

LOADING AND BRACING WITH WOODEN DUNNAGE IN SIDE OPENING ISO CONTAINERS OF FIN ASSEMBLY, MAU 93/B, FOR MK82 500-LB BOMB

INDEX

ITEM	PAGE(S)
GENERAL NOTES AND MATERIAL SPECIFICATIONS	2
PALLET UNIT DETAIL	3
10-UNIT LOAD	4,5
DETAILS	6,7

- LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLAT CAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>David E. Hackwisch</i>	DRAFTSMAN	TECHNICIAN	ENGINEER
		G. GUAY	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>John L. Byrd Jr.</i> U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE
		<i>W. Smith</i>	<i>W. Ernst</i>
JULY 1994			
	CLASS	DIVISION	DRAWING
	19	48	4276
			FILE
			15PM1019

DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

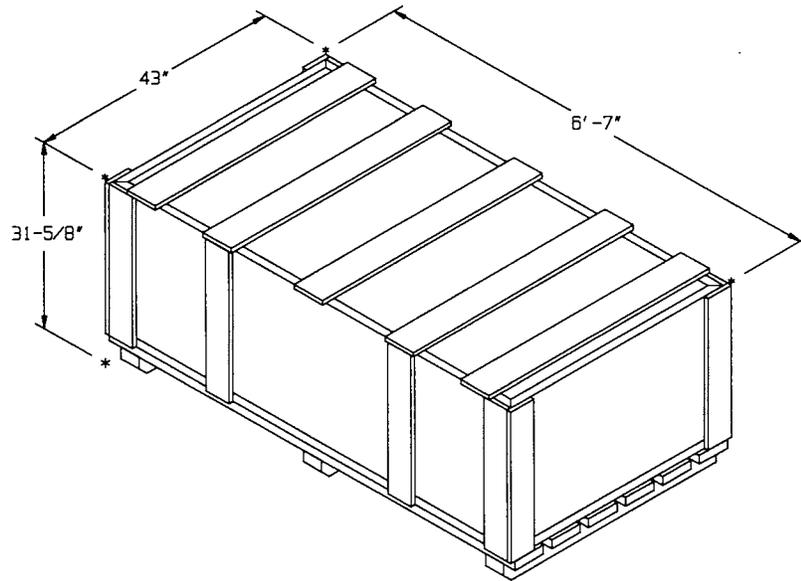
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE UNLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF FIN ASSEMBLY, MAU 93/B, FOR MKB2 500-LB BOMB PACKED IN WIREBOUND CRATE. SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS THE WIREBOUND CRATE WITH BOMB FIN. SEE PAGE 3 FOR THE DETAIL OF THE PALLET UNIT. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOADS AS SHOWN ARE BASED ON 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" HIGH AND A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY MOTOR OR WATER CARRIERS. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN ALSO BE USED.
- D. WHEN LOADING THE UNITS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-1/2". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE SIDE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND QUANTITY OF THE DUNNAGE LUMBER USED MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- F. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- G. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- H. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.
- J. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4 MM AND ONE POUND EQUALS 0.454 KG.
- K. MAXIMUM LOAD WEIGHT CRITERIA:
 THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

- L. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:
 - 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
 - 2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.
- M. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- N. THE QUANTITY OF PALLET UNITS SHOWN IN THE LOAD ON PAGE 4 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "OMITTED UNIT ASSEMBLY" DETAIL ON PAGE 7. WHEN A CONTAINER IS TO BE LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CONTAINER. PALLET UNITS SHOULD BE OMITTED FROM THE TOP LAYER ONLY.

(CONTINUED AT RIGHT)

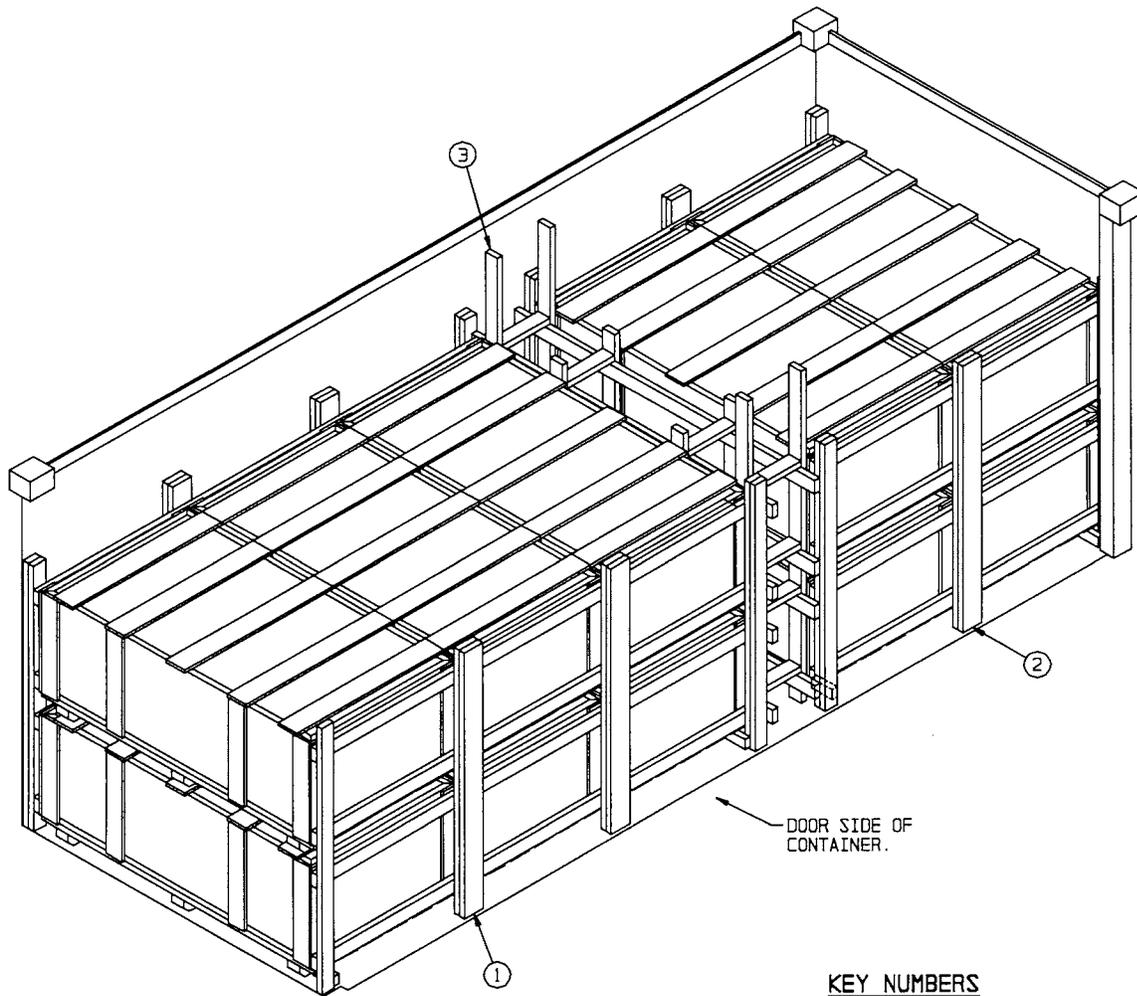
MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.



PALLET UNIT

UNIT WEIGHT - - - - 1,077 LBS
CUBE - - - - - 62.2 CUBIC FEET



ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE FILL ASSEMBLY (2 REQD). SEE THE "SIDE FILL ASSEMBLY A" DETAIL ON PAGE 6.
- ② SIDE FILL ASSEMBLY (2 REQD). SEE THE SIDE FILL ASSEMBLY B" DETAIL ON PAGE 6.
- ③ CENTER GATE (1 REQD). SEE THE DETAIL ON PAGE 7.

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PREFABRICATE TWO SIDE FILL ASSEMBLIES "A", TWO SIDE FILL ASSEMBLIES "B" AND ONE CENTER GATE.
2. INSTALL ONE SIDE FILL ASSEMBLY "A" AND LOAD SIX PALLET UNITS.
3. INSTALL ONE SIDE FILL ASSEMBLY "B" AND LOAD FOUR PALLET UNITS.
4. INSTALL THE CENTER GATE AND REMAINING SIDE FILL ASSEMBLIES.

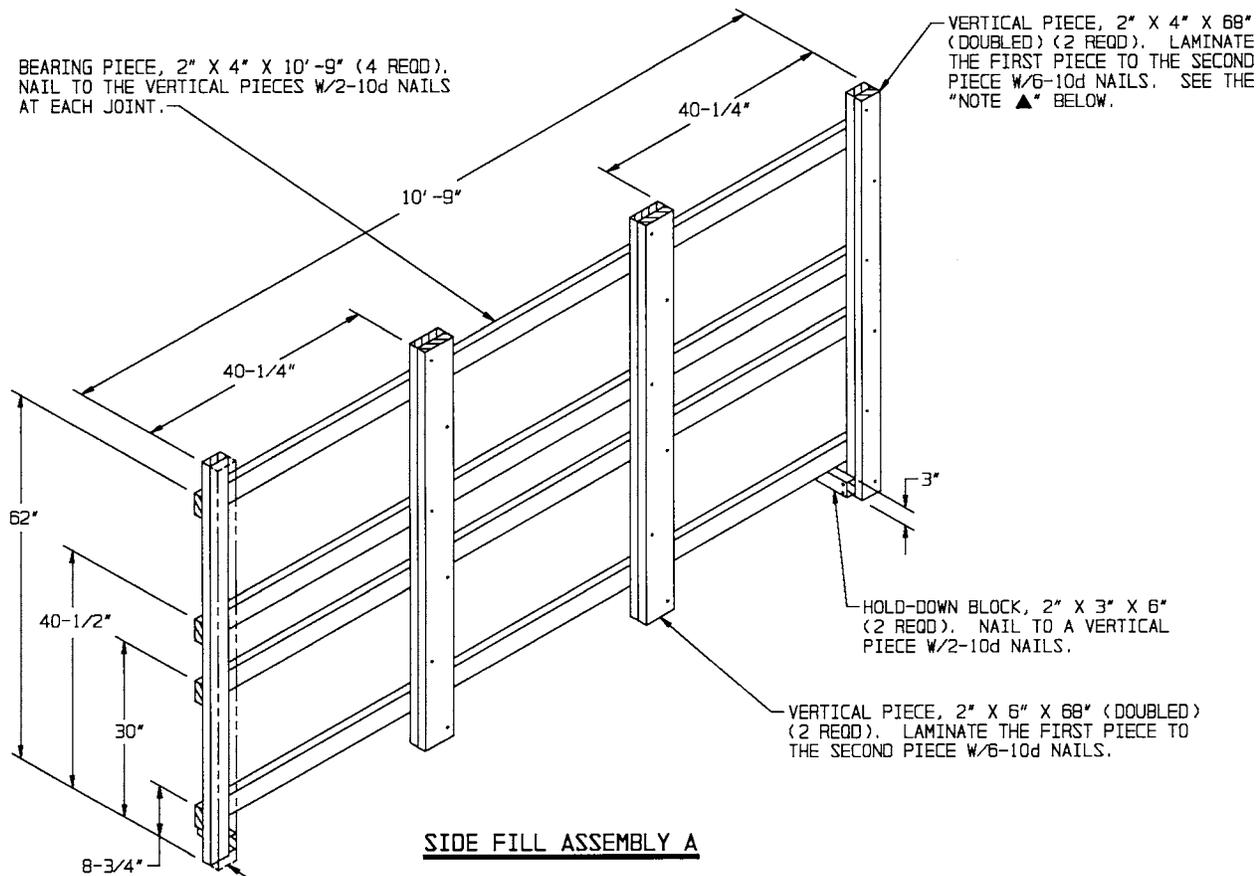
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	4	2
2" X 4"	351	234
2" X 6"	68	68
NAILS	NO. REQD	POUNDS
10d (3")	356	5-1/2

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT	10	10,770 LBS
DUNNAGE		614 LBS
CONTAINER		6,050 LBS
TOTAL WEIGHT		17,434 LBS (APPROX)

BEARING PIECE, 2" X 4" X 10'-9" (4 REQD).
NAIL TO THE VERTICAL PIECES W/2-10d NAILS
AT EACH JOINT.

VERTICAL PIECE, 2" X 4" X 68"
(DOUBLED) (2 REQD). LAMINATE
THE FIRST PIECE TO THE SECOND
PIECE W/6-10d NAILS. SEE THE
"NOTE ▲" BELOW.



HOLD-DOWN BLOCK, 2" X 3" X 6"
(2 REQD). NAIL TO A VERTICAL
PIECE W/2-10d NAILS.

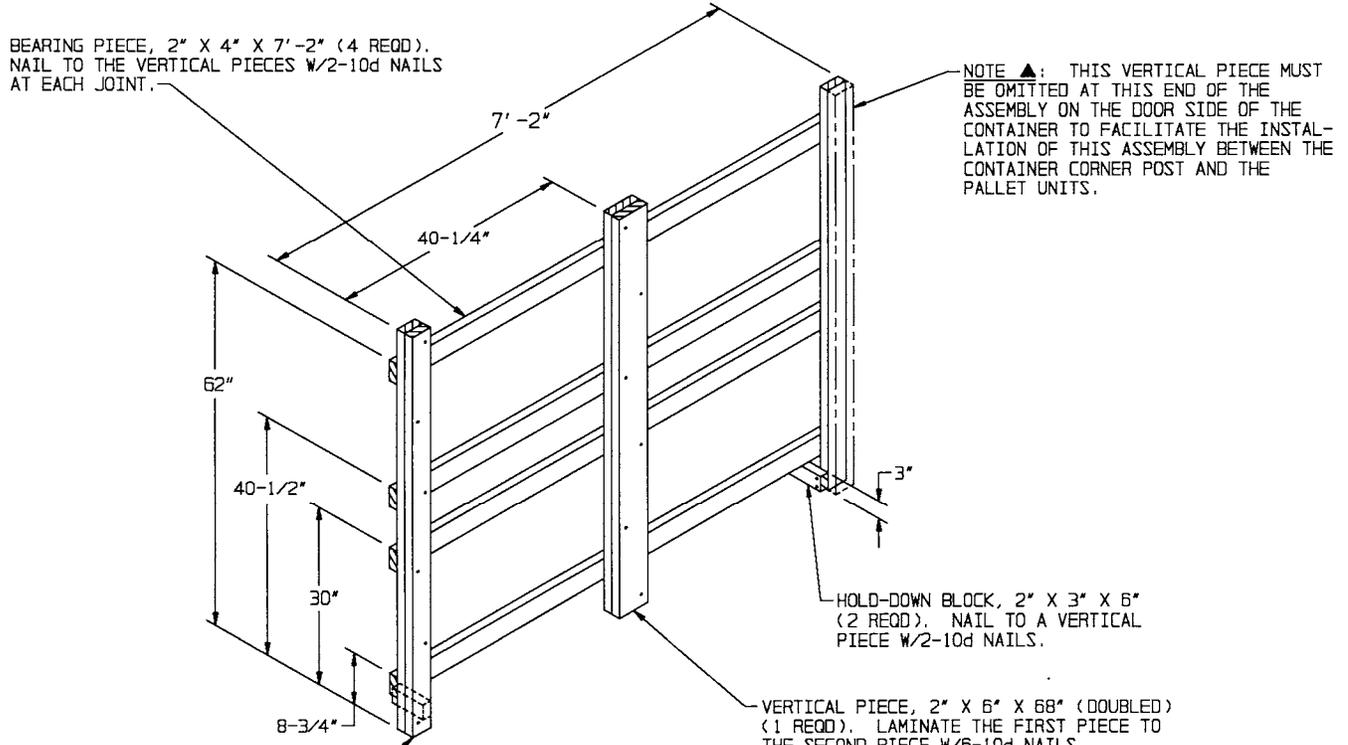
VERTICAL PIECE, 2" X 6" X 68" (DOUBLED)
(2 REQD). LAMINATE THE FIRST PIECE TO
THE SECOND PIECE W/6-10d NAILS.

SIDE FILL ASSEMBLY A

NOTE ▲: THIS VERTICAL PIECE MUST BE OMITTED AT THIS END OF
THE ASSEMBLY ON THE DOOR SIDE OF THE CONTAINER TO FACILITATE
THE INSTALLATION OF THIS ASSEMBLY BETWEEN THE CONTAINER CORNER
POST AND THE PALLET UNITS.

BEARING PIECE, 2" X 4" X 7'-2" (4 REQD).
NAIL TO THE VERTICAL PIECES W/2-10d NAILS
AT EACH JOINT.

NOTE ▲: THIS VERTICAL PIECE MUST
BE OMITTED AT THIS END OF THE
ASSEMBLY ON THE DOOR SIDE OF THE
CONTAINER TO FACILITATE THE INSTAL-
LATION OF THIS ASSEMBLY BETWEEN THE
CONTAINER CORNER POST AND THE
PALLET UNITS.



HOLD-DOWN BLOCK, 2" X 3" X 6"
(2 REQD). NAIL TO A VERTICAL
PIECE W/2-10d NAILS.

VERTICAL PIECE, 2" X 6" X 68" (DOUBLED)
(1 REQD). LAMINATE THE FIRST PIECE TO
THE SECOND PIECE W/6-10d NAILS.

SIDE FILL ASSEMBLY B

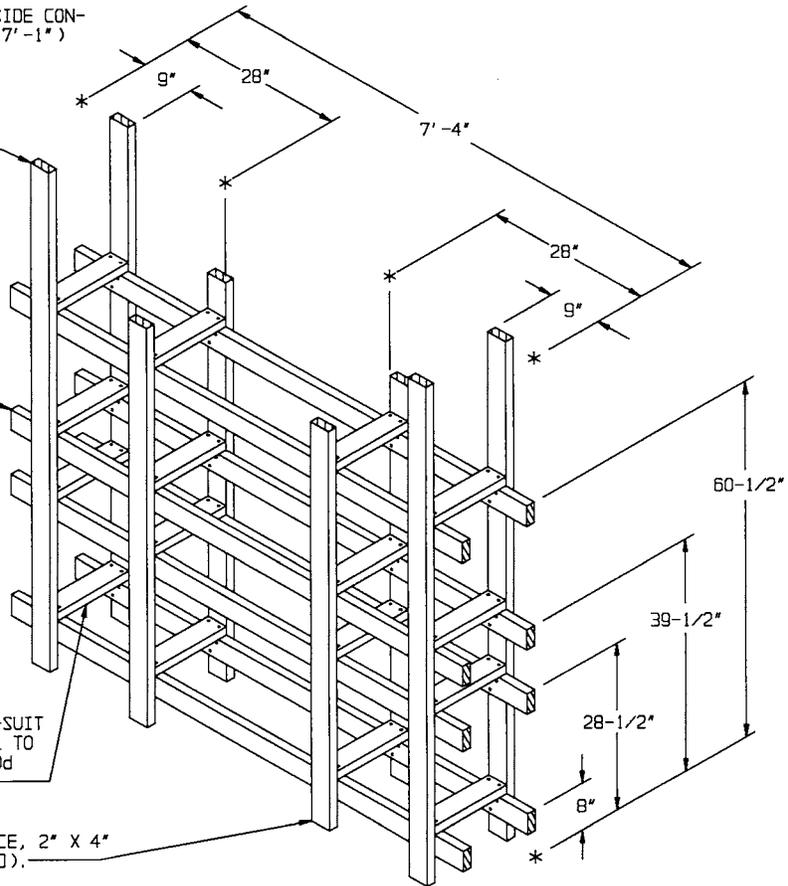
VERTICAL PIECE, 2" X 4" X 68"
(DOUBLED) (2 REQD). LAMINATE
THE FIRST PIECE TO THE SECOND
PIECE W/6-10d NAILS. SEE THE
"NOTE ▲" AT RIGHT.

VERTICAL PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-1") (4 REOD).

HORIZONTAL PIECE, 2" X 4" X 7'-4" (8 REOD). NAIL TO THE VERTICAL PIECES $\#3-10d$ NAILS AT EACH JOINT.

STRUT, 2" X 4" BY LENGTH-TO-SUIT (REF: 14") (16 REOD). NAIL TO THE HORIZONTAL PIECES $\#2-10d$ NAILS AT EACH END.

VERTICAL PIECE, 2" X 4" X 68" (4 REOD).



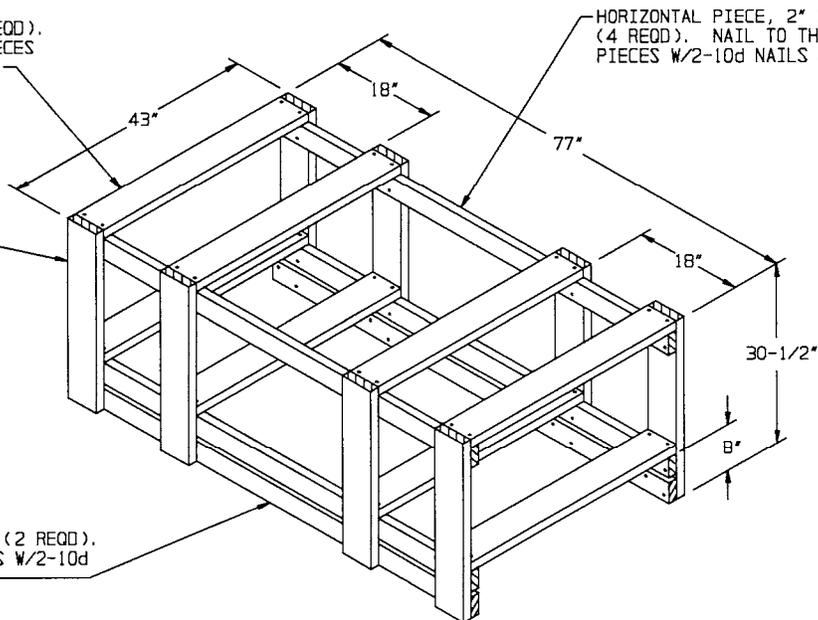
CENTER GATE

STRUT, 2" X 6" X 40" (8 REOD). NAIL TO THE HORIZONTAL PIECES $\#2-10d$ NAILS AT EACH END.

HORIZONTAL PIECE, 2" X 4" X 6'-5" (4 REOD). NAIL TO THE VERTICAL PIECES $\#2-10d$ NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 6" X 31-1/2" (8 REOD).

TIE PIECE, 2" X 4" X 6'-5" (2 REOD). NAIL TO THE VERTICAL PIECES $\#2-10d$ NAILS AT EACH JOINT.



OMITTED UNIT ASSEMBLY

NOTE: WHEN THE OMITTED UNIT ASSEMBLY IS USED WITHIN THE LOAD SHOWN ON PAGE 4 THE TOP OUTSIDE STRUTS WILL BE WIRE TIED TO THE TOP BEARING PIECES OF THE SIDE FILL ASSEMBLIES ON EACH SIDE OF THE LOAD.

DETAILS

