

APPROVED BY
BUREAU OF EXPLOSIVES

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LOADING AND BRACING IN MILVAN CONTAINERS OF DISPENSER AND BOMB, AIRCRAFT, CBU-59/B IN CNU-238/E SHIPPING AND STORAGE CONTAINER

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- 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. SEE GENERAL NOTE "L" ON PAGE 2.

U.S. ARMY MATERIEL COMMAND DRAWING

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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 OUTLOADING PROCEDURE SPECIFIED HEREIN IS APPLICABLE TO CNU-238/E METAL SHIPPING AND STORAGE CONTAINERS LOADED WITH CBU-59/B BOMB AND DISPENSER. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE CONTAINER WITH AMMUNITION ITEMS. SEE PAGE 3 OF THIS DRAWING FOR DETAIL OF THE CNU-238/E CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF 44,800 POUNDS MUST NOT BE EXCEEDED.
- C. THE LOADS AS SHOWN ARE BASED ON A 20' LONG BY 8' WIDE BY 8' HIGH MILVAN CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 87" HIGH. THE LOADS ARE DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC) SHIPMENT.
- D. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED WITHIN BUREAU OF EXPLOSIVES PAMPHLET 6C. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. THE WEIGHT DIMENSIONS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS CONFORM WITH THE BUREAU OF EXPLOSIVES PAMPHLET 6C. WITH THE EXCEPTION THAT TWO ADDITIONAL BELT RAILS HAVE BEEN SHOWN: ONE AT 72" AND ONE AT 83" HIGH FROM THE CONTAINER FLOOR. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. EACH CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHT AND AT EQUAL DISTANCES FROM THE END OF THE CONTAINER). CROSS MEMBERS IN EMPTY CONTAINERS AND THOSE NOT USED IN LOADED CONTAINERS MUST BE FASTENED INTO BELT RAILS FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH CONTAINER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. SEE THE "FILL DETAIL" ON PAGE 5 FOR THE DUNNAGING METHOD REQUIRED TO ELIMINATE AN EXCESSIVE LENGTHWISE VOID WITHIN A LOAD. THE LOAD BLOCKING COMPONENT DESIGNATED AS "CROSS MEMBER" HEREIN, IS IDENTIFIED AS "BEAM ASSEMBLY" WITHIN TM 55-8115-200-23 & P. DATED DECEMBER 1979. THE BEAM ASSEMBLY IS FURTHER IDENTIFIED AS NSN 8115-00-165-6623 (FSN 8115-165-6623).
- E. DUNNAGE LUMBER SPECIFIED IS OF A 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" BY 5-1/2" WIDE.
- F. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- G. 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.
- H. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

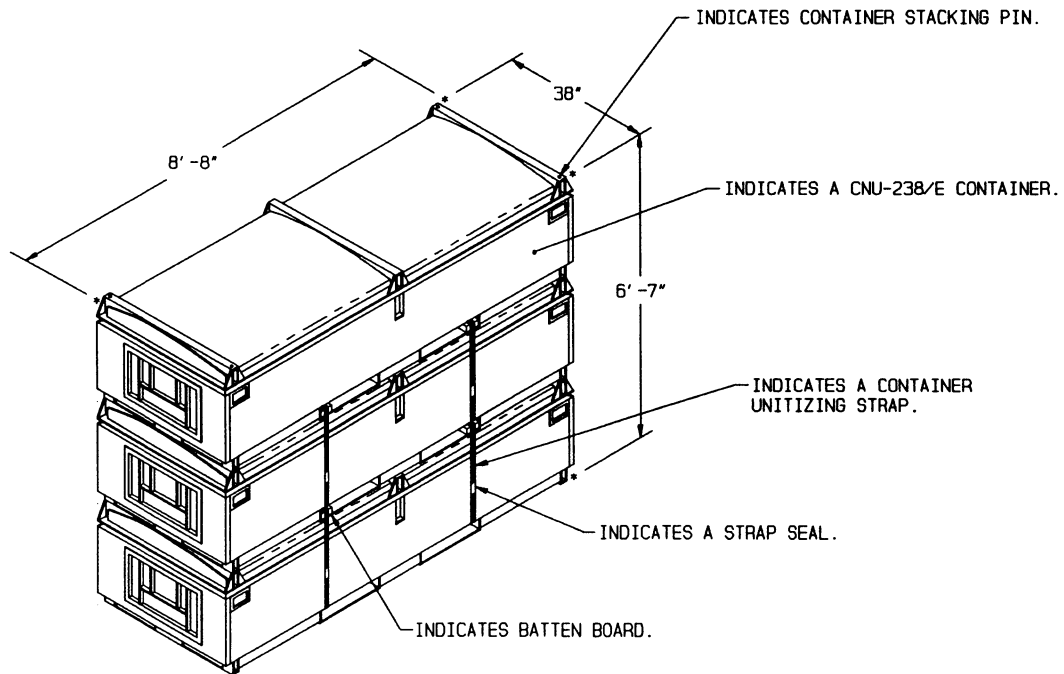
(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- HARDBOARD - - - - - : ANSI/AHA A135.4, CLASS 1.
- WIRE - - - - - : FED SPEC QQ-W-461; ANNEALED, BLACK.

(GENERAL NOTES CONTINUED)

- 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 25.4MM AND ONE POUND EQUALS 0.454KG.
- K. MAXIMUM LOAD WEIGHT CRITERIA:
- THE ITEMIZED LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALSO, THESE LISTED LOAD WEIGHTS IDENTIFY THE COMBINED WEIGHT OF AMMUNITION LADING UNITS AND DUNNAGE THAT CAN BE PLACED INTO ONE MILVAN CONTAINER WITHOUT VIOLATING ONE OR MORE OF THE "CAPABILITY FACTORS". SEE NOTES 1 AND 2.
- 39,100 LBS IN 20-FT CONTAINER (W/O CHASSIS) ABOARD CONTAINERSHIP.
- 39,100 LBS IN CONTAINER ON 20-FT CHASSIS WITH DOUBLE BOGIE. SEE NOTE 3.
- 25,300 LBS IN CONTAINER ON 20-FT CHASSIS WITH SINGLE BOGIE. SEE NOTE 4.
- 21,300 LBS IN EACH CONTAINER ON 40-FT CHASSIS (COUPLED WITH DOUBLE BOGIE). SEE NOTE 3.
- NOTE 1: DUNNAGE INCLUDES MATERIALS, OTHER THAN COMPONENTS OF THE MECHANICAL LOAD BRACING SYSTEM, USED TO BLOCK AND BRACE A LOAD.
- NOTE 2: 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.
- NOTE 3: 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 MILVAN SYSTEM.
- NOTE 4: BY SPECIAL AUTHORITY, IT MAY BE POSSIBLE TO MOVE HEAVIER LOADS ON SINGLE BOGIE CHASSIS WITHIN AN INSTALLATION.
- L. SPECIAL T/COFC NOTES:
1. CAUTION: LOADED CONTAINERS MUST BE ON CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE, REGARDLESS OF THE LOAD WEIGHT WITHIN THE CONTAINER.
 2. LOAD LIMITS OF T/COFC RAIL CARS 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.
 3. CHASSIS/CONTAINERS COUPLED INTO A 40-FOOT TRAILER CONFIGURATION MUST BE PLACED AT THE B-END OF A TOFC RAIL CAR. THE REAR END OF THE 40-FOOT UNIT WILL OVERHANG THE END OF THE CAR IF IT IS PLACED AT THE A-END. TWENTY-FOOT AND 40-FOOT UNITS CAN BE LOADED ON THE SAME CAR.
- M. THE WIDTH OF THE CENTER FILL ASSEMBLIES AS DEPICTED IN THE LOAD MAY BE ADJUSTED, AS REQUIRED, TO COMPLY WITH THE DIMENSIONAL VARIANCE OF THE CONTAINER, SO AS TO NOT ALLOW MORE THAN 1-1/2" VOID ACROSS THE WIDTH OF A BRACED LOAD. ADJUSTMENTS CAN BE MADE BY USING A DIFFERENT THICKNESS BEARING PIECE ON ONE OR BOTH SIDES OF THE ASSEMBLIES, BY LAMINATING ADDITIONAL PIECES TO THE BEARING PIECES ON ONE OR BOTH SIDES OF THE ASSEMBLY W/1 APPROPRIATELY SIZED NAIL EVERY 12", OR BY INCREASING OR DECREASING THE STRUT LENGTH WITHIN THE ASSEMBLY.



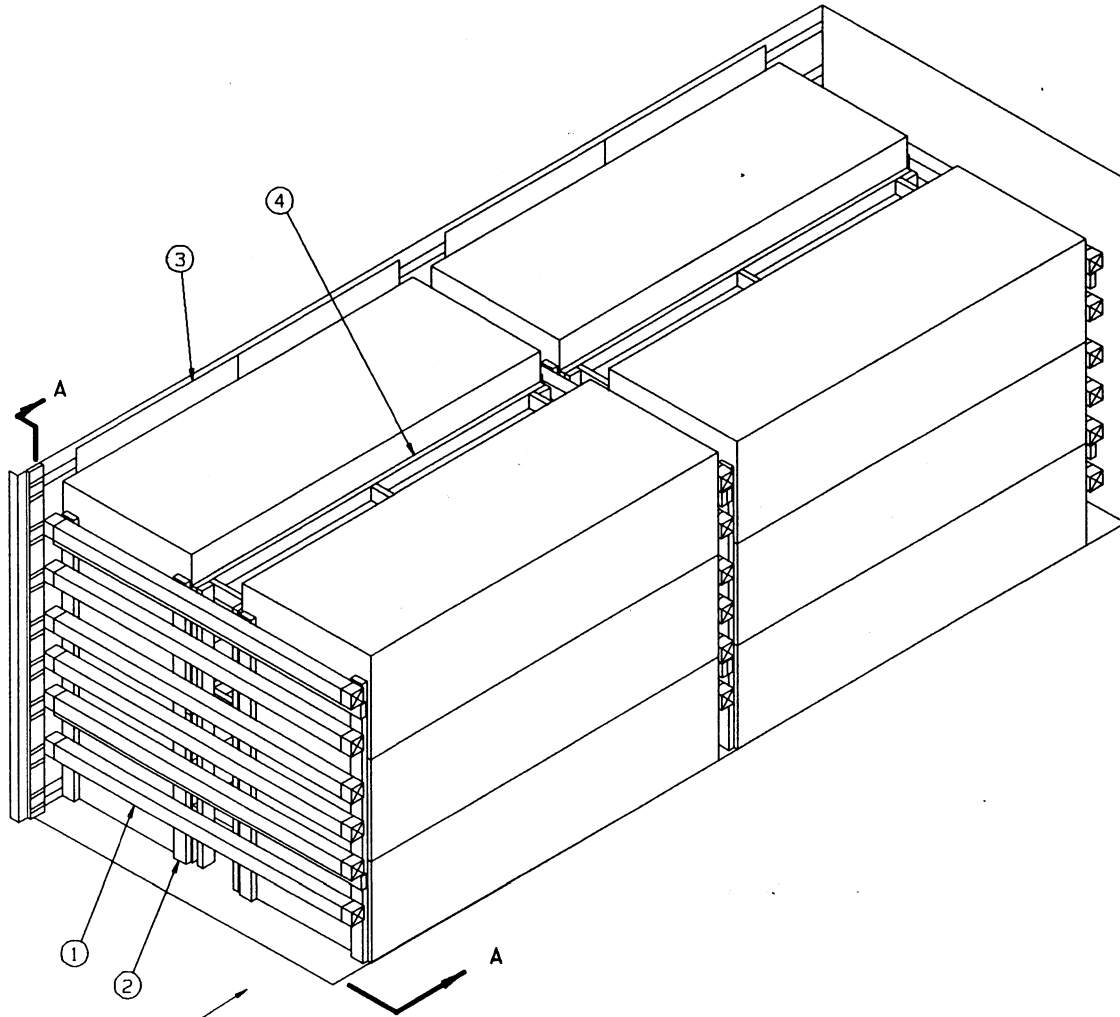
CONTAINER STACK

(SEE SPECIAL NOTES BELOW)

STACK WEIGHT - - - - - 5,083 LBS (APPROX)
 CUBE - - - - - 180.7 CU FT

SPECIAL NOTES:

1. A STACK OF CONTAINERS, CONSISTING OF THREE (3) CNU-328/E CONTAINERS, WILL BE UNITIZED AS SPECIFIED WITHIN NAVAL SEA SYSTEMS COMMAND DRAWING WR 54/270 PRIOR TO SHIPMENT WITHIN A MILVAN CONTAINER.
2. IF THE MATERIALS HANDING EQUIPMENT (MHE) TO BE USED FOR THE HANDLING OF THE CNU-238/E CONTAINERS DOES NOT HAVE A CAPACITY GREAT ENOUGH TO HANDLE A STACK OF THREE CONTAINERS, THE CONTAINERS MAY BE HANDLED INDIVIDUALLY. THE CONTAINER STACK, HOWEVER, MUST BE UNITIZED AS SPECIFIED IN WR 54/270 PRIOR TO ITS FINAL POSITIONING WITHIN THE MILVAN CONTAINER.

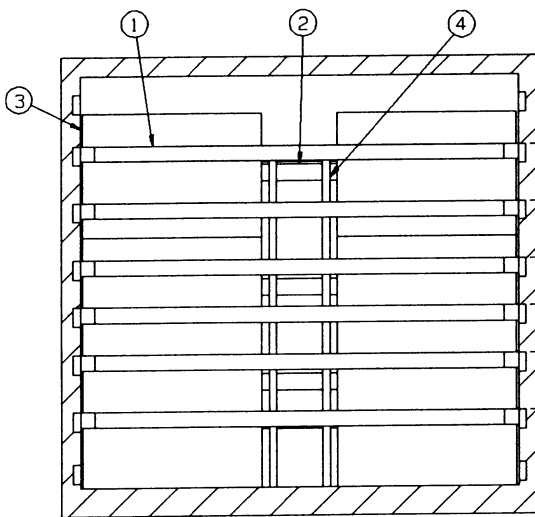


REAR OF CONTAINER.

KEY NUMBERS

- ① CROSS MEMBER (18 REQD). POSITION AT THE HEIGHTS SPECIFIED IN THE SECTION A-A VIEW. SEE GENERAL NOTE "D" ON PAGE 2, AND THE "FILL DETAIL" ON PAGE 5.
- ② END BLOCKING (4 REQD). SEE THE "END BLOCKING ASSEMBLY" DETAIL ON PAGE 6.
- ③ SIDEWALL BUFFER, 48" WIDE BY 84" LONG BY 1/8" THICK HARDBOARD (8 REQD).
- ④ CENTER FILL (2 REQD). SEE THE "CENTER FILL ASSEMBLY" DETAIL ON PAGE 6. SEE GENERAL NOTE "M" ON PAGE 2.

ISOMETRIC VIEW



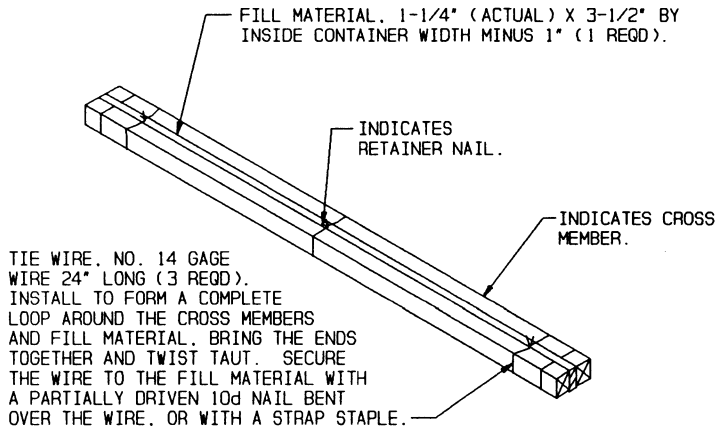
SECTION A-A

INDICATES THE TOP SURFACE OF A CROSS MEMBER. PLUS OR MINUS 2" IS PERMITTED.

INDICATES CONTAINER FLOOR.

SPECIAL NOTE:

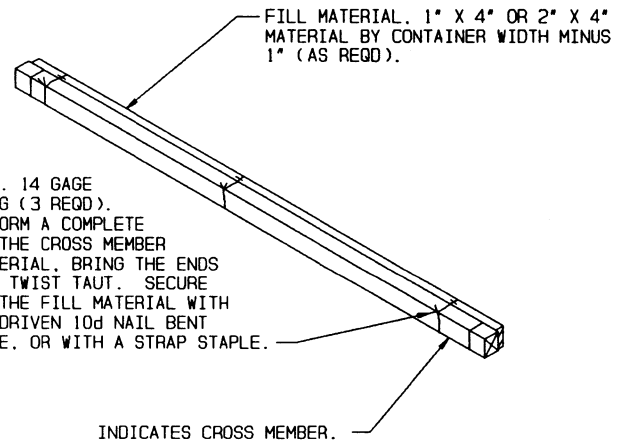
1. THE LOAD AS SHOWN ON PAGE 4 DEPICTS A 12-CONTAINER LOAD OF CNU-238/E CONTAINERS IN A MILVAN CONTAINER.



TIE WIRE, NO. 14 GAGE WIRE 24" LONG (3 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND THE CROSS MEMBERS AND FILL MATERIAL. BRING THE ENDS TOGETHER AND TWIST TAUT. SECURE THE WIRE TO THE FILL MATERIAL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

FILL MATERIAL INSTALLATION

SEE GENERAL NOTE "D" ON PAGE 2



TIE WIRE, NO. 14 GAGE WIRE 18" LONG (3 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND THE CROSS MEMBER AND FILL MATERIAL. BRING THE ENDS TOGETHER AND TWIST TAUT. SECURE THE WIRE TO THE FILL MATERIAL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

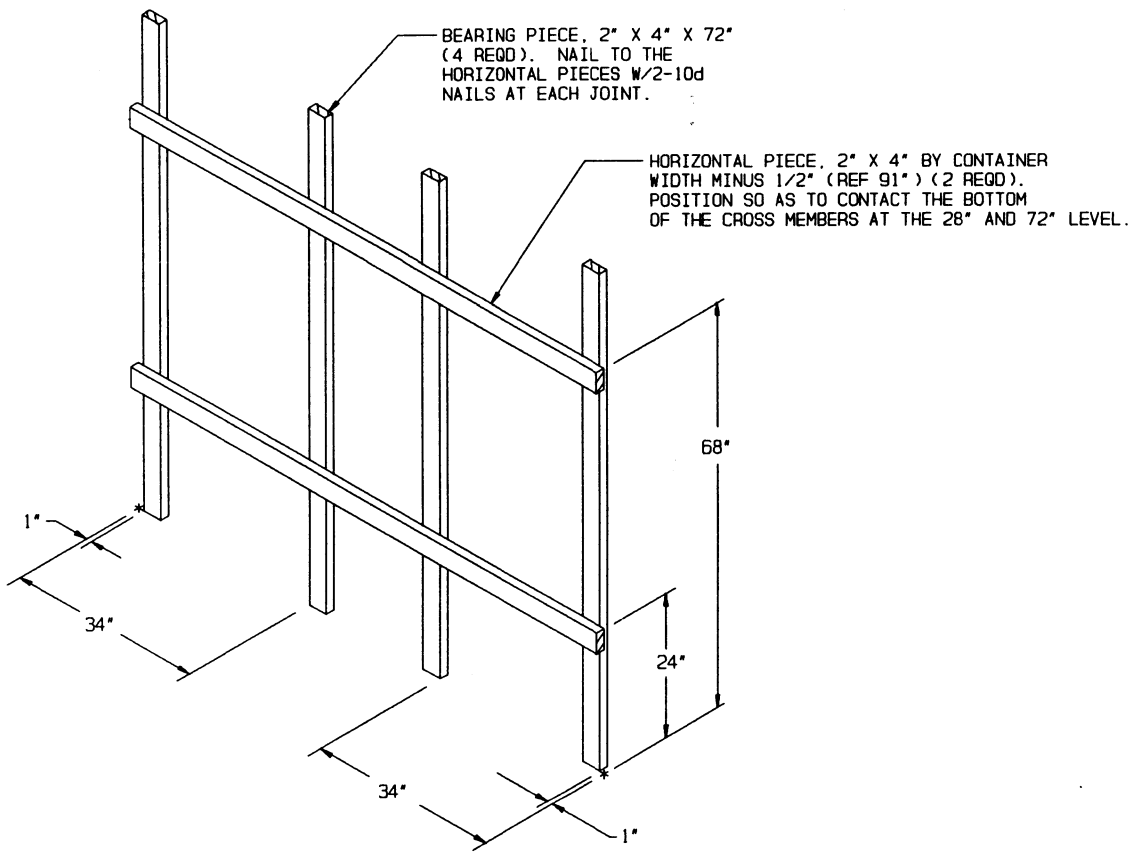
FILL DETAIL

THIS DETAIL DEPICTS THE METHOD OF POSITIONING FILL MATERIAL BETWEEN A CROSS MEMBER AND LADING, WHEN THE VOID BETWEEN THE TWO IS GREATER THAN ONE INCH (1").

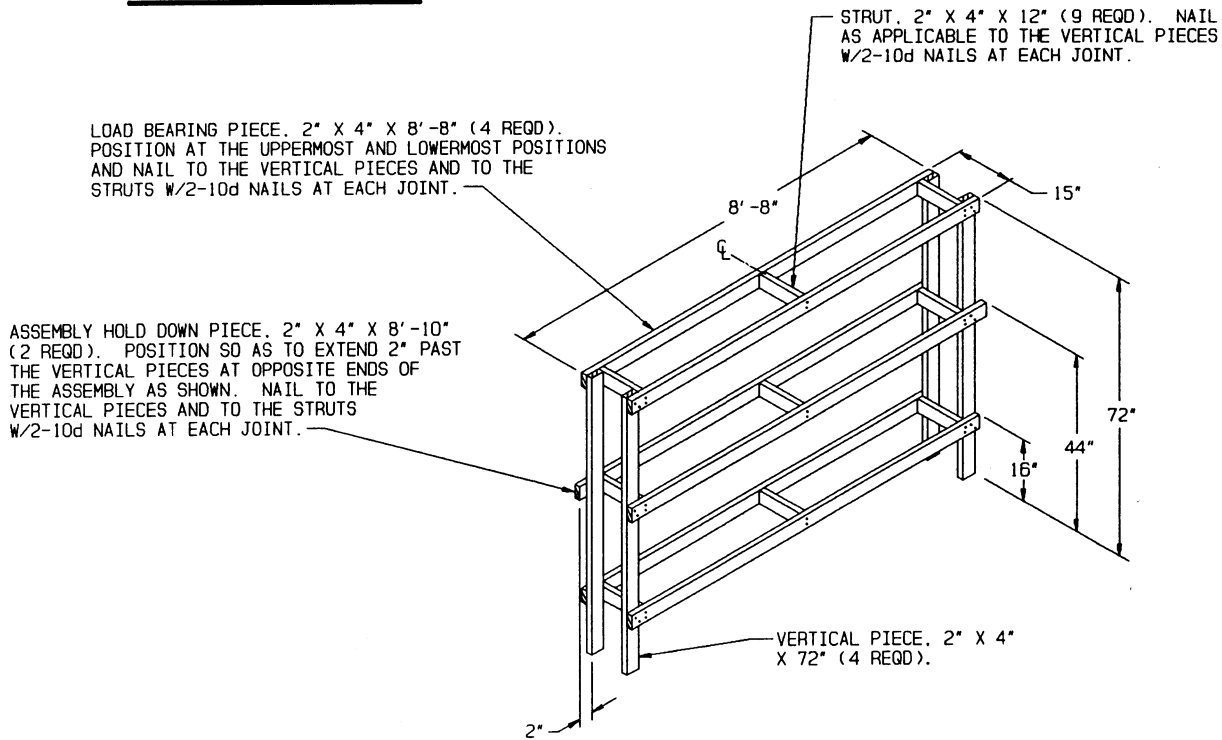
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	276	184
2" X 6"	370	370
NAILS	NO. REQD	POUNDS
10d (3")	606	9-1/4
WIRE, NO. 14 GAGE	72' REQD	1-1/2 LBS
HARDBOARD, 1/8"	224 SQ FT REQD	98 LBS
CROSS MEMBER		18 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-238/E CONTAINER	12	20,332 LBS
DUNNAGE		1,221 LBS
CONTAINER		5,700 LBS
TOTAL WEIGHT		27,253 LBS (APPROX)

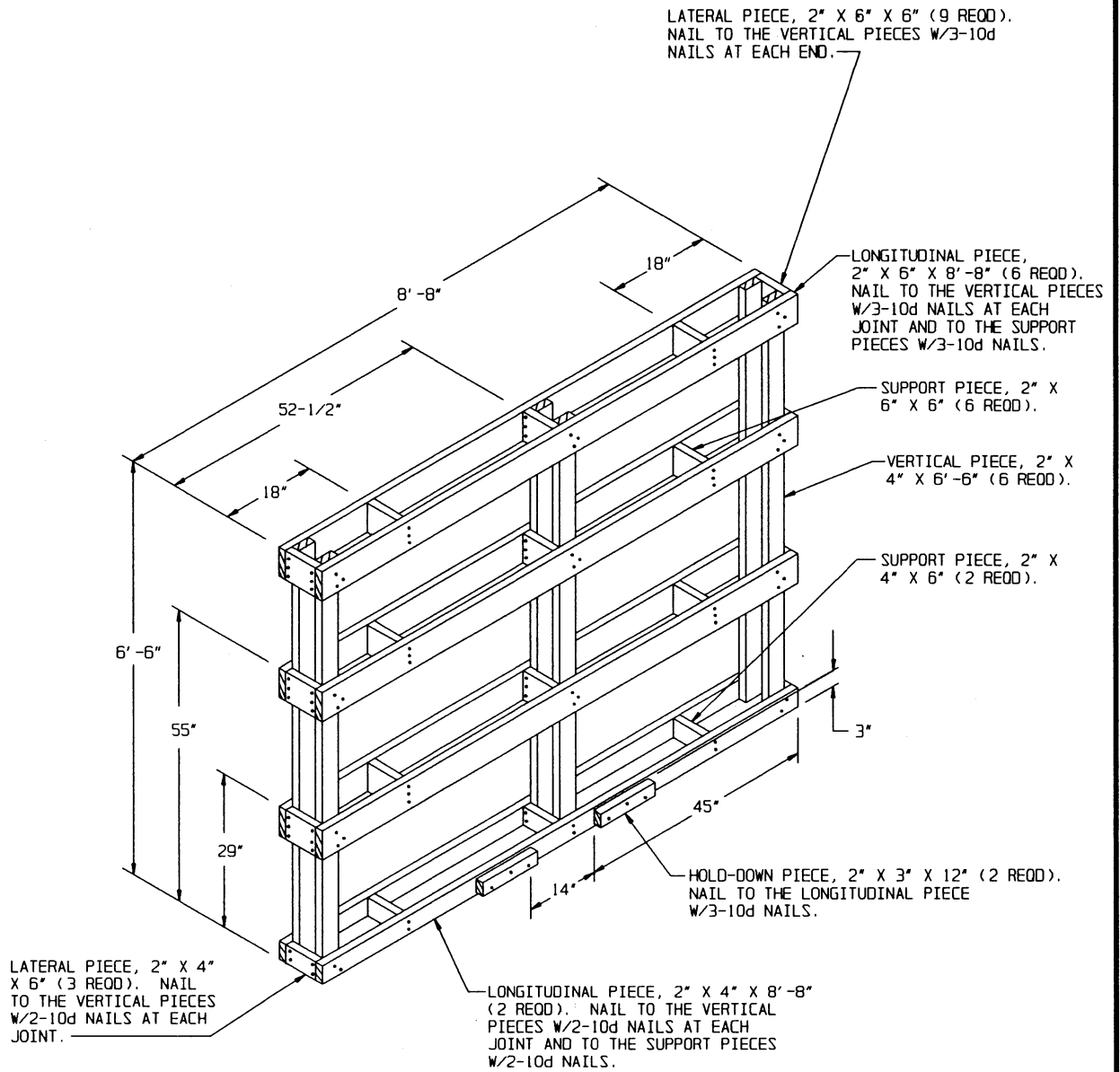


END BLOCKING ASSEMBLY

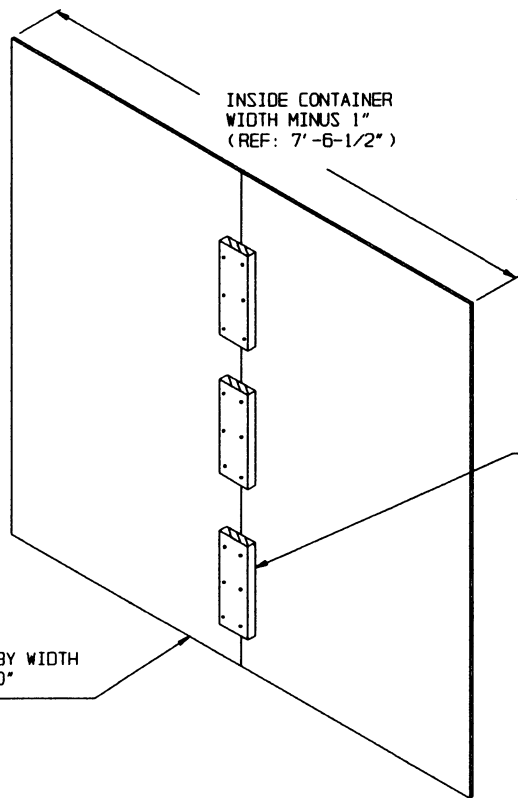


CENTER FILL ASSEMBLY

GENERAL DETAILS



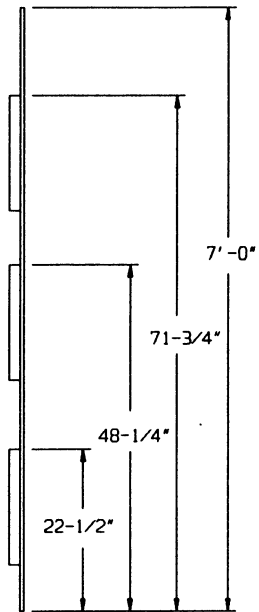
CENTER FILL ASSEMBLY



INSIDE CONTAINER
WIDTH MINUS 1"
(REF: 7'-6-1/2")

TIE PIECE, 2" X
6" X 16" (3 REOD).
NAIL TO THE PLYWOOD
W/3-10d NAILS AT
EACH JOINT AND
CLINCH.

PLYWOOD, 1/2" BY WIDTH
TO SUIT BY 7'-0"
(2 REOD).



7'-0"

71-3/4"

48-1/4"

22-1/2"

END VIEW

SEPARATOR GATE

GENERAL DETAILS