

LOADING AND BRACING[⊕] IN SIDE OPENING ISO CONTAINERS OF BLU-110 (1,000 POUND) BOMB ON MHU-187 METAL PALLETS, PARTIAL GBU-32C(V)1/B ROUND

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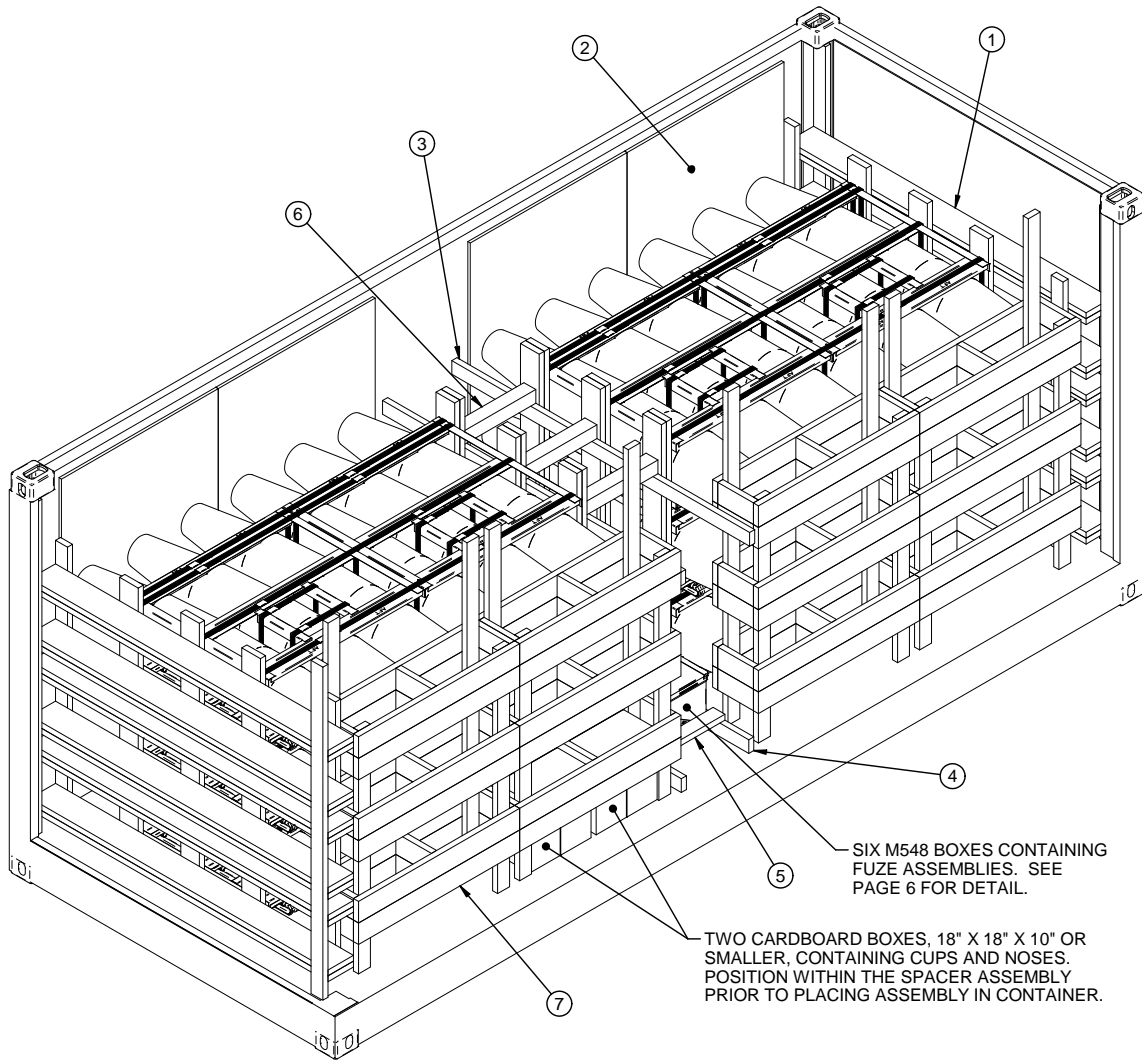
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		DESIGN ENGINEER	BASIC REV.	MADELINE BANKS	
		ENGINEERING DIVISON	FIEFFER.LAUR A.A.1230375727		
		TEST ENGINEER	FELICIANO.AD IN.1259200373		
		TEST REPORT	NA		
		EXPLOSIVE SAFETY DIRECTORATE	SMITH.THERESA. ANN.1009147639		
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		19	48	8874	SP15M14



ISOMETRIC VIEW

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.
- ② FAR SIDE LINER, PLYWOOD, 1/2" THICK BY 44" AND 48" WIDE BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-1") (4 REQD). POSITION ONE OF EACH WIDTH ON EACH END OF THE FAR SIDE OF THE CONTAINER AS SHOWN.
- ③ CENTER GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE DETAIL ON PAGE 6.
- ④ HORIZONTAL RESTRAINT, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-4") (2 REQD). POSITION AGAINST THE CENTER GATE BEARING PIECES. SEE "SECUREMENT OF M548 BOXES" DETAIL ON PAGE 7.
- ⑤ CLEAT, 2" X 4" BY LENGTH AS REQD (REF: 21'-7/8") (4 REQD). NAIL EACH CLEAT TO THE RESTRAINT PIECES W/2-10d NAILS AT EACH END. SEE "SECUREMENT OF M548 BOXES" DETAIL ON PAGE 7.
- ⑥ STRUT, 4" X 4" BY CUT-TO-FIT (REF: 21'-7/8") (9 REQD). POSITION BETWEEN THE CENTER GATES. TOENAIL AT EACH END W/2-12d NAILS. SEE THE "BEVEL-CUT" DETAIL ON PAGE 5.
- ⑦ SPACER ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 6.

SIX M548 BOXES CONTAINING FUZE ASSEMBLIES. SEE PAGE 6 FOR DETAIL.

TWO CARDBOARD BOXES, 18" X 18" X 10" OR SMALLER, CONTAINING CUPS AND NOSES. POSITION WITHIN THE SPACER ASSEMBLY PRIOR TO PLACING ASSEMBLY IN CONTAINER.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	30	10
2" X 4"	216	143
2" X 6"	354	354
2" X 8"	176	235
4" X 4"	17	22
NAI LS	NO. REQD	POUNDS
10d (3")	1,182	18
12d (3-1/4")	36	3/4
PLYWOOD, 1/2" - - 108.61 SQ FT REQD -149.34 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
BLU-110 BOMB PALLET UNIT	12	38,028 LBS
FUZES, M548 CAN	6	312 LBS
NOSE CUPS, BOX	2	121 LBS
DUNNAGE		1,697 LBS
CONTAINER		6,050 LBS
TOTAL WEIGHT		46,208 LBS (APPROX)

GENERAL NOTES

- 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 THE BLU-110 (1,000 POUND) BOMB ON MHU-187 SERIES METAL PALLET AND ASSOCIATED COMPONENTS IN A SIDE OPENING ISO CONTAINER. SUBSEQUENT REFERENCE TO CONTAINERS HEREIN MEANS MHU-187 SERIES METAL PALLET WITH THE BLU-110 BOMBS INSTALLED. SEE PAGE 4 AND NAVAL SEA SYSTEMS COMMAND DRAWING 7516321 FOR DETAILS OF THE COMPONENTS. **CAUTION:** REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-6-1/4" LONG BY 90" WIDE BY 89" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE DIFFERENT INSIDE MEASUREMENTS, VERIFY INSIDE CONTAINER DIMENSIONS 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 BOMB PALLET 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 LONGITUDINAL PIECES ON THE SPACER ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS, LENGTH AND/OR QUANTITY OF THE DUNNAGE LUMBER USED MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER. THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL.
- E. 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.
- F. 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.
- G. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE END BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER ENDWALLS, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.
- H. 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.
- J. **CAUTION:** DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- K. 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 RIGHT)

(GENERAL NOTES CONTINUED)

L. 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.

M. 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.

N. 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.

O. 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.

P. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN IN THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 73 OF DRAWING AMC 19-48-4267-15PA1009. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUT AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.

Q. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN PALLET UNITS. IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS.

MATERIAL SPECIFICATIONS

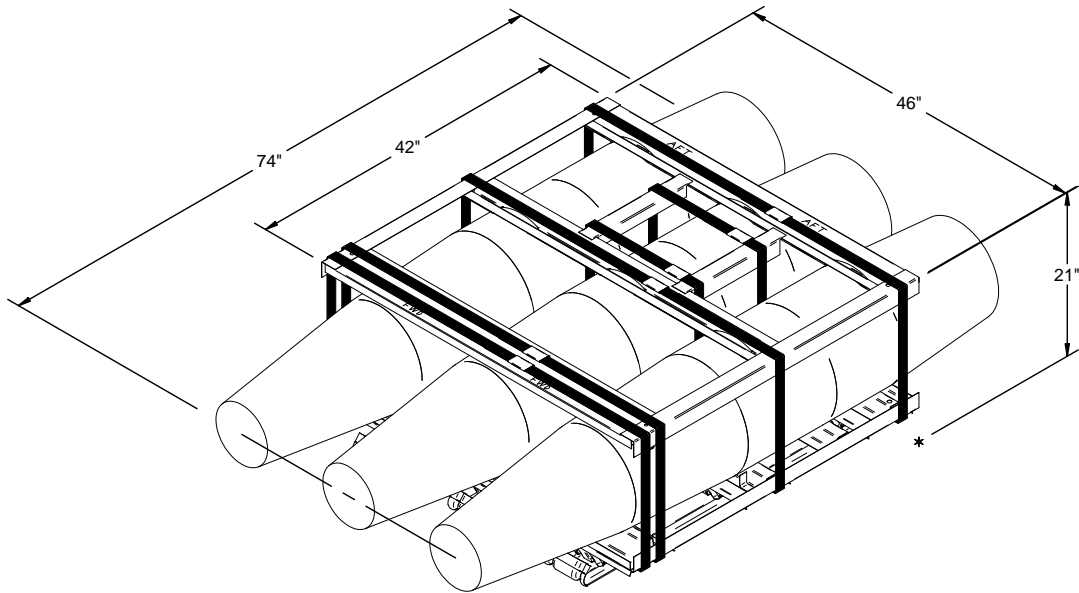
LUMBER - - - - - -: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.

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

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.

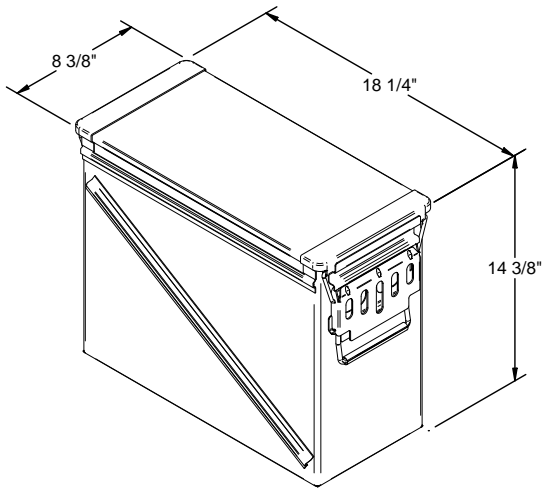
WIRE, CARBON STEEL - -: ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.

ANTI-CHAFING MATERIAL - - - - - -: MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.



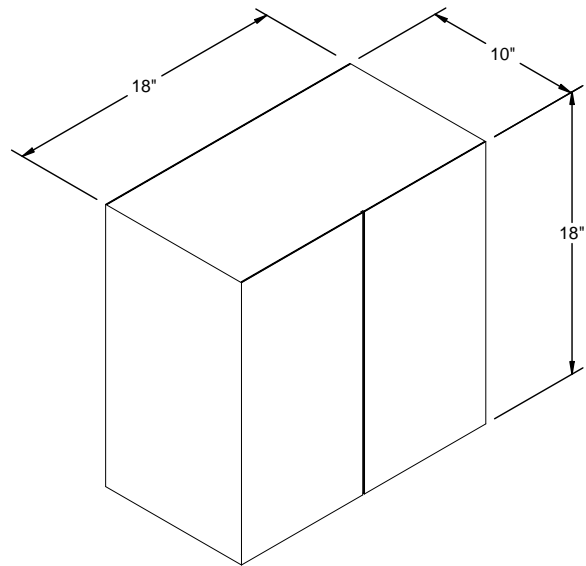
MHU-187 SERIES PALLET UNIT

GROSS WEIGHT - - - - - 3,169 LBS (APPROX)
 CUBE - - - - - 41.4 CU FT (APPROX)



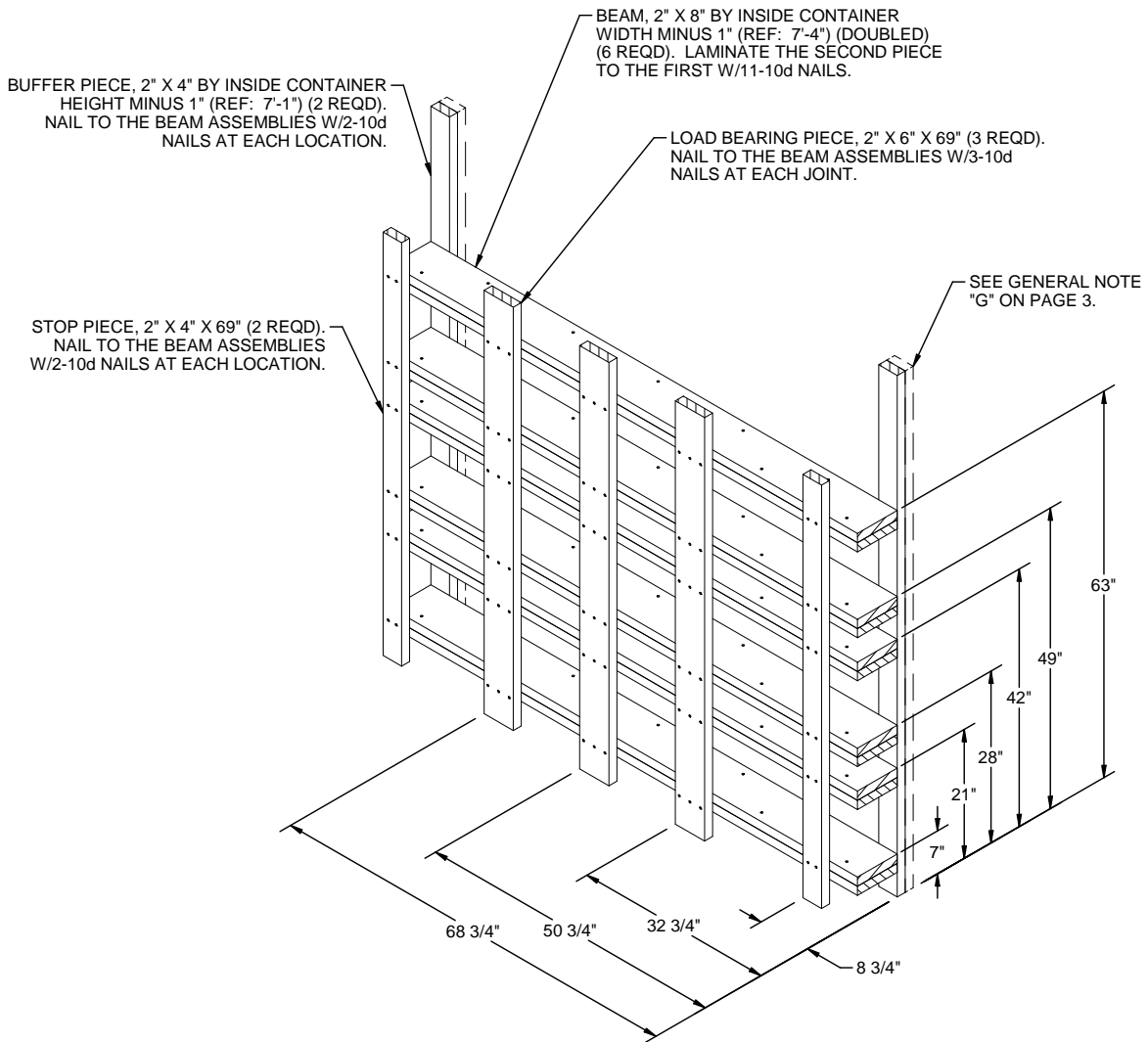
FUZE SYSTEM IN M548 METAL BOX

GROSS WEIGHT - - - - - 52 LBS (APPROX)
 CUBE - - - - - 1.27 CU FT (APPROX)



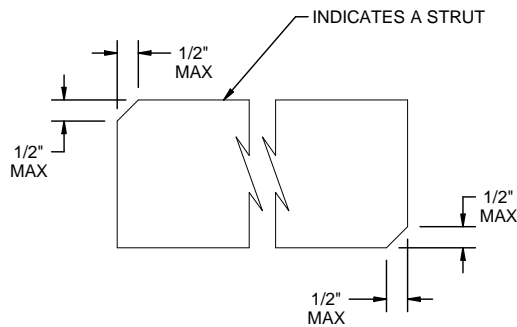
NOSE PLUGS AND CUPS IN CARDBOARD BOX

GROSS WEIGHT - - - - - 121 LBS (APPROX)
 CUBE - - - - - 1.88 CU FT (APPROX)



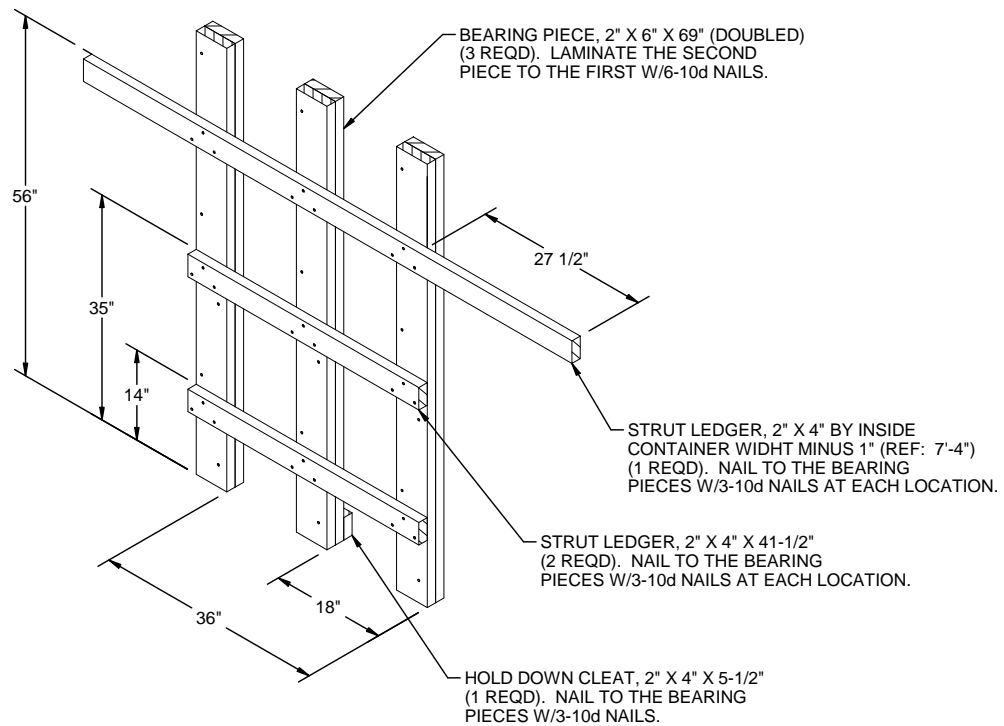
END BLOCKING ASSEMBLY

TWO END BLOCKING ASSEMBLIES REQUIRED, ONE RIGHT HAND AND ONE LEFT HAND. RIGHT HAND ASSEMBLY SHOWN. **NOTE:** FOR A TWO-HIGH LOAD, ELIMINATE THE UPPER TWO BEAM ASSEMBLIES AND REDUCE THE HEIGHT OF THE STOP PIECES AND THE LOAD BEARING PIECES TO 48". FOR A ONE-HIGH LOAD, ELIMINATE THE UPPER FOUR BEAM ASSEMBLIES AND REDUCE THE HEIGHT OF THE STOP PIECES AND THE LOAD BEARING PIECES TO 28".



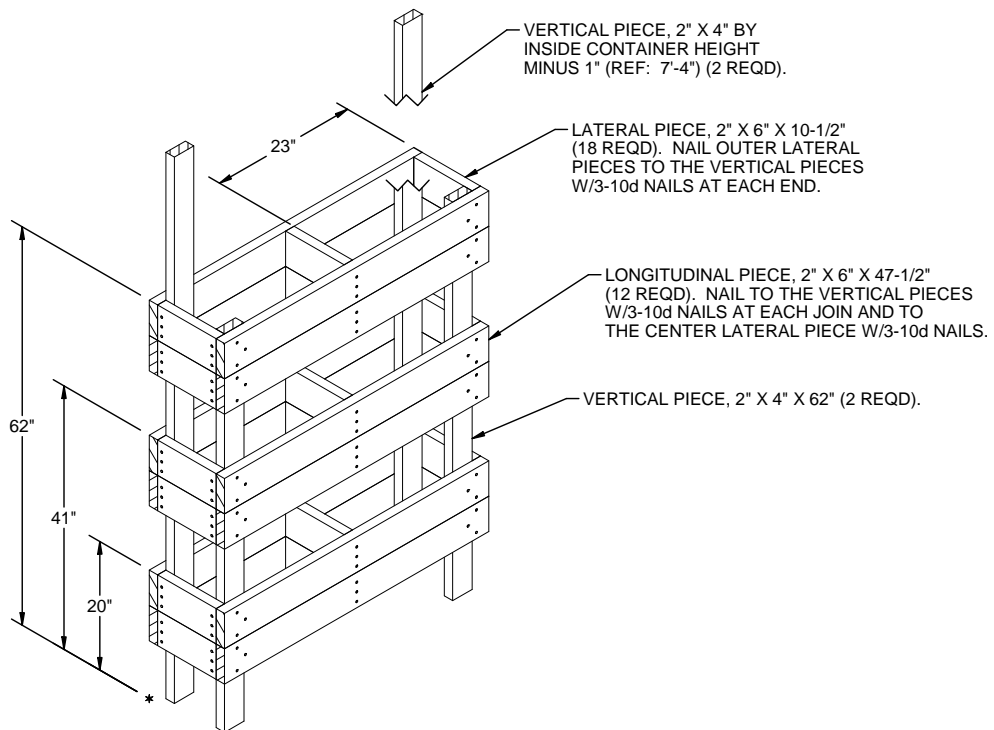
BEVEL CUT

IF DESIRED, EACH END OF A STRUT MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE INSTALLING THE STRUTS WITH A "DRIVE" FIT.



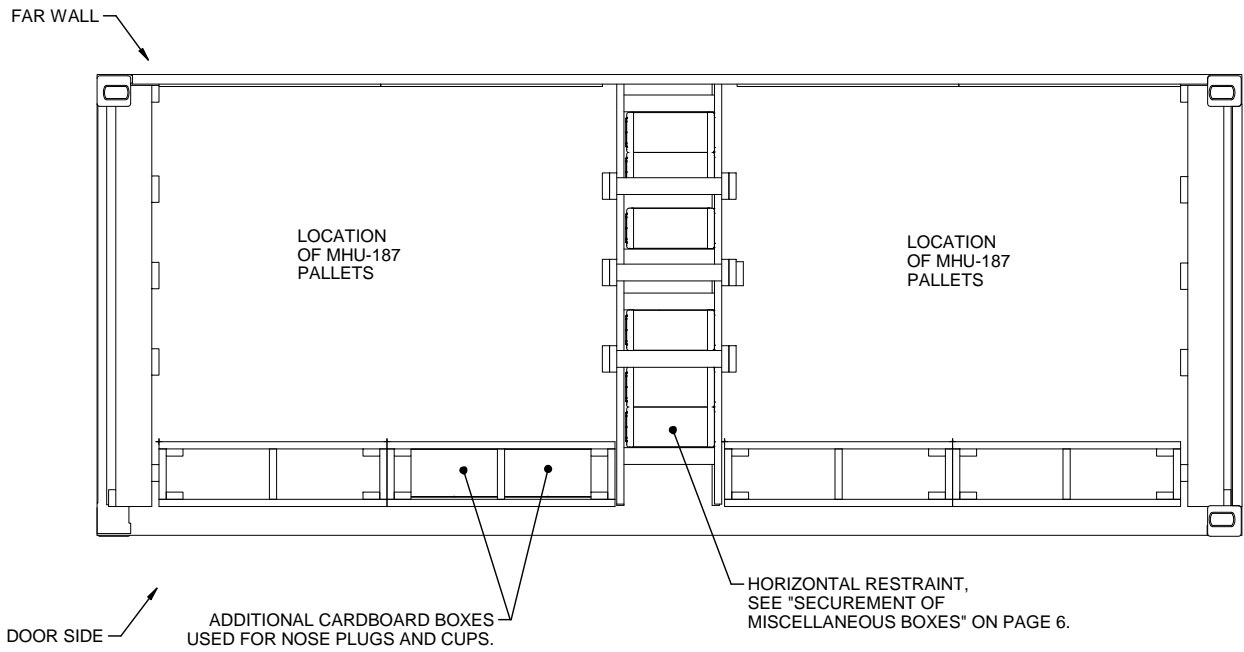
CENTER GATE

TWO CENTER GATES REQUIRED. ONE RIGHT HAND AND ONE LEFT HAND. RIGHT HAND GATE SHOWN. **NOTE:** FOR A TWO-HIGH LOAD, ELIMINATE THE MIDDLE STRUT LEDGER, LOWER THE UPPER STRUT LEDGER TO 35" AND REDUCE THE HEIGHT OF THE BEARING PIECES TO 48". FOR A ONE-HIGH LOAD, ELIMINATE THE TWO LOWER STRUT LEDGERS, LOWER THE UPPER STRUT LEDGER TO 14" AND REDUCE THE HEIGHT OF THE BEARING PIECES TO 28".



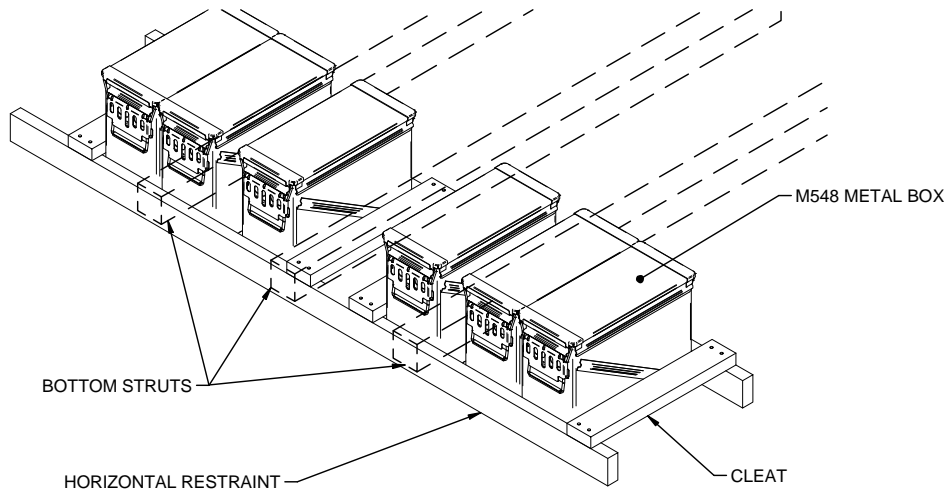
SPACER ASSEMBLY

NOTE: FOR A TWO-HIGH LOAD, ELIMINATE THE UPPER SIX LATERAL PIECES AND FOUR UPPER LONGITUDINAL PIECES AND REDUCE THE HEIGHT OF THE SHORT VERTICAL PIECES TO 48". ONE-HIGH LOAD, ELIMINATE THE UPPER TWELVE LATERAL PIECES AND EIGHT UPPER LONGITUDINAL PIECES AND REDUCE THE HEIGHT OF THE SHORT VERTICAL PIECES TO 20".



PLAN VIEW OF M548 BOXES AND CUP/NOSE BOXES

THIS VIEW SHOWS THE ARRANGEMENT OF THE M548 CANS IN RELATION TO THE STRUTS AND CENTER GATE ASSEMBLIES, IN ADDITION TO THE PLACEMENT OF THE CARDBOARD BOXES CONTAINING THE NOSE PLUGS AND CUPS. **NOTE:** SMALLER CARDBOARD BOXES CAN BE USED IN LIEU OF THE 18" X 18" X 10" CARDBOARD BOXES OUTLINED IN THIS PROCEDURE. SMALLER BOXES SHALL BE PLACED WITHIN THE EMPTY SPACES OF THE SPACER ASSEMBLIES AND SECURED IN PLACE.

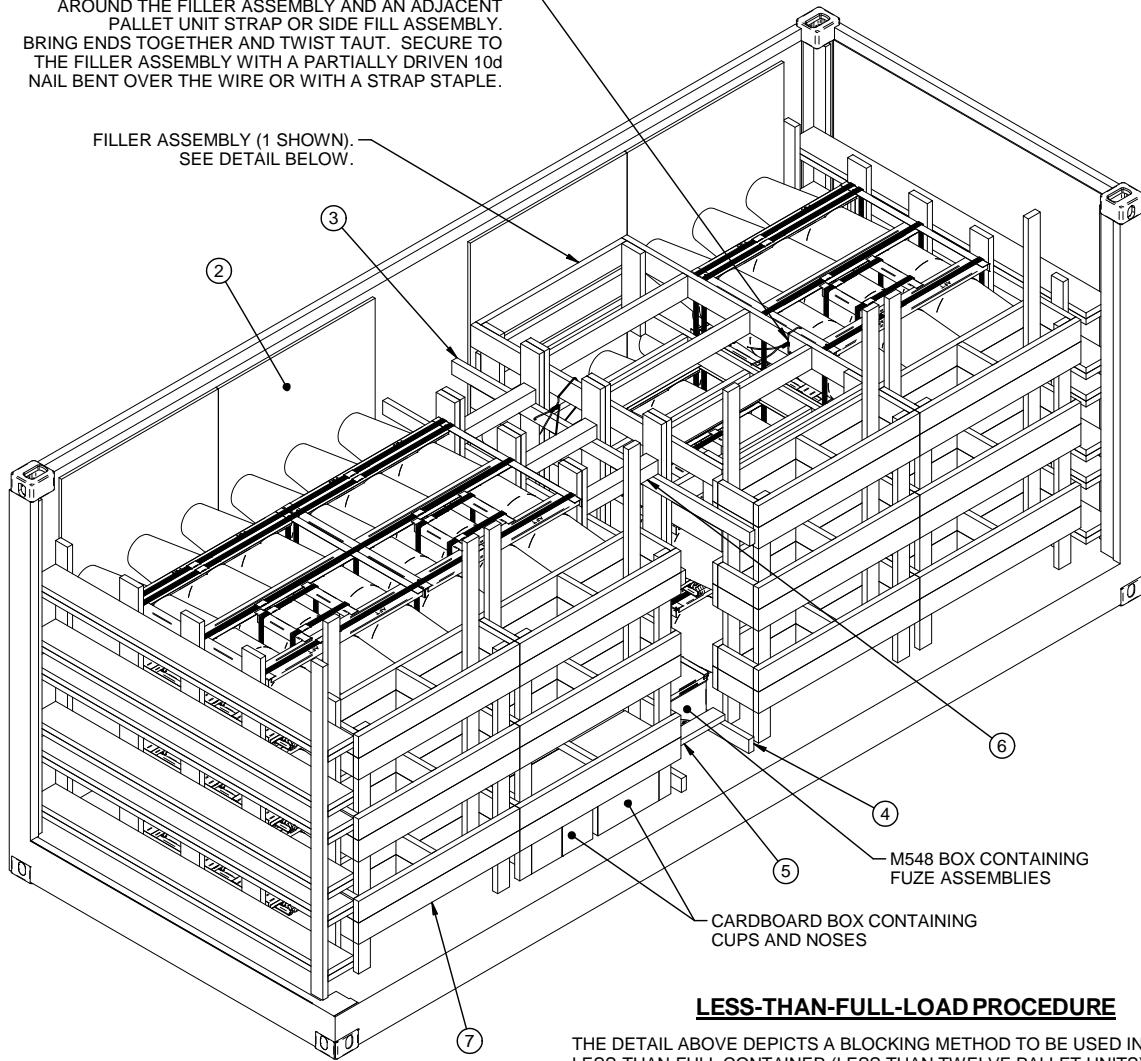


SECUREMENT OF M548 BOXES

BOTTOM STRUTS ARE SHOWN HIDDEN FOR CLARITY.

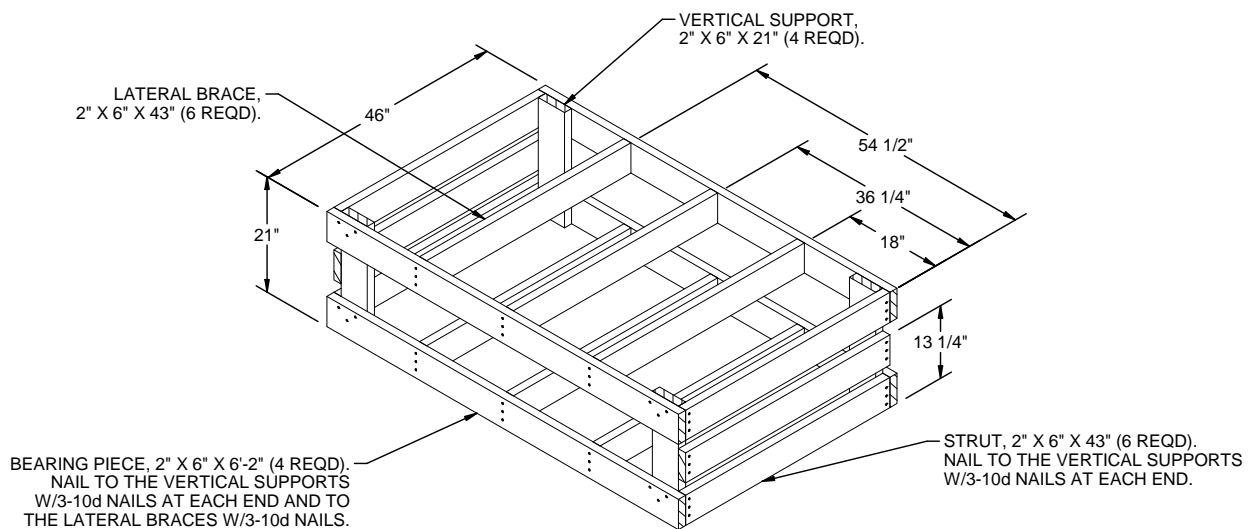
TIE WIRE, .080" DIA BY 24" LONG (2 REQD PER FILLER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE FILLER ASSEMBLY AND AN ADJACENT PALLET UNIT STRAP OR SIDE FILL ASSEMBLY. BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE FILLER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE OR WITH A STRAP STAPLE.

FILLER ASSEMBLY (1 SHOWN).
SEE DETAIL BELOW.



LESS-THAN-FULL-LOAD PROCEDURE

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL CONTAINER (LESS THAN TWELVE PALLET UNITS). KEY NUMBERS REFER TO THE KEY NUMBERS SHOWN ON PAGE 2. SEE GENERAL NOTE "H" ON PAGE 3.



FILLER ASSEMBLY

THE PALLET FILLER ASSEMBLY IS TO BE USED IN PLACE OF A PALLET UNIT WHICH HAS BEEN OMITTED FROM THE MIDDLE OF THE TOP LAYER.