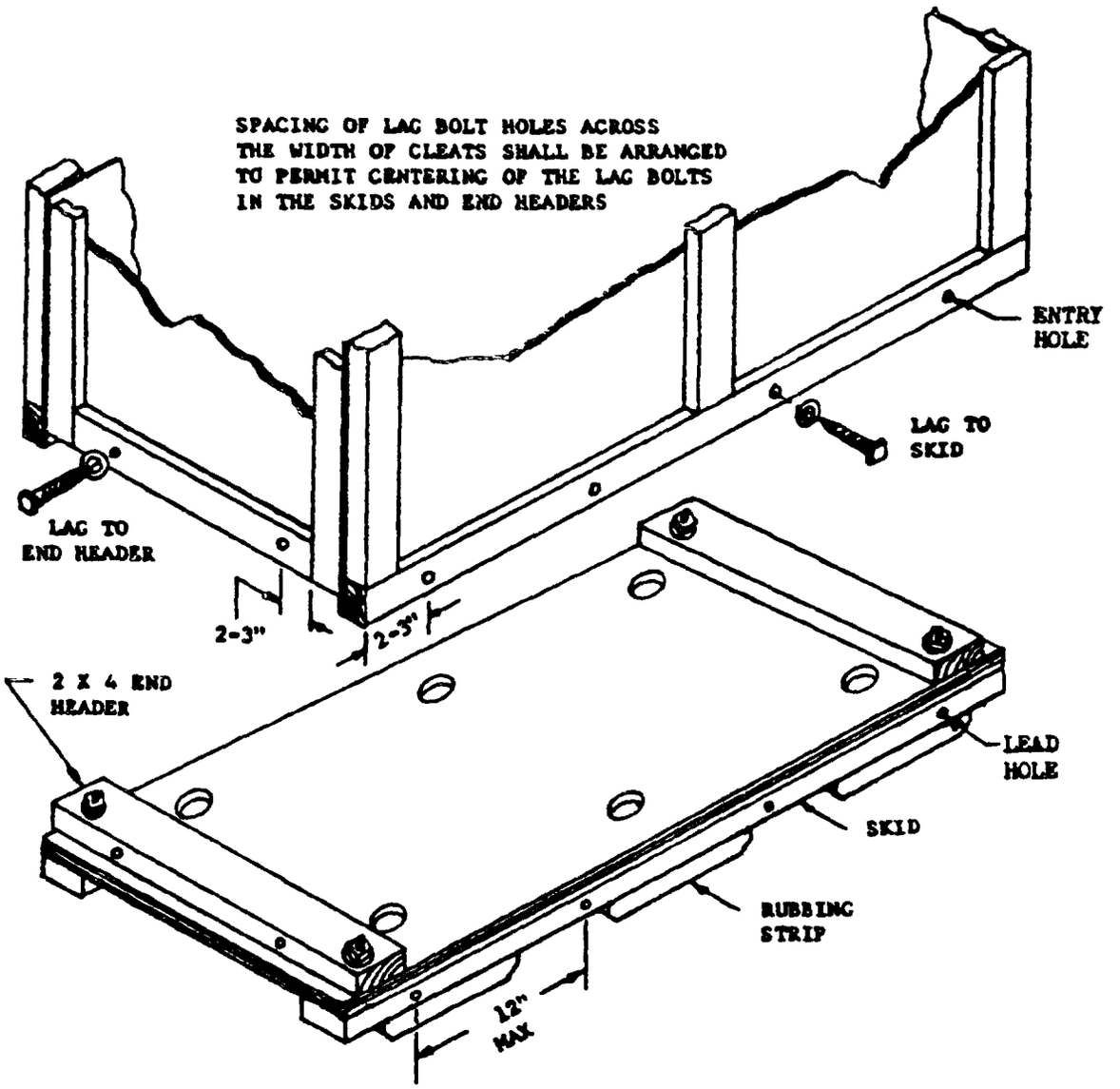
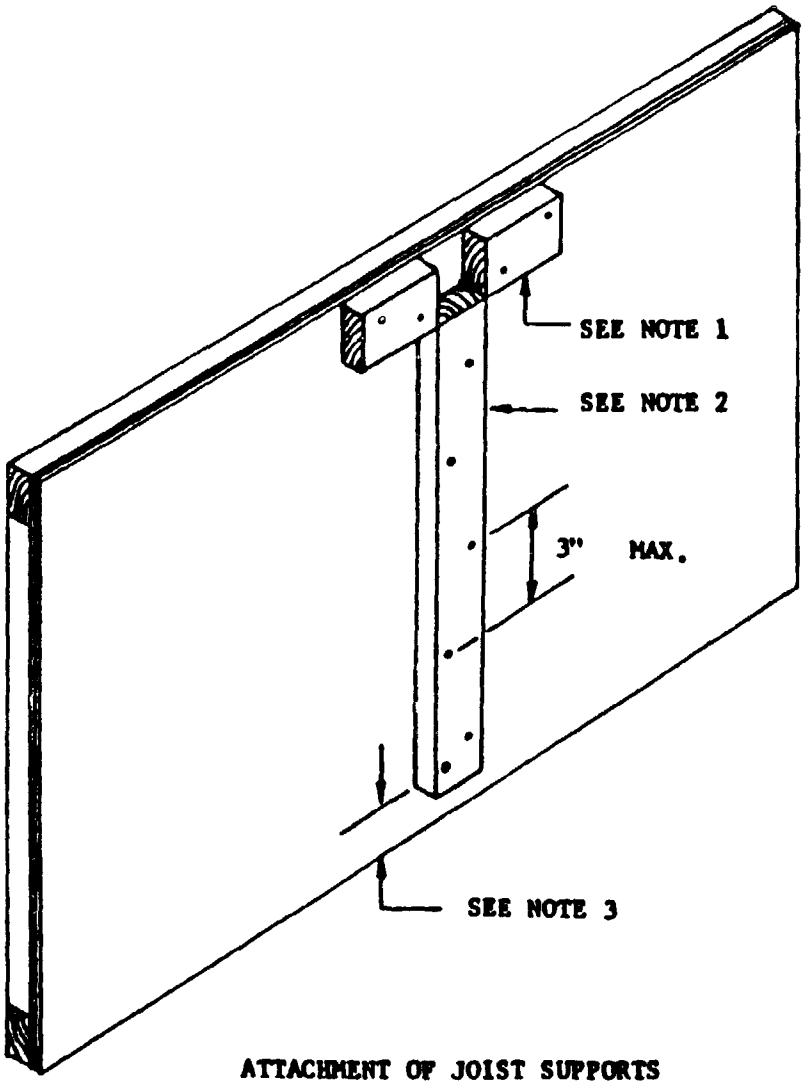


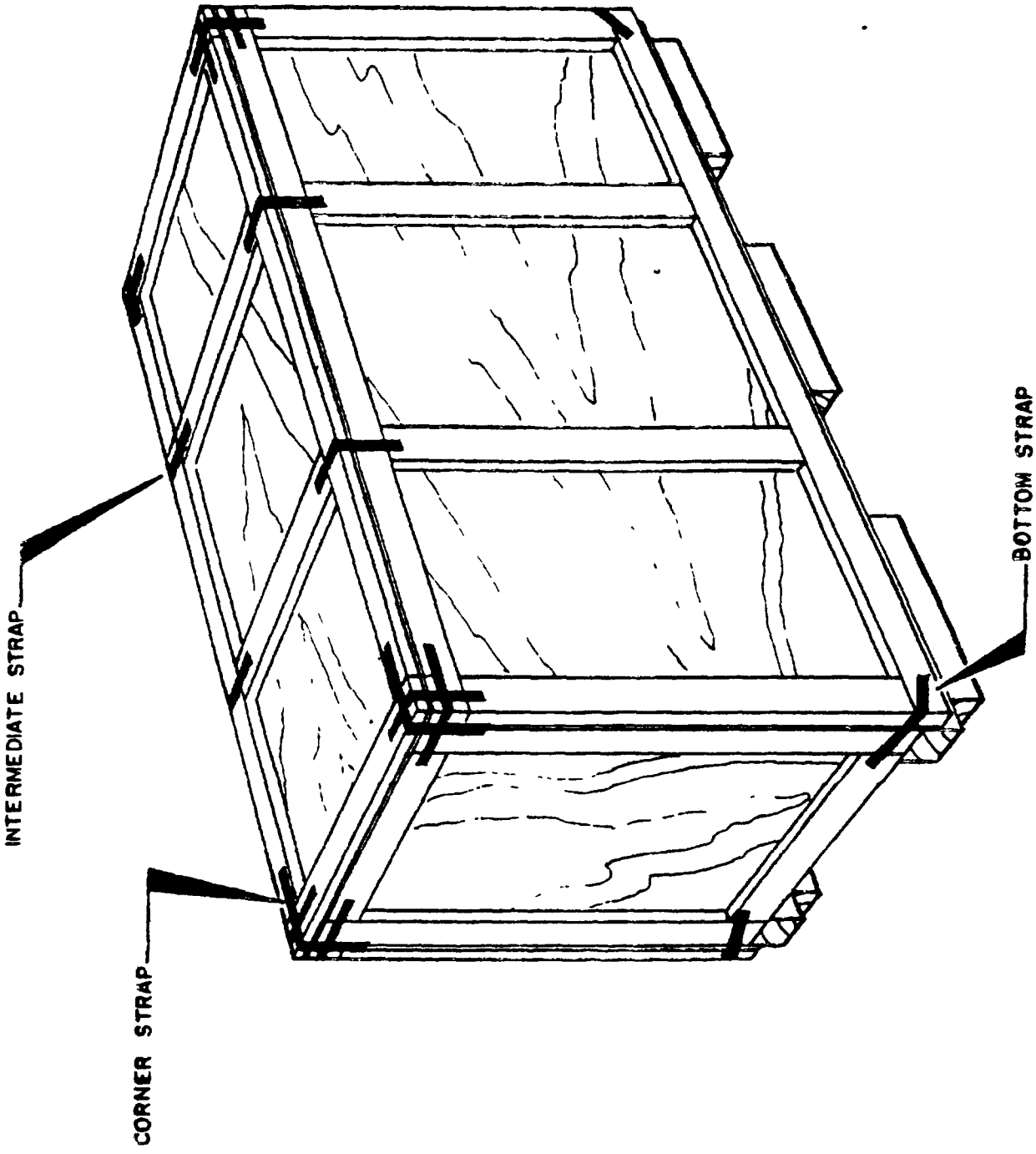
FIGURE 6.ASSEMBLY OF PANELS TO BASE



1. LATERAL SUPPORT FOR JOIST
2. VERTICAL SUPPORT FOR JOIST
3. VERTICAL SUPPORT TO REST ON FLOOR OF BASE OR ON LOADBEARING MEMBERS AS APPLICABLE

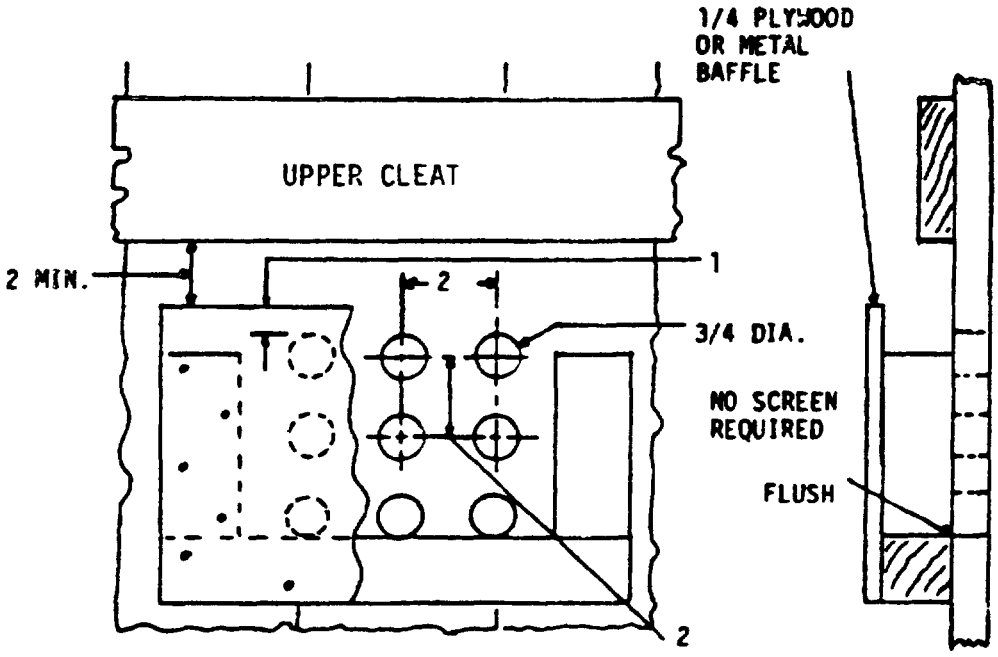
ATTACHMENT OF JOIST SUPPORTS

FIGURE 7.

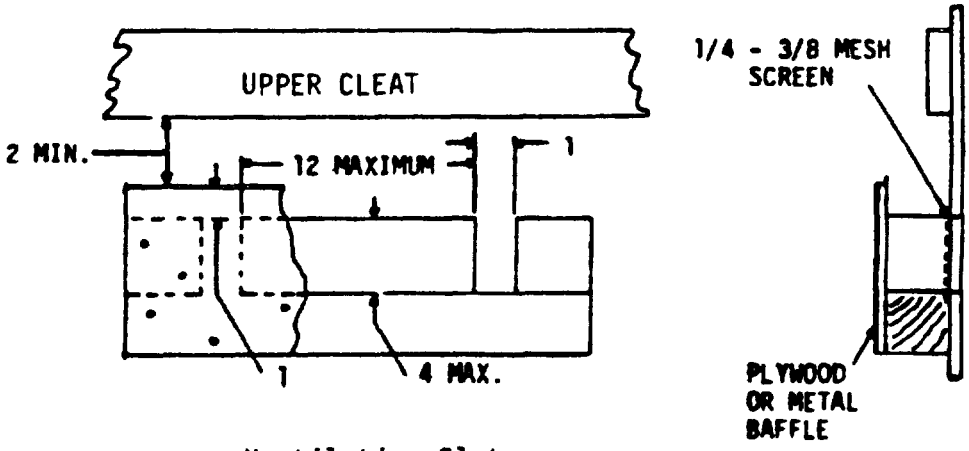


PLACEMENT OF STRAPS

FIGURE 8.



Ventilation Holes.



Ventilation Slots.

NOTE: All dimensions are in inches.

Figure 9. Box Ventilation (Inside View).

Military custodians:

Army - GL
Navy - SA
Air Force - 69

Review activities:

Army - AT, AR
Navy - AS, SH, YD, SA
Air Force - 70, 71

User activities:

Army - AV
Navy - MC, SA

Other interest:

User - Coast Guard - CGS

Preparing activity:

Air Force - 69

Project No. 8115-0482

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1 DOCUMENT NUMBER	2 DOCUMENT TITLE
MIL-B-26195C	BOXES, WOOD-CLEATED, SKIDDED, LOAD-BEARING BASE

3a NAME OF SUBMITTING ORGANIZATION

b ADDRESS *(Street, City, State, ZIP Code)*

4 TYPE OF ORGANIZATION *(Mark one)*

- ☐ VENDOR
- ☐ USER
- ☐ MANUFACTURER
- ☐ OTHER *(Specify)* _____

5 PROBLEM AREAS

a. Paragraph Number and Wording

b. Recommended Wording

c. Reason/Rationale for Recommendation

6 REMARKS

7a NAME OF SUBMITTER *(Last, First, MI)* – Optional

b WORK TELEPHONE NUMBER *(Include Area Code)* – Optional

c MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional

8 DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426

PREVIOUS EDITION IS OBSOLETE