


LOADING AND BRACING* IN SIDE OPENING ISO CONTAINERS OF BSU-84, BSU-88 OR BSG-92 AIRFOIL GROUP, PACKED IN CNU-373/E SHIPPING AND STORAGE CONTAINER

INDEX

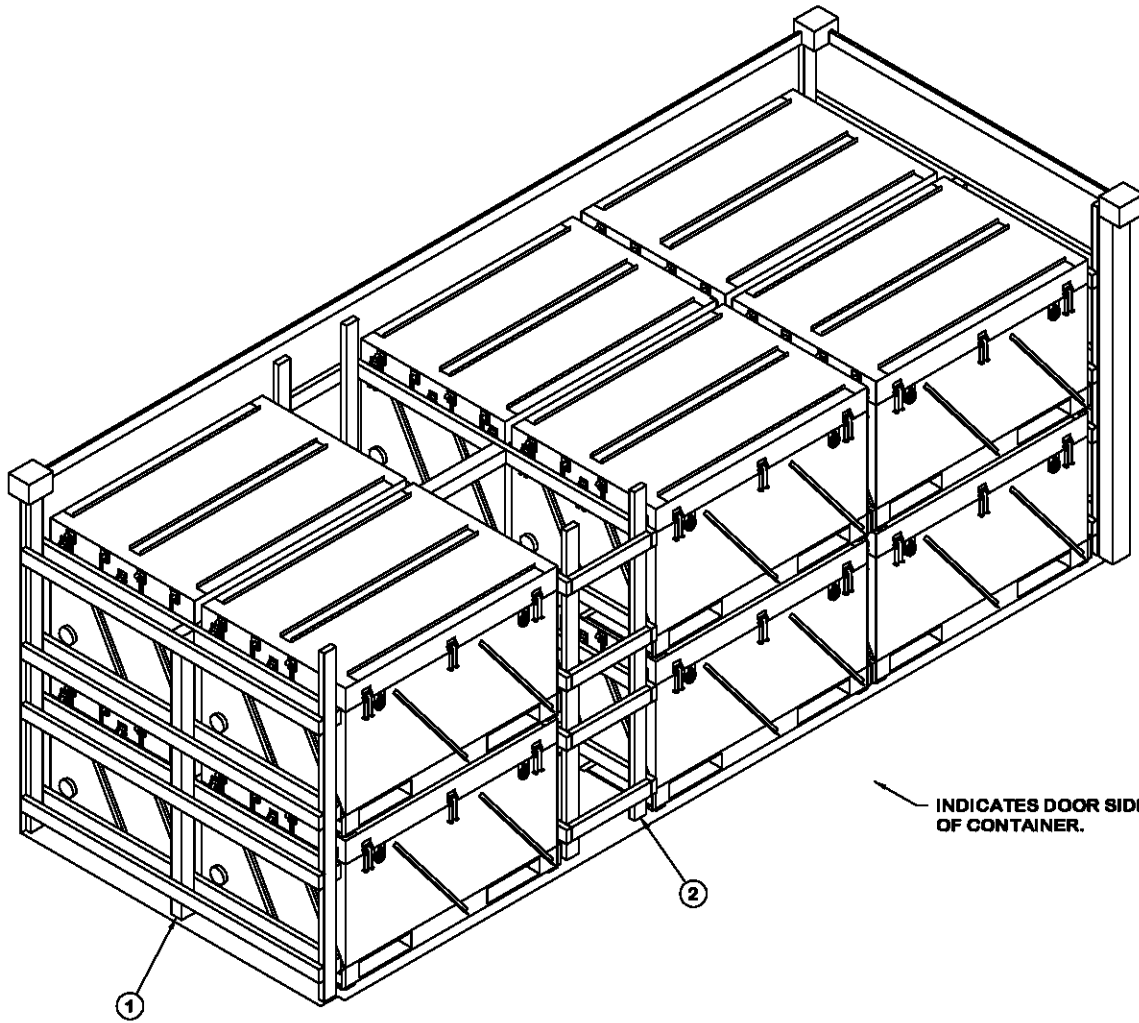
ITEM	PAGE(S)
12-UNIT LOAD - - - - -	2
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	3
CONTAINER DETAILS - - - - -	4
DETAILS - - - - -	4-5
LESS-THAN-FULL-LOAD DETAILS - - - - -	6

- 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 JOINT MUNITIONS COMMAND		CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.			
		DO NOT SCALE		DECEMBER 2003	
		ENGINEER OR TECHNICIAN	BASIC REV.	MELVIN SIX	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND		TRANSPORTATION ENGINEERING DIVISION		REVISION NO. 1	
		VALIDATION ENGINEERING DIVISION		NOVEMBER 2006	
		ENGINEERING DIRECTORATE		SEE THE REVISION LISTING ON PAGE 3	
U.S. ARMY DEFENSE AMMUNITION CENTER		CLASS	DIVISION	DRAWING	FILE
		19	48	8688	SP15J108

PROJECT SP 387-00



ISOMETRIC VIEW

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.
- ② CENTER SPACER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 5.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	247	165
4" X 4"	20	27
NAILS	NO. REQD	POUNDS
10d (3")	192	3

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
CNU-373/E CONTAINER	12	14,304 LBS
DUNNAGE		385 LBS
ISO CONTAINER		6,050 LBS
TOTAL WEIGHT		20,739 LBS (APPROX)

J. 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.

K. 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:

A. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.

B. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED ST THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

L. 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.

M. 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.

N. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN-FULL-LOAD" DETAIL ON PAGE 6.

O. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN THE CNU-373/E CONTAINERS AND BETWEEN THE CNU-373/E CONTAINERS AND THE SIDE OPENING CONTAINER, IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER MARKINGS.

P. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE TWO END BLOCKING ASSEMBLIES.
2. INSTALL THE END BLOCKING ASSEMBLIES.
3. LOAD FOUR CONTAINERS AGAINST EACH END BLOCKING ASSEMBLY.
4. INSTALL FOUR CONTAINERS AGAINST ONE ROW OF CONTAINERS.
5. FABRICATE AND INSTALL CENTER SPACER ASSEMBLY TO FIT TIGHT BETWEEN THE SPACE BETWEEN THE ROWS OF CONTAINERS.

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 PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF BSU-84, BSU-88 OR BSG-92 AIRFOIL GROUP PACKED IN CNU-373/E CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH AIRFOIL GROUP. SEE AIR FORCE DRAWING 817218-30 AND PAGE 4 FOR DETAILS OF THE CONTAINER. 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 A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 88" 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 CONTAINERS, 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 ASSEMBLY. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECES WITH APPROPRIATELY SIZED NAIL EVERY 12".

E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" 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. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.

H. 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. (CONTINUED AT LEFT)

REVISION

REVISION NO. 1, DATED NOVEMBER 2006, CONSISTS OF:

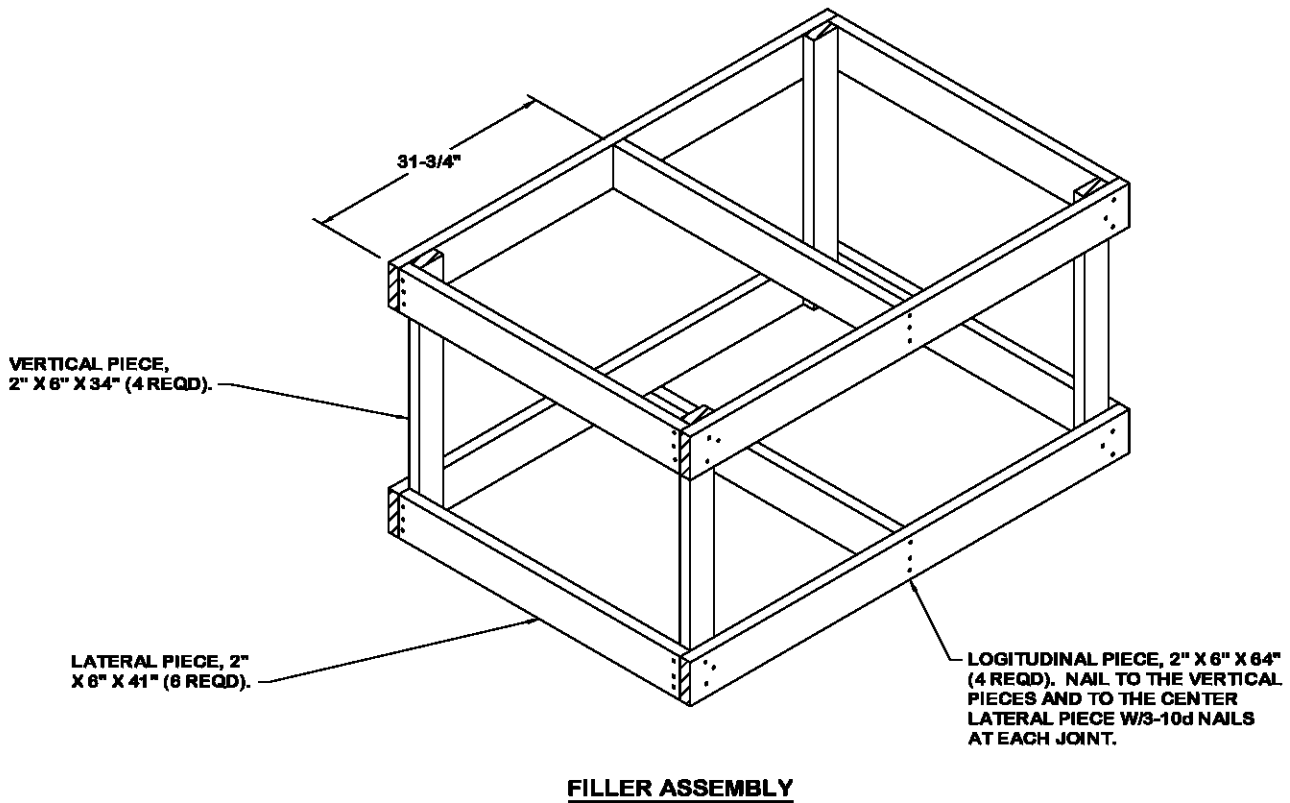
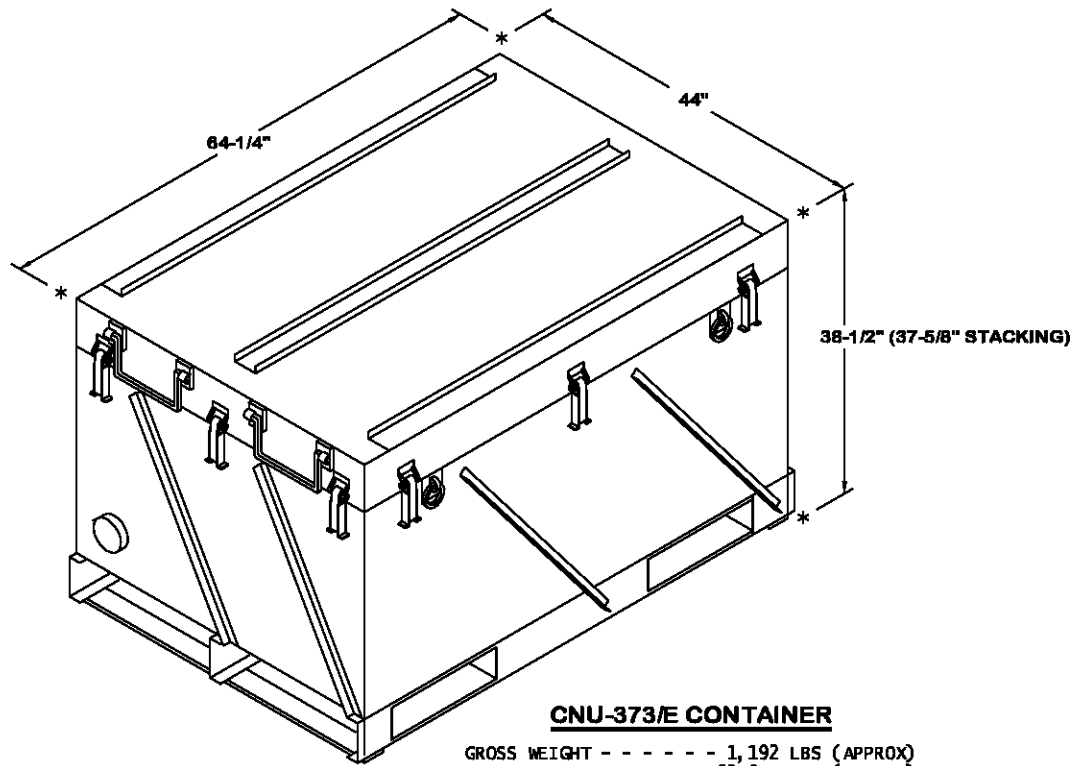
ADDING REFERENCE TO BSU-88 AND BSG-92 TO THE DRAWING.

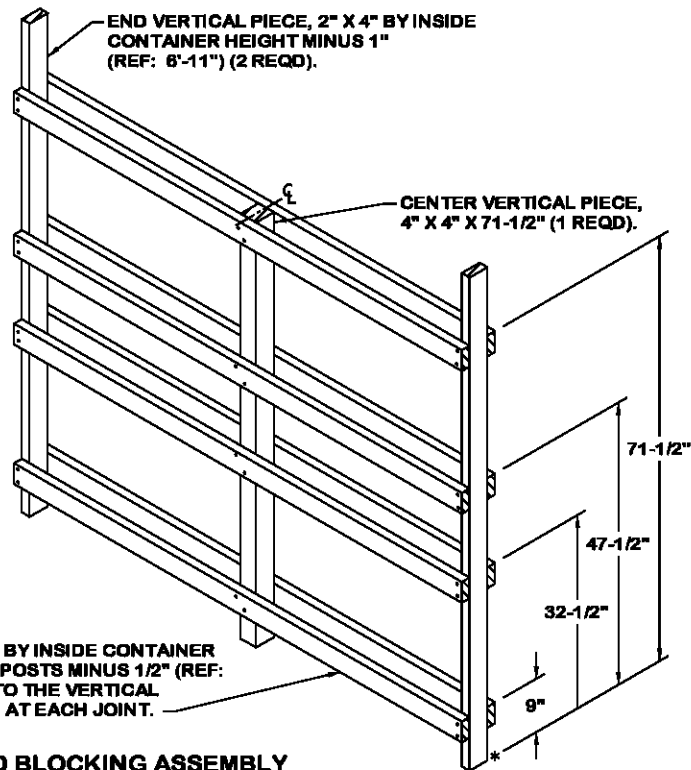
MATERIAL SPECIFICATIONS

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

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

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

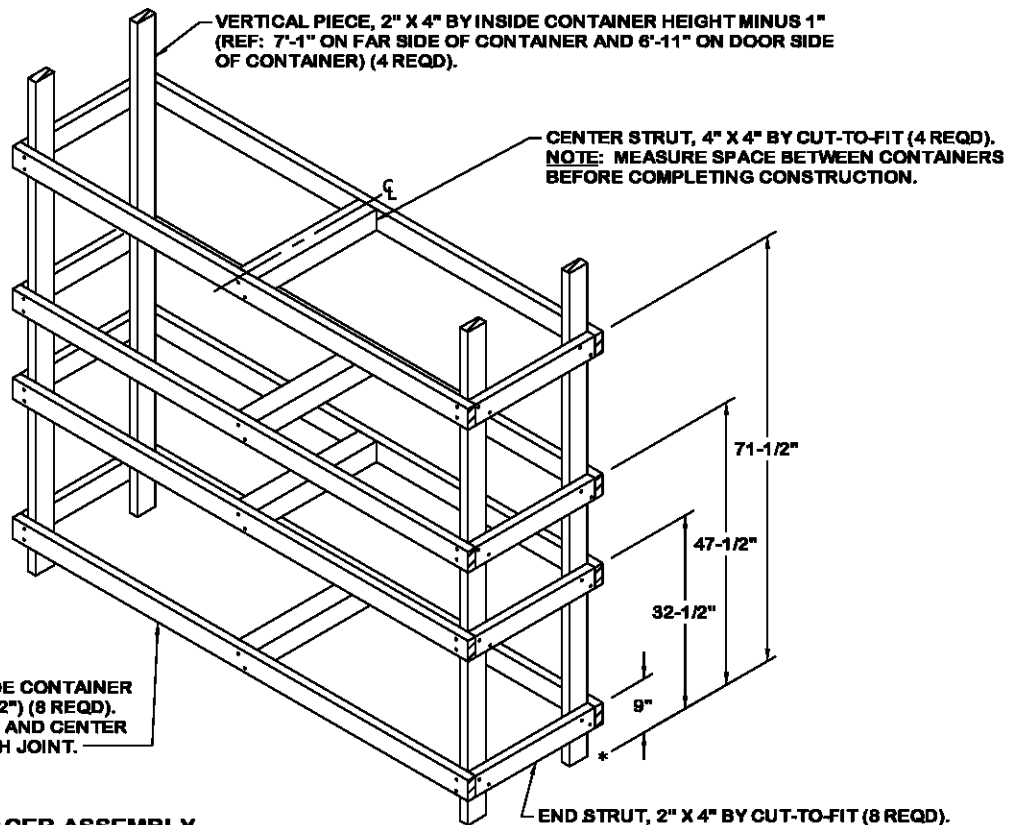




BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH BETWEEN THE POSTS MINUS 1/2" (REF: 7'-2") (8 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

END BLOCKING ASSEMBLY

NOTE: FOR A ONE-HIGH LOAD, ELIMINATE THE TOP FOUR BUFFER PIECES AND SHORTEN THE CENTER VERTICAL PIECE TO 44".



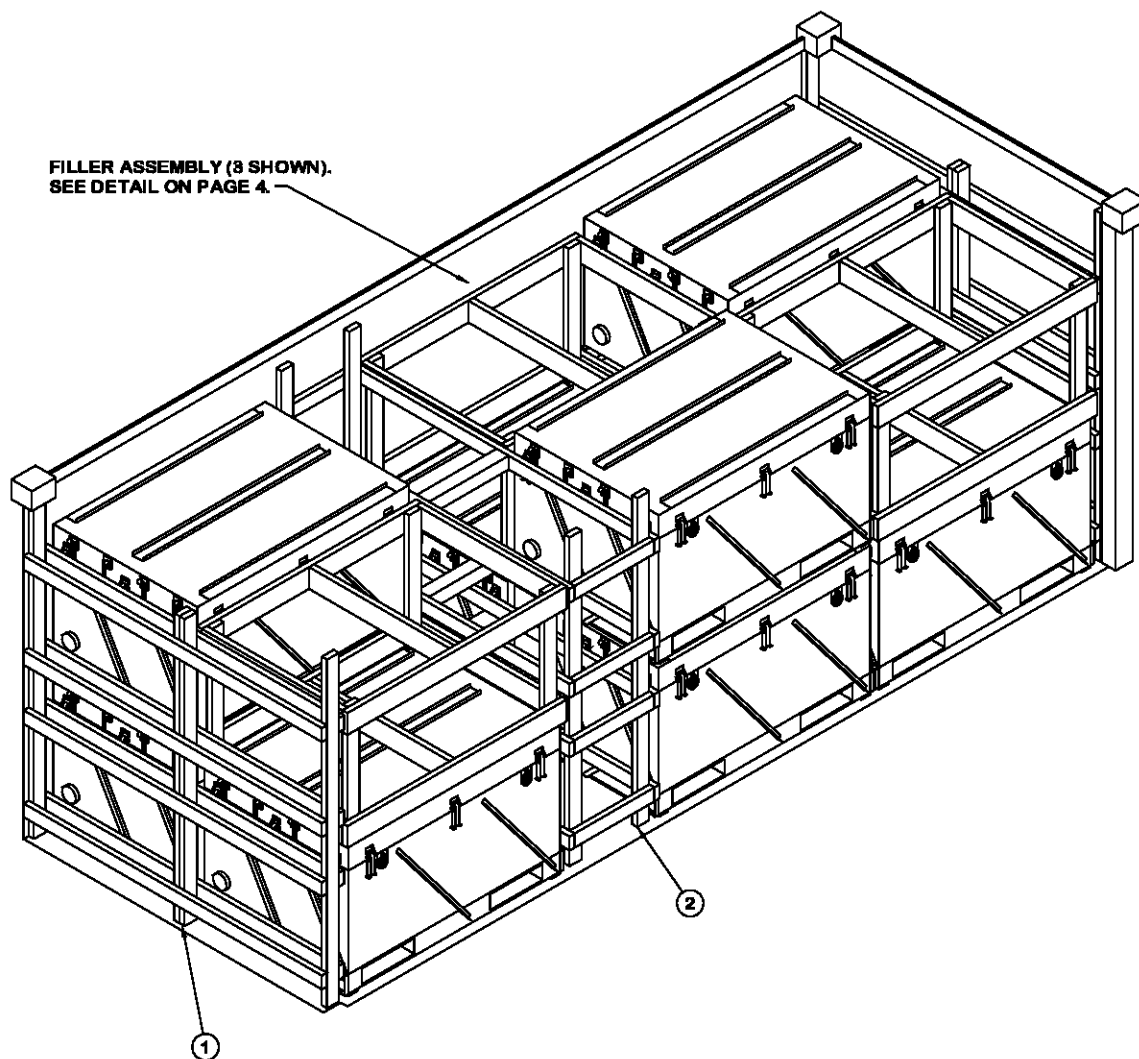
BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1/2" (REF: 7'-4-1/2") (8 REQD). NAIL TO THE VERTICAL PIECES AND CENTER STRUTS W/2-10d NAILS AT EACH JOINT.

CENTER SPACER ASSEMBLY

NOTE: FOR A ONE-HIGH LOAD, ELIMINATE THE TOP FOUR BUFFER PIECES AND TOP SIX STRUTS AND SHORTEN VERTICAL PIECES TO 44".

END STRUT, 2" X 4" BY CUT-TO-FIT (8 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END. **NOTE:** MEASURE SPACE BETWEEN CONTAINERS BEFORE COMPLETING CONSTRUCTION.

FILLER ASSEMBLY (3 SHOWN).
SEE DETAIL ON PAGE 4.



LESS-THAN-FULL-LOAD PROCEDURE

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2.
SEE GENERAL NOTE "M" ON PAGE 3.