



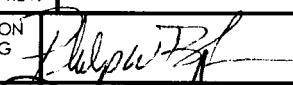
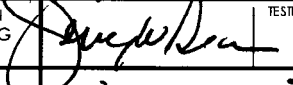
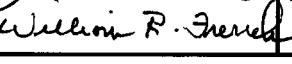
LOADING AND BRACING IN END OPENING ISO CONTAINERS OF M129E2 LEAFLET BOMBS PACKED IN CRATES

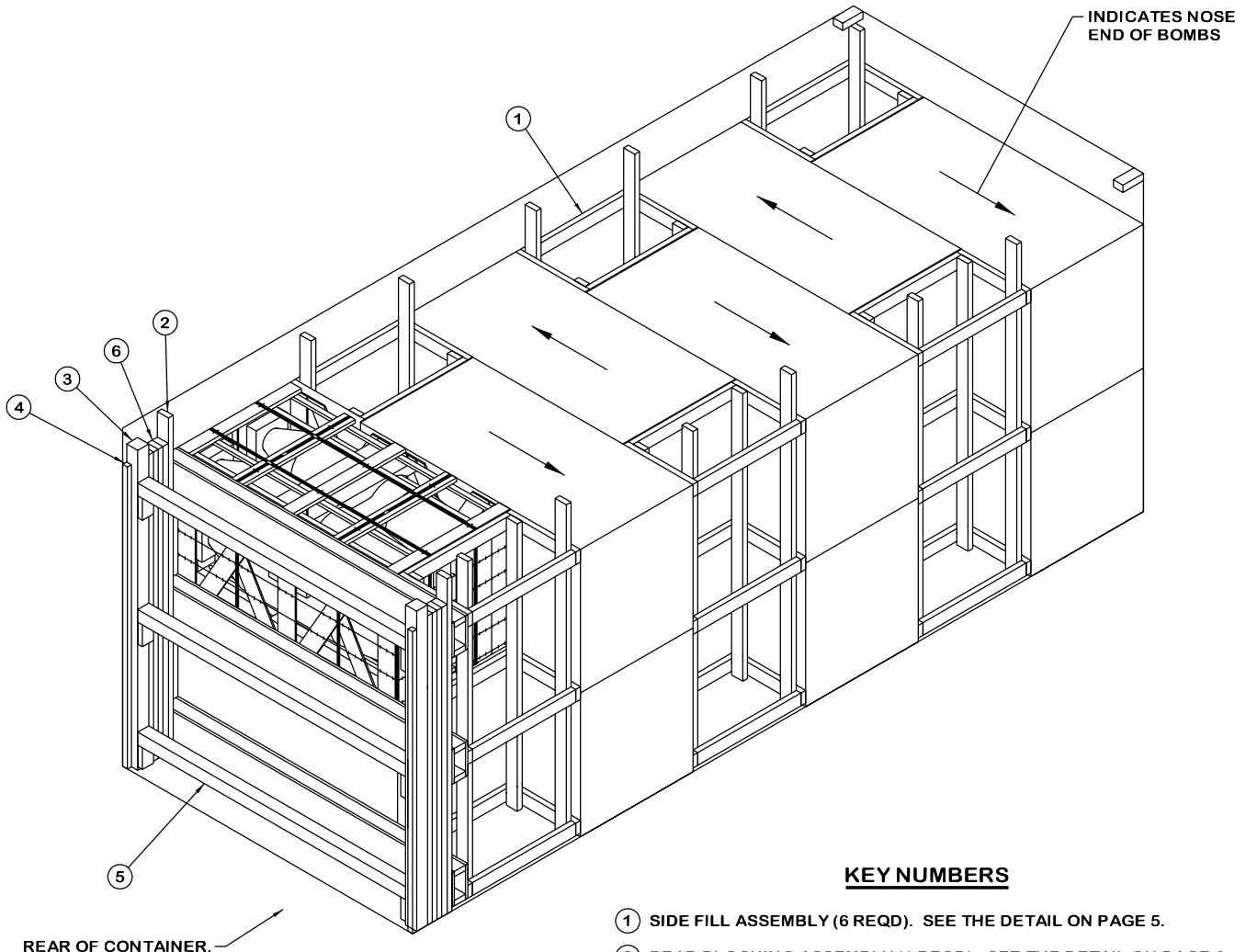
INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
TYPICAL LOADING PROCEDURES - - - - -	2
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	3
CRATE DETAIL - - - - -	4
DETAILS - - - - -	4-8

LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (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 OPERATIONS SUPPORT COMMAND 	ENGINEER	BASIC	LAURA FIEFFER	DO NOT SCALE				
		REV.		WEBSITE: HTTP://WWW.DAC.ARMY.MIL				
	TECHNICIAN	BASIC		JULY 2000				
		REV.						
	DRAFTSMAN	BASIC						
		REV.						
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  U.S. ARMY DEFENSE AMMUNITION CENTER	TRANSPORTATION ENGINEERING DIVISION							
	VALIDATION ENGINEERING DIVISION			TESTED	CLASS	DIVISION	DRAWING	FILE
	ENGINEERING DIRECTORATE				19	48	4322	15CB1001



ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE FILL ASSEMBLY (6 REQD). SEE THE DETAIL ON PAGE 5.
- ② REAR BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6.
- ③ DOOR POST VERTICAL (2 REQD). SEE THE DETAIL ON PAGE 5 AND "DETAIL B" AND THE NOTE ON PAGE 7.
- ④ DOOR POST VERTICAL RETAINER (2 REQD). SEE THE DETAIL ON PAGE 8 AND "DETAIL B" AND THE NOTE ON PAGE 7. NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL W/4-10d NAILS.
- ⑤ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT (REF: 7-1-3/8") (3 REQD). TOENAIL TO THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT" DETAIL ON PAGE 6. AFTER INSTALLING THE TOP AND BOTTOM DOOR SPANNERS, THE FILL MATERIAL, PIECES MARKED ⑥, IS TO BE INSTALLED.
- ⑥ FILL MATERIAL, 4" WIDE BY 7'-1" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/6 NAILS OF A SUITABLE SIZE (10d FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS PIECE IN A SIMILAR MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY. SEE "DETAIL B" AND THE NOTE ON PAGE 7.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
BOMB CRATE	12	5,280 LBS
DUNNAGE		849 LBS
CONTAINER		4,700 LBS
TOTAL WEIGHT		10,829 LBS (APPROX)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	456	304
4" X 4"	37	49
NAILS	NO. REQD	POUNDS
6d (2")	132	1
10d (3")	380	6
12d (3-1/4")	12	1/4
PLYWOOD, 3/4"	36.02 SQ FT REQD	74.29 LBS
DOOR POST VERTICAL RETAINER	2 REQD	64 LBS

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 ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE 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. 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 25.4MM AND ONE POUND EQUALS 0.454 KG.

O. THE QUANTITY OF CRATES SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE FILLER ASSEMBLY ON PAGE 4.

1. IF A LOAD IS REDUCED BY ONLY A SMALL AMOUNT (ONE OR TWO LADING UNITS), LADING UNITS NORMALLY MAY BE ELIMINATED FROM THE CENTER OF THE LOAD.
2. IF A LOAD IS REDUCED BY A LARGE AMOUNT (MORE THAN TWO LADING UNITS), LADING UNITS SHOULD BE ELIMINATED AS REQUIRED AND THE TOTAL LOAD SHIFTED FORE OR AFT, AS NECESSARY, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION. THE DEPICTED PROCEDURES WILL BE FOLLOWED AS CLOSELY AS POSSIBLE, MAKING ONLY THOSE ADJUSTMENTS TO THE DUNNAGE WHICH ARE REQUIRED TO ACCOMMODATE THE NUMBER OF UNITS TO BE SHIPPED.

P. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE THE REAR BLOCKING ASSEMBLY, SIX SIDE FILL ASSEMBLIES, AND TWO DOOR POST VERTICALS. NAIL A DOOR POST VERTICAL RETAINER TO EACH DOOR POST VERTICAL.
2. LOAD TWO CRATES.
3. INSTALL ONE SIDE FILL ASSEMBLY.
4. REPEAT STEPS 2 AND 3 FIVE TIMES EACH.
5. INSTALL THE REAR BLOCKING ASSEMBLY.
6. INSTALL THE TWO DOOR POST VERTICAL ASSEMBLIES.
7. INSTALL TWO DOOR SPANNER PIECES (ONE AND THE LOWEST POSITION AND ONE AT THE UPPERMOST POSITION).
8. INSTALL THE SOLID FILL MATERIAL.
9. INSTALL THE REMAINING DOOR SPANNER PIECE.

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF LEAFLET BOMBS PACKED IN MIL-C-11133 WOODEN CRATES. SUBSEQUENT REFERENCE TO CRATE HEREIN MEANS THE CRATE WITH AMMUNITION ITEMS. SEE PAGE 4 AND TPO 00-275-5131 FOR DETAILS OF THE CRATE. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CONTAINER MUST NOT BE EXCEEDED.

C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH END OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 93" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95", BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93", VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.

D. WHEN LOADING CRATES, 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 LONGITUDINAL PIECES ON THE SIDE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE LENGTH OF THE LATERAL PIECES IN THE SIDE FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CRATE.

E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" 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. WHETHER A CONTAINER IS FULL OR IS 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.

H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.

I. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

(CONTINUED AT LEFT) (CONTINUED AT LEFT)

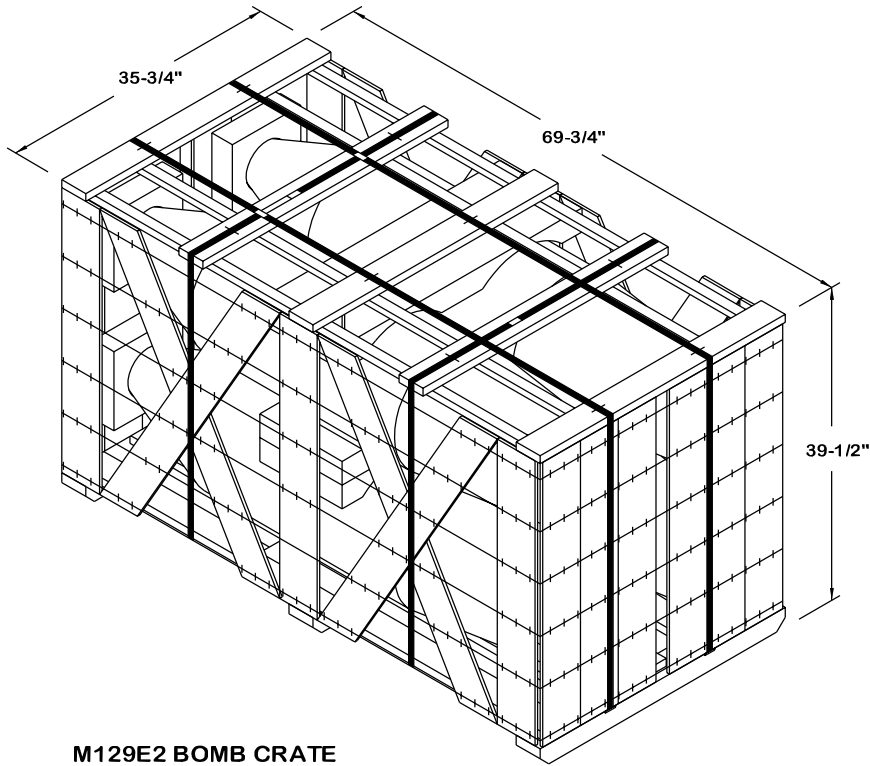
MATERIAL SPECIFICATIONS

LUMBER - - - - - -: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.

NAILS - - - - - -: ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS).

PLYWOOD - - - - - -: COMMERCIAL ITEM DESCRIPTION A-A-55057, INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.

STEEL, STRUCTURAL - - - - - -: ASTM A501, STEEL STRUCTURAL TUBING; AND ASTM A570, STEEL, STRIP, HOT-ROLLED, GRADE 36 (MINIMUM).



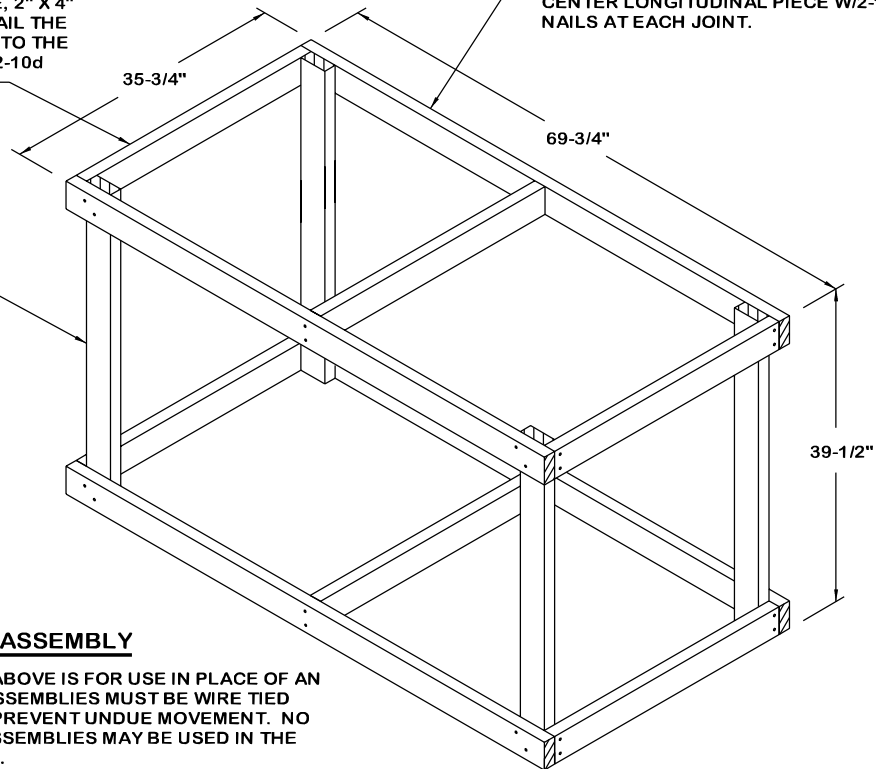
M129E2 BOMB CRATE

GROSS WEIGHT - - - - - 440 LBS (APPROX)
 CUBE - - - - - 57.0 CUBIC FEET (APPROX)

LONGITUDINAL PIECE, 2" X 4" X 32-3/4" (6 REQD). NAIL THE OUTER FOUR PIECES TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

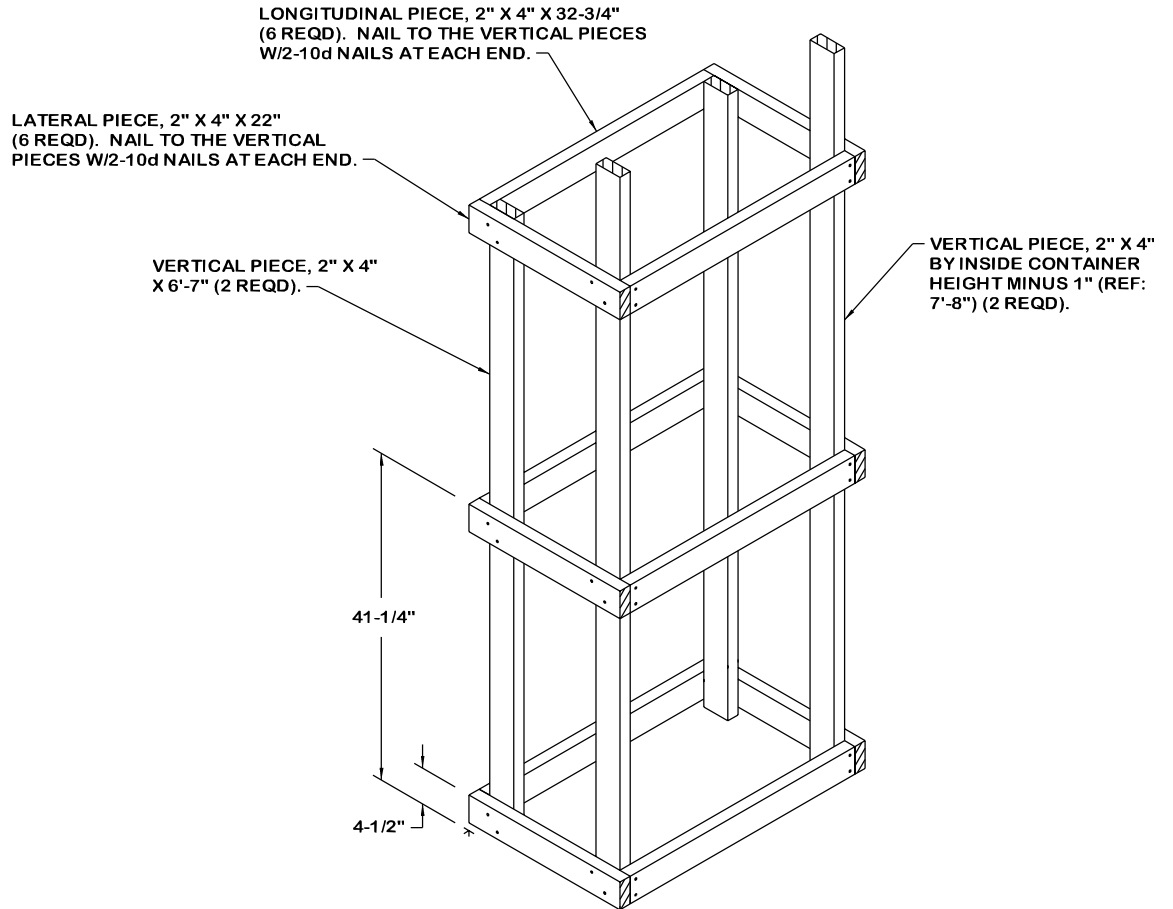
LATERAL PIECE, 2" X 4" X 69-3/4" (4 REQD). NAIL TO THE VERTICAL PIECES AND THE CENTER LONGITUDINAL PIECE W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 4" X 39-1/2" (4 REQD).



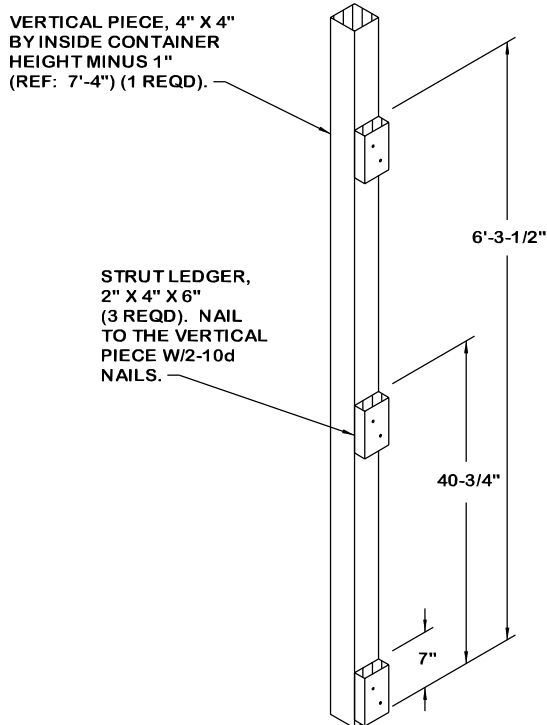
FILLER ASSEMBLY

THE ASSEMBLY DEPICTED ABOVE IS FOR USE IN PLACE OF AN OMITTED CRATE. FILLER ASSEMBLIES MUST BE WIRE TIED TO ADJACENT CRATES TO PREVENT UNDUE MOVEMENT. NO MORE THAN TWO FILLER ASSEMBLIES MAY BE USED IN THE LOAD DEPICTED ON PAGE 2.



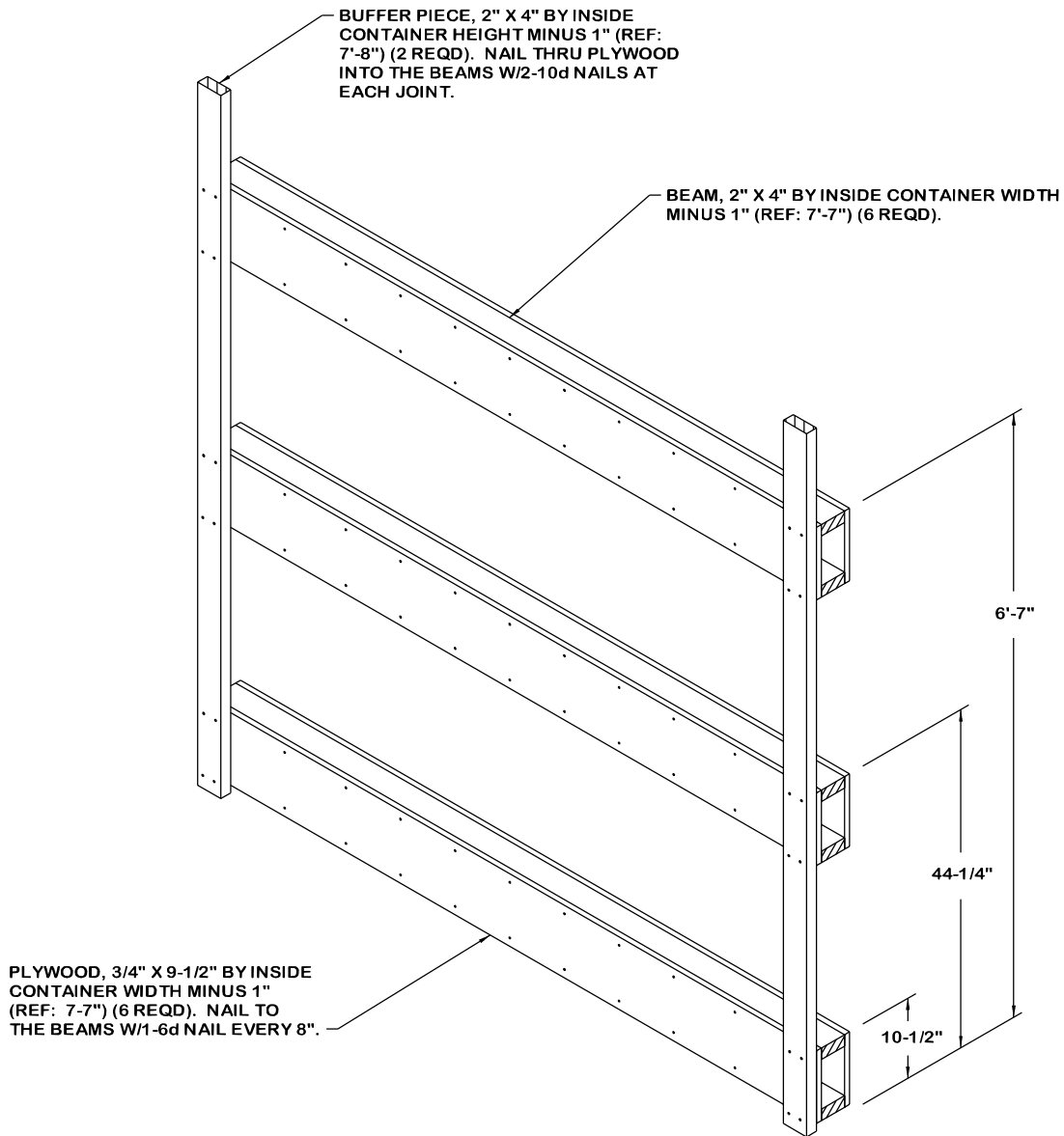
SIDE FILL ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE UPPER LONGITUDINAL AND LATERAL PIECES, RELOCATE THE MIDDLE LONGITUDINAL AND LATERAL PIECES AT 39", AND REDUCE THE HEIGHT OF THE 6'-7" VERTICAL PIECES TO 39".



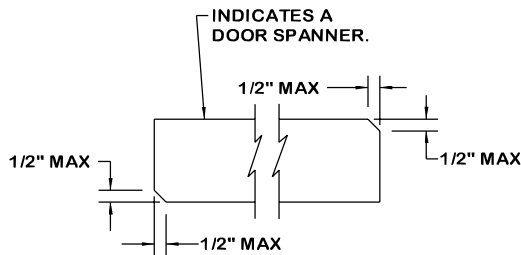
DOOR POST VERTICAL

FOR A ONE HIGH LOAD, ELIMINATE THE UPPER STRUT LEDGER, AND RELOCATE THE MIDDLE STRUT LEDGER TO 36".



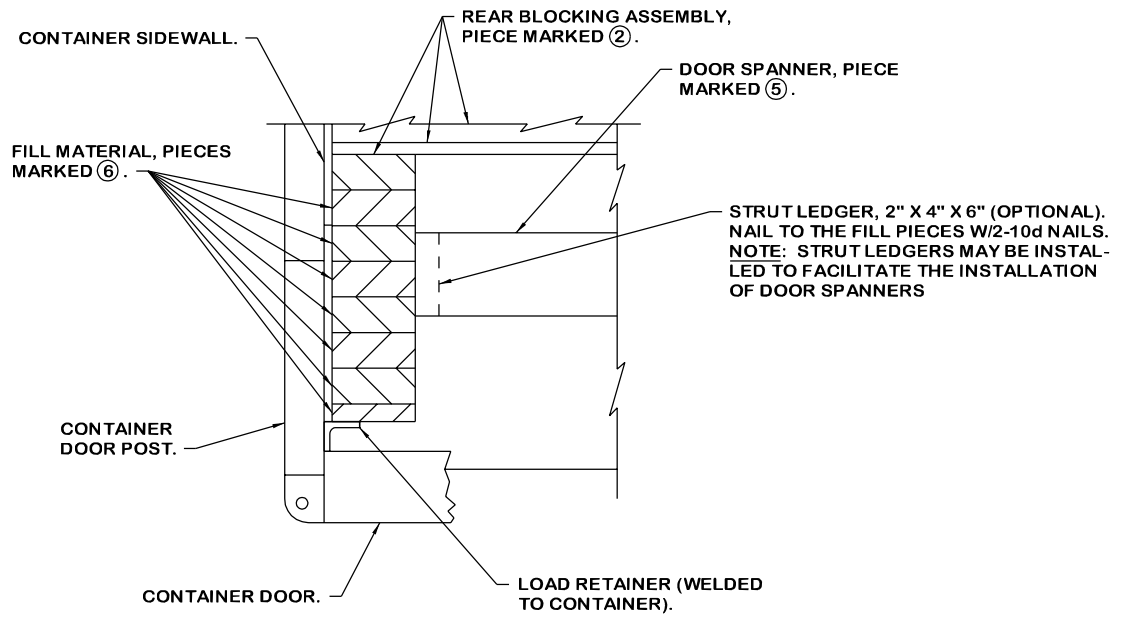
REAR BLOCKING ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP BOX BEAM ASSEMBLY, AND RELOCATE THE MIDDLE BOX BEAM ASSEMBLY TO 39-1/2".



BEVEL-CUT

IF DESIRED, EACH END OF A DOOR SPANNER PIECE MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE THE ACHIEVEMENT OF A TIGHT DOOR-POST-TO-DOOR-POST FIT.

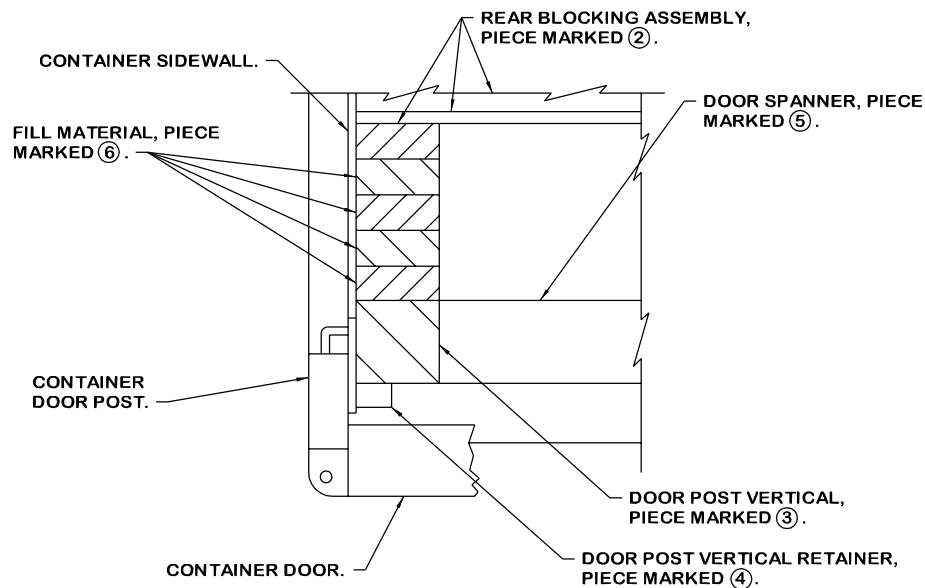


DETAIL A

A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER IS SHOWN DEPICTING THE PROPER POSITION OF THE FILL MATERIAL AND ADJACENT DUNNAGE PIECES.

SPECIAL NOTE:

WHEN ISO CONTAINERS ARE EQUIPPED WITH PRE-WELDED LOAD RETAINERS, AS DEPICTED IN "DETAIL A" ABOVE, DOOR POST VERTICALS AND DOOR POST VERTICAL RETAINERS WILL NOT BE REQUIRED FOR THE LOAD DEPICTED ON PAGE 2. SEE VARIOUS LOADS WITHIN AMC DRAWING 19-48-4153-15PA1002 FOR EXAMPLES. SEE PAGE 8 FOR DETAILS OF THE METAL DOOR POST VERTICAL RETAINER.

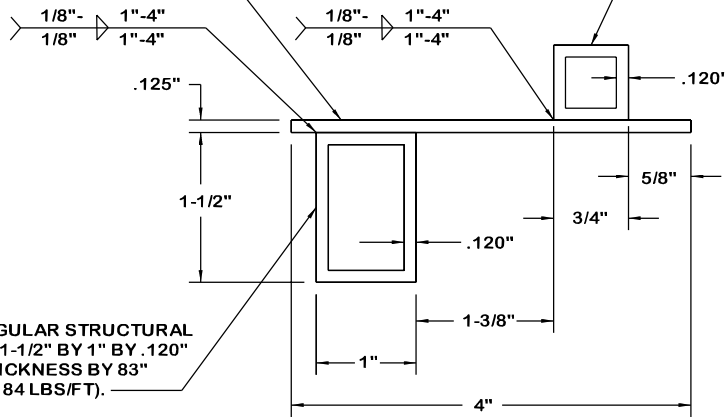


DETAIL B

A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER IS SHOWN DEPICTING THE PROPER POSITION OF THE DOOR POST VERTICAL RETAINER AND ADJACENT DUNNAGE PIECES.

STEEL STRIP, 1/8" THICK BY 4" WIDE BY 83" LONG (1.70 LBS/FT).

SQUARE STRUCTURAL TUBING, 3/4" SQUARE BY .120" WALL THICKNESS BY 83" LONG (1.03 LBS/FT).



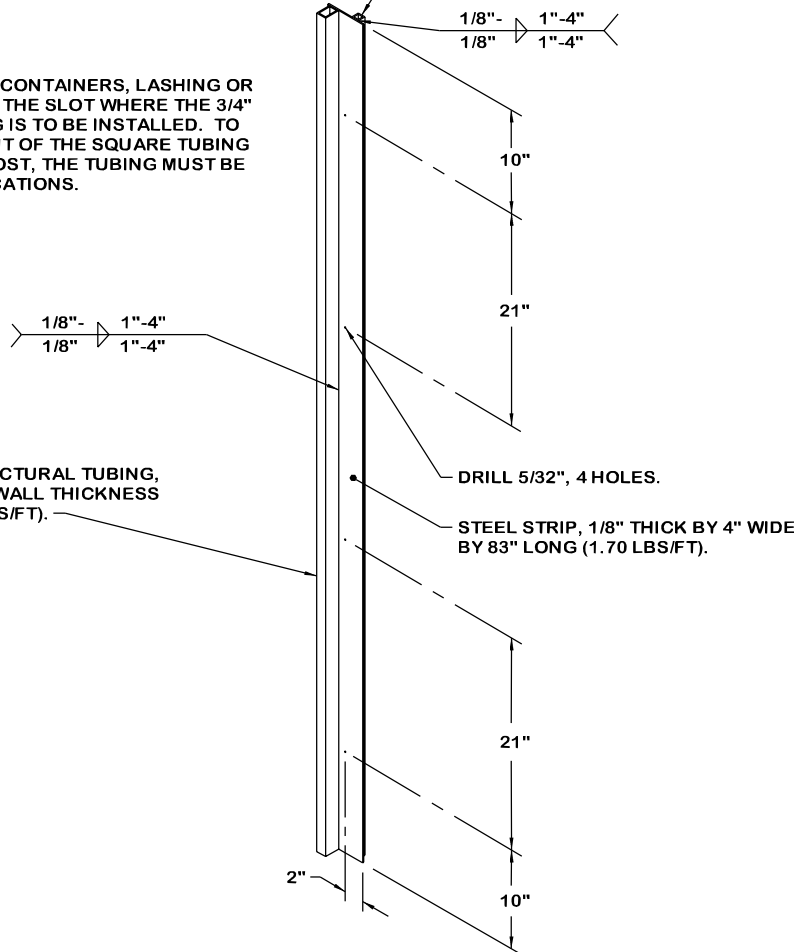
RECTANGULAR STRUCTURAL TUBING, 1-1/2" BY 1" BY .120" WALL THICKNESS BY 83" LONG (1.84 LBS/FT).

VIEW A

SPECIAL NOTE:

IN MOST CORRUGATED STEEL CONTAINERS, LASHING OR TIE BARS WILL BE PRESENT IN THE SLOT WHERE THE 3/4" SQUARE STRUCTURAL TUBING IS TO BE INSTALLED. TO ENSURE PROPER ENGAGEMENT OF THE SQUARE TUBING AND THE CONTAINER DOOR POST, THE TUBING MUST BE NOTCHED AT THE TIE BAR LOCATIONS.

SQUARE STRUCTURAL TUBING, 3/4" SQUARE BY .120" WALL THICKNESS BY 83" LONG (1.03 LBS/FT).



RECTANGULAR STRUCTURAL TUBING, 1-1/2" BY 1" BY .120" WALL THICKNESS BY 83" LONG (1.84 LBS/FT).

DRILL 5/32", 4 HOLES.

STEEL STRIP, 1/8" THICK BY 4" WIDE BY 83" LONG (1.70 LBS/FT).

DOOR POST VERTICAL RETAINER

NOTE: THE ABOVE ASSEMBLY HAS BEEN SHOWN ROTATED 90° FROM THE ORIENTATION IN WHICH IT IS INSTALLED IN THE LEFT REAR CORNER OF THE CONTAINER. THE ASSEMBLY HAS BEEN ROTATED FOR HOLE LOCATION CLARITY.