

APPROVED BY U.S. COAST GUARD <i>C. C. C. C. C.</i>	APPROVED BY BUREAU OF EXPLOSIVES <i>M. R. Miller</i>
DATE <i>9/17/79</i>	DATE <i>10/3/79</i>

LOADING AND BRACING WITH WOODEN DUNNAGE IN COMMERCIAL CONTAINERS OF SKIDDED UNITS OF 4.2" MORTAR AMMUNITION (MIXED LOAD OF 18-BOX AND 9-BOX SKIDDED UNITS)

THE DEPICTED WOODEN DUNNAGE METHOD CAN BE APPLIED TO ANY COMMERCIAL INTERMODAL 20-FOOT CONTAINER, ALTHOUGH THE DUNNAGE DIMENSIONS HAVE BEEN GIVEN FOR A 92" WIDE BY 95" HIGH (INSIDE DIMENSIONS) CONTAINER. ALTHOUGH THE LOAD AS SHOWN IS BASED ON AN 8'-6" HIGH CONTAINER, AN 8'-0" HIGH CONTAINER IS PREFERRED FOR SHIPPING THE DEPICTED LOAD. WHEN AN 8'-0" HIGH CONTAINER IS USED, THE HEIGHT OF SOME DUNNAGE ASSEMBLIES WILL HAVE TO BE LOWERED BY REMOVING SOME MATERIAL FROM THE TOP OR BOTTOM OF SOME OF THE VERTICAL PIECES.

LOADING AND BRACING SPECIFICATIONS AS DELINEATED HEREIN ARE ADEQUATE FOR SHIPMENTS TO BE MOVED BY ANY SURFACE MODE OF TRANSPORT (MOTOR, RAIL, AND WATER).

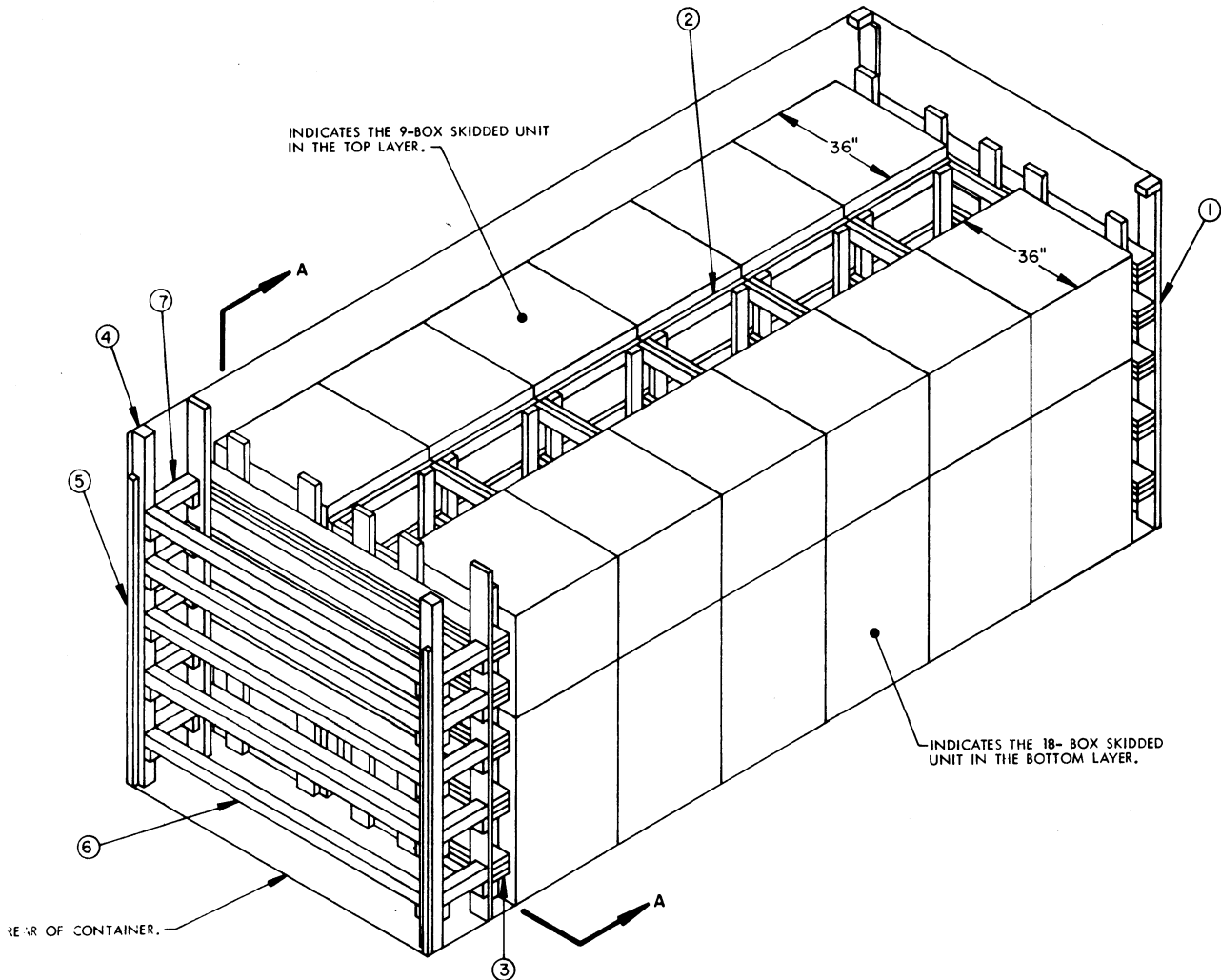
REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW.

- 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 RAIL CAR 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.

DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS/MODIFIED FLAT BED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.

REVISIONS				<small>DRAWN BY</small> <small>CHECKER</small> <small>APPROVED</small>	<small>PROJ. ENG.</small> <small>LOG ENGRS. OFFICE</small> <small>APPROVED, U.S. ARMY ARMAMENT MATERIEL READINESS COMMAND</small>
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				U.S. ARMY DARCOM DRAWING	
				OCTOBER 1979	
				DEF AMMO CEN & SCH DWG NO.	
				D-SARAC-4408	

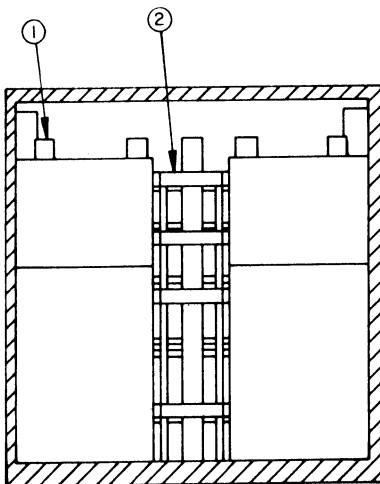
DO NOT SCALE



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 4 AND GENERAL NOTE "F" ON PAGE 3.
- ② CENTER FILL ASSEMBLY (6 REQD). SEE THE "CENTER FILL ASSEMBLY" DETAIL ON PAGE 4.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 5 AND GENERAL NOTE "F" ON PAGE 3.
- ④ DOOR POST VERTICAL (2 REQD). SEE THE "DOOR POST VERTICAL" DETAIL AND "DETAIL A" ON PAGE 7.
- ⑤ DOOR POST VERTICAL RETAINER (2 REQD). SEE THE "DOOR POST VERTICAL RETAINER" DETAILS ON PAGE 6 AND DETAIL "A" ON PAGE 7. NAIL TO THE DOOR POST VERTICAL W/4-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT. (REF: 7'-1-3/8") (5 REQD). TOENAIL TO THE 4" X 4" DOOR POST VERTICALS W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 7. AFTER INSTALLING THE BOTTOM AND TOP DOOR SPANNERS, THE STRUTS, PIECES MARKED ⑦ ARE TO BE INSTALLED.
- ⑦ STRUT, 4" X 4" X CUT TO FIT (10 REQD). TOENAIL TO THE BUFFER PIECES OF THE "REAR BLOCKING ASSEMBLY" AND THE "DOOR POST VERTICAL" W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 7.



SECTION A-A

(GENERAL NOTES CONTINUED)

K. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE ONE FORWARD BLOCKING ASSEMBLY, SIX CENTER FILL ASSEMBLIES, ONE REAR BLOCKING ASSEMBLY, AND NAIL A DOOR POST VERTICAL RETAINER TO EACH DOOR POST VERTICAL, ONE RIGHT HAND AND ONE LEFT HAND.
2. INSTALL FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR SKIDDED UNITS (TWO 18-BOX UNITS AND TWO 9-BOX UNITS) AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. REPEAT STEP 3.
6. REPEAT STEP 3.
7. REPEAT STEP 3.
8. REPEAT STEP 3.
9. INSTALL REAR BLOCKING ASSEMBLY.
10. INSTALL THE TWO DOOR POST VERTICAL ASSEMBLIES (ONE RIGHT HAND AND ONE LEFT HAND).
11. INSTALL TWO DOOR SPANNER PIECES (ONE AT THE LOWEST POSITION AND ONE AT THE UPPERMOST POSITION).
12. INSTALL THE STRUTS BETWEEN REAR BLOCKING ASSEMBLY AND THE DOOR POST VERTICALS.
13. INSTALL THE REMAINING THREE DOOR SPANNER PIECES STARTING WITH THE LOWEST AND WORKING UPWARD.

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 A MIXED LOAD OF 18-BOX AND 9-BOX SKIDDED UNITS OF 4.2" MORTAR AMMUNITION PACKED IN WOODEN BOXES. SUBSEQUENT REFERENCE TO SKIDDED UNIT MEANS THE SKIDDED UNIT WITH AMMUNITION ITEMS. SEE PAGE 8 FOR THE DETAILS OF THE SKIDDED UNITS. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF 44,800 POUNDS MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 95" HIGH. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR (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 SKIDDED UNITS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE FORWARD ASSEMBLY AND SIDE WALL OF THE CONTAINER). ALTHOUGH A TOTAL OF ONE AND ONE-HALF INCHES (1-1/2") OF UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS PERMITTED, LATERAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM. EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY ADJUSTING THE LENGTH OF THE LATERAL PIECES OF THE CENTER FILL ASSEMBLY AS REQUIRED.
- 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" 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. IN SOME CONTAINERS, SUCH AS SOME ALL STEEL CONTAINERS, THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. A PIECE OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE 2" X 6" 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". THIS PIECE IS NOT REQUIRED WHEN THE FRONT WALL OF THE CONTAINER IS SMOOTH AND FLAT.
- H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. PORTIONS OF THE CONTAINERS DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.

(CONTINUED AT LEFT)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	363	242
2" X 6"	329	329
4" X 4"	64	85
NAILS	NO. REQD	POUNDS
10d (3")	908	14
12d (3-1/4")	60	1
DOOR POST VERTICAL RETAINER ----- 2 REQD ----- 64 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SKIDDED UNIT (18-BOX) -----	12 -----	18,360 LBS
SKIDDED UNIT (9-BOX) -----	12 -----	9,516 LBS
DUNNAGE -----		1,391 LBS
CONTAINER -----		4,700 LBS
TOTAL WEIGHT -----		33,967 LBS

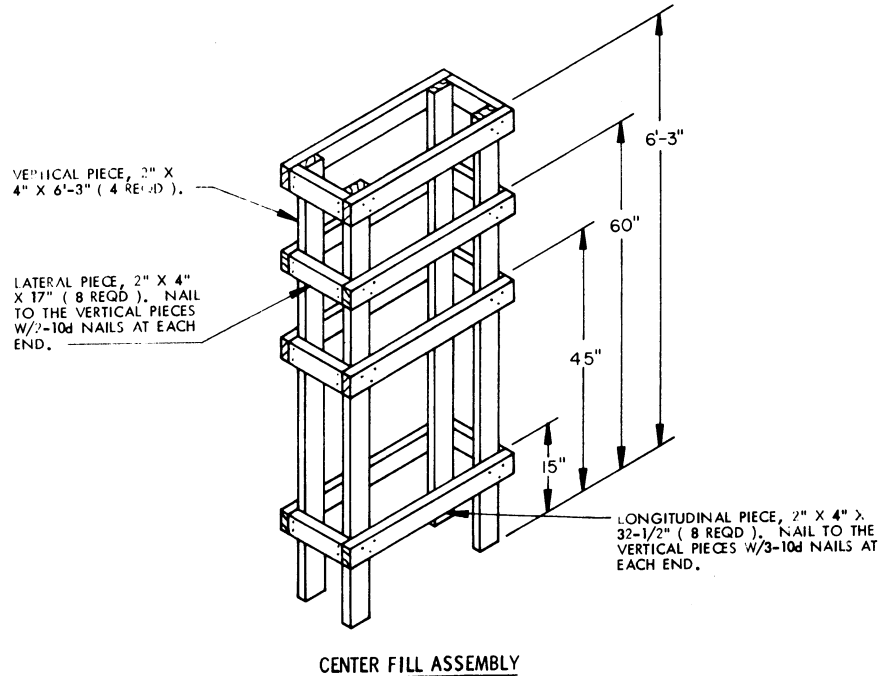
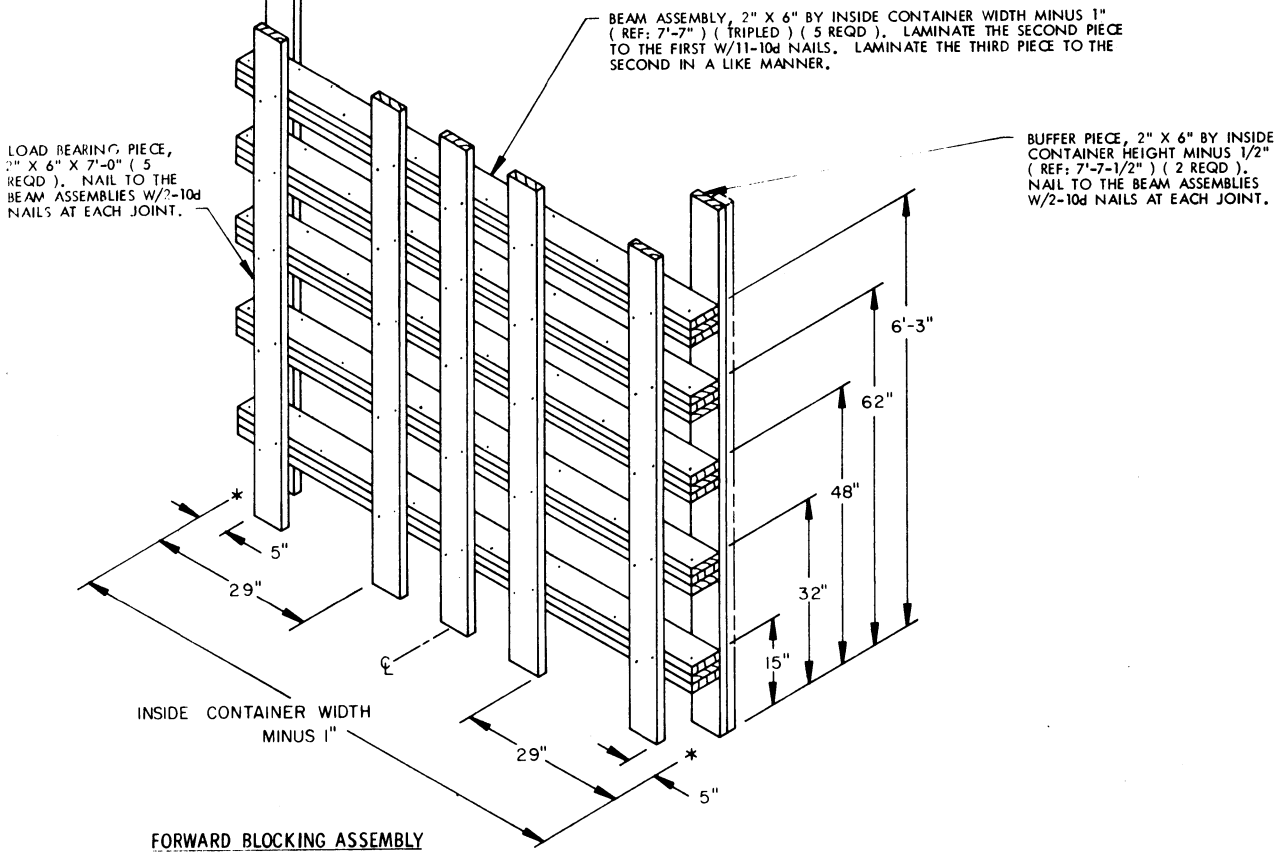
MATERIAL SPECIFICATIONS

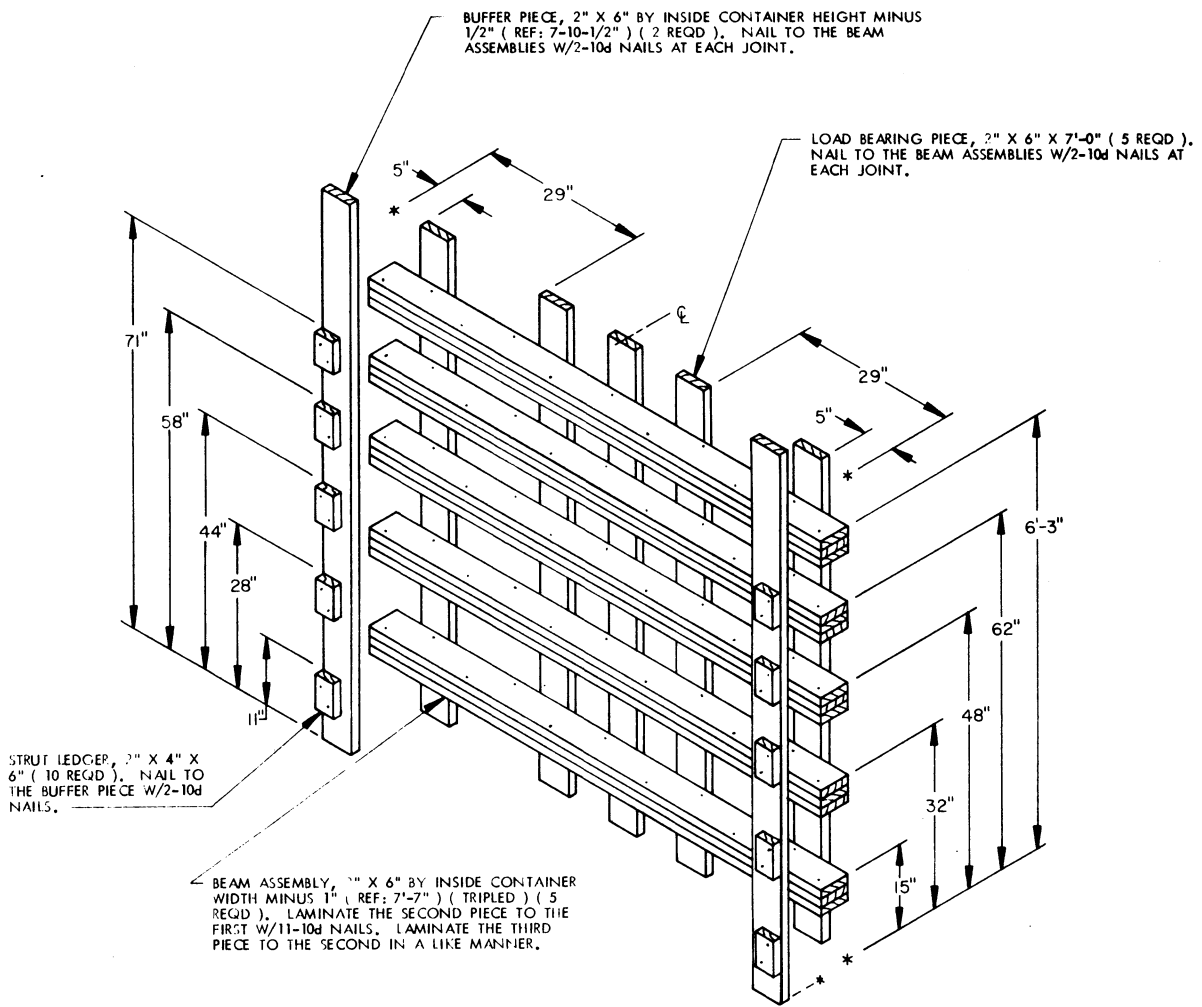
LUMBER ----- : TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

NAILS ----- : FED SPEC FF-N-105; COMMON.

STEEL, STRUCTURAL --- : FED SPEC QQ-5-741; SQUARE STRUCTURAL TUBING AND ROLLED PLATE.

SEE GENERAL NOTE "G" ON PAGE 3.

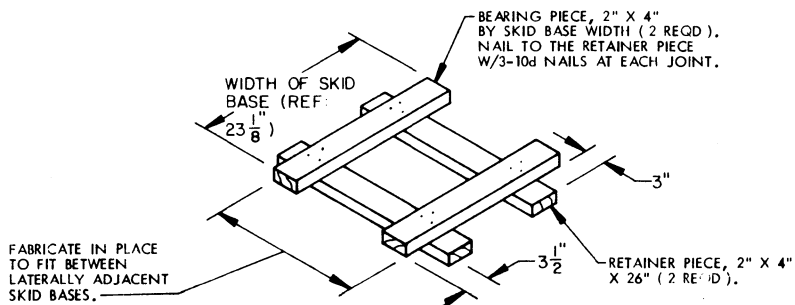




REAR BLOCKING ASSEMBLY

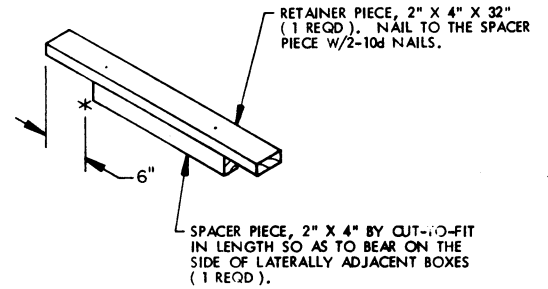
SPECIAL NOTE

IF DEEMED MORE ECONOMICAL, EACH "CENTER FILL ASSEMBLY" AS DEPICTED ON PAGE 4 MAY BE REPLACED BY ONE "TOP-OF-LOAD ANTI-SWAY BRACE" AND TWO "LOWER ANTI-SWAY BRACES" AS DEPICTED BELOW. WIRE TIE EACH "TOP-OF-LOAD ANTI-SWAY BRACE" TO THE INNER UNITIZING STRAPS WITH NO. 14 GAGE WIRE.

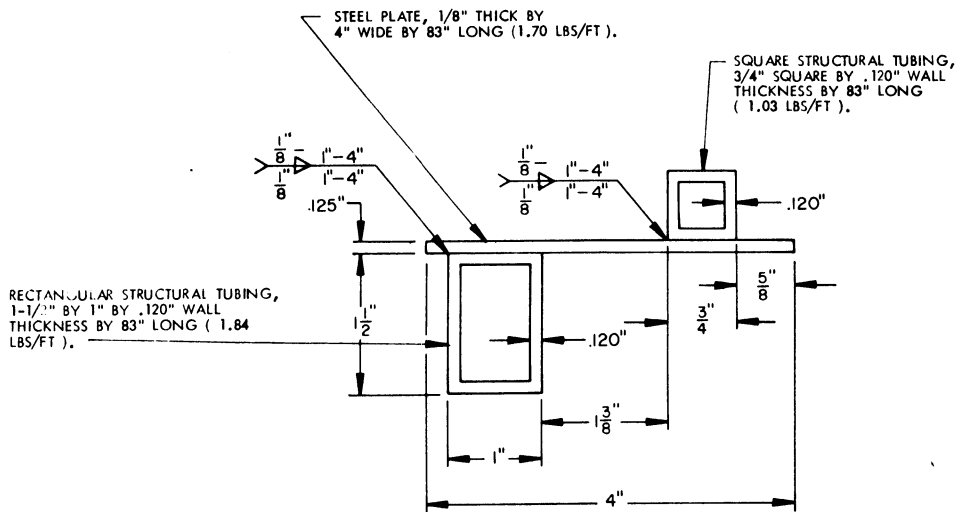


LOWER ANTI-SWAY BRACE

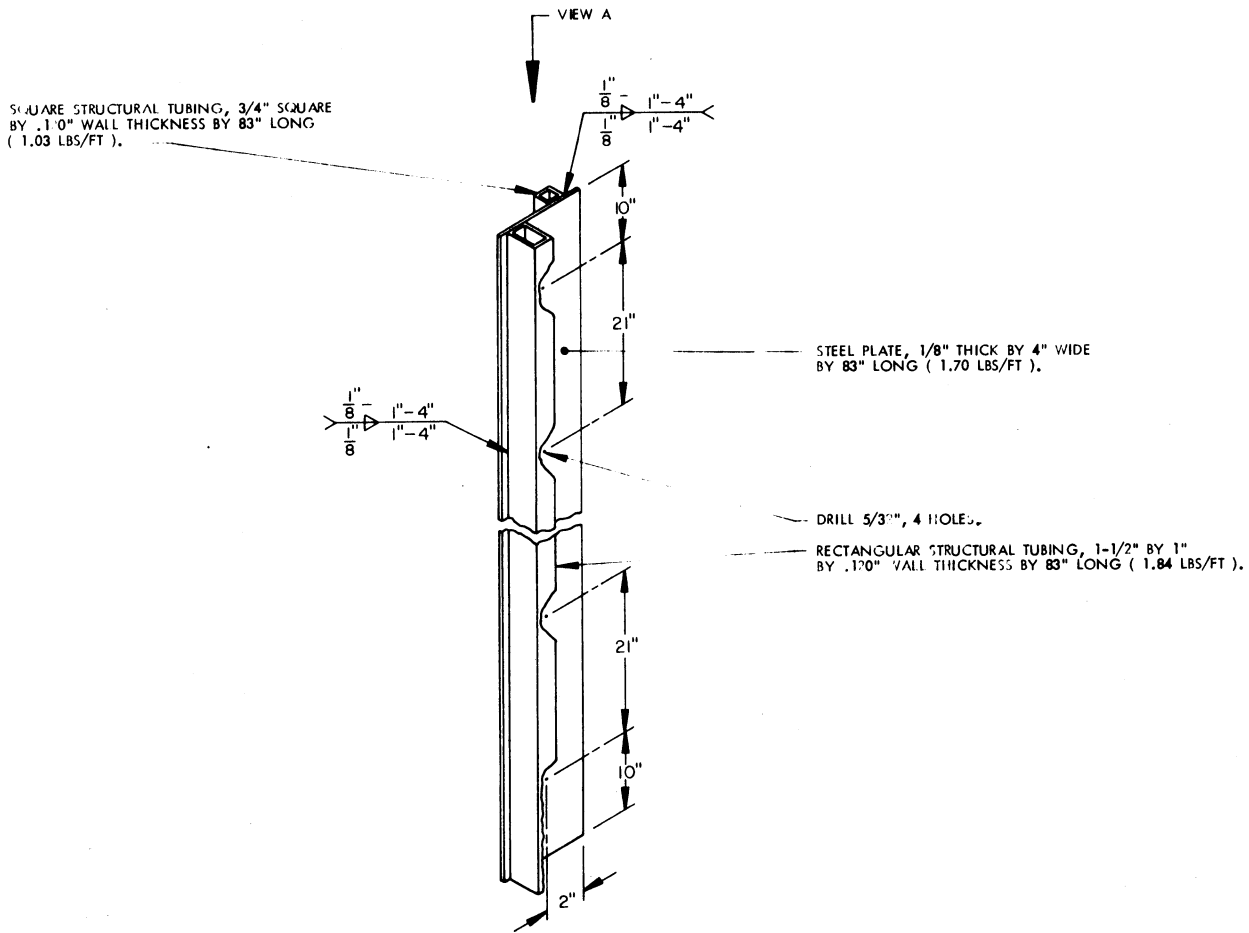
THIS ASSEMBLY MUST BE FABRICATED IN PLACE, BETWEEN LATERALLY ADJACENT SKIDDED UNITS.



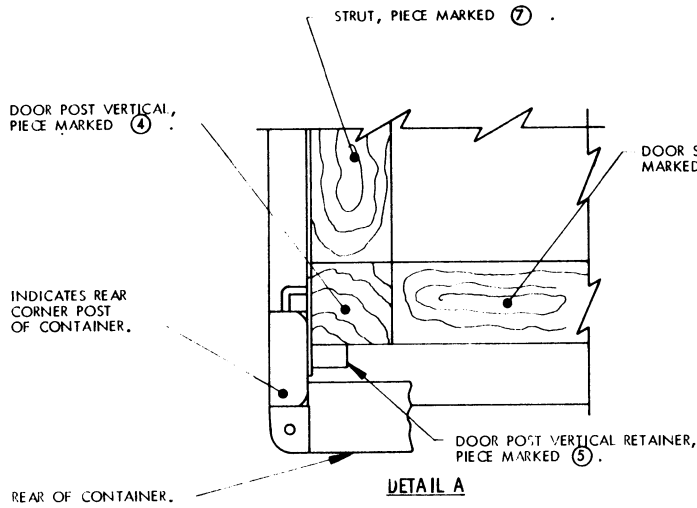
TOP-OF-LOAD ANTI-SWAY BRACE



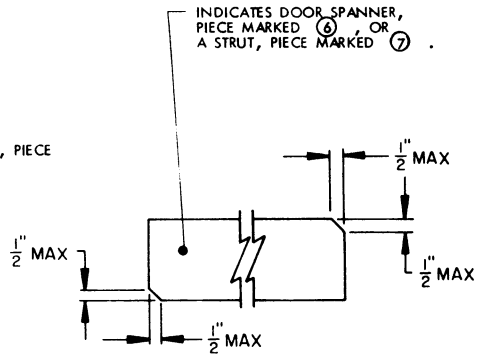
VIEW A



DOOR POST VERTICAL RETAINER



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

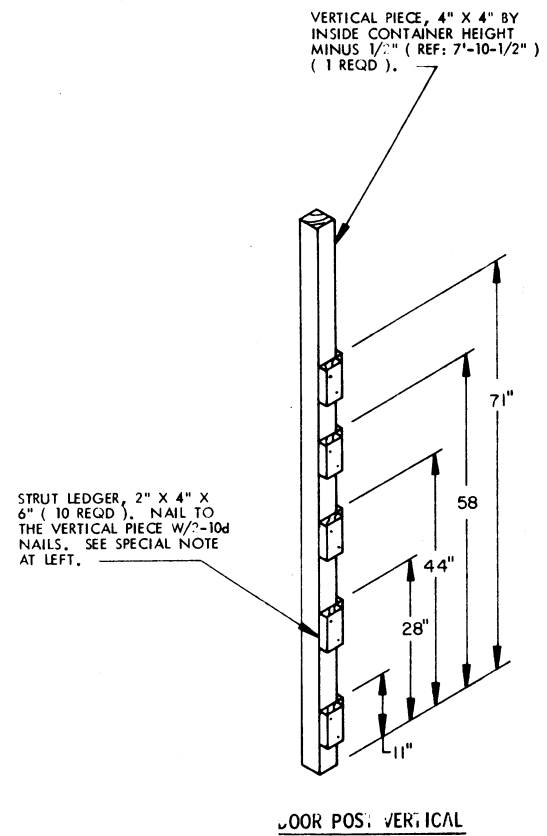


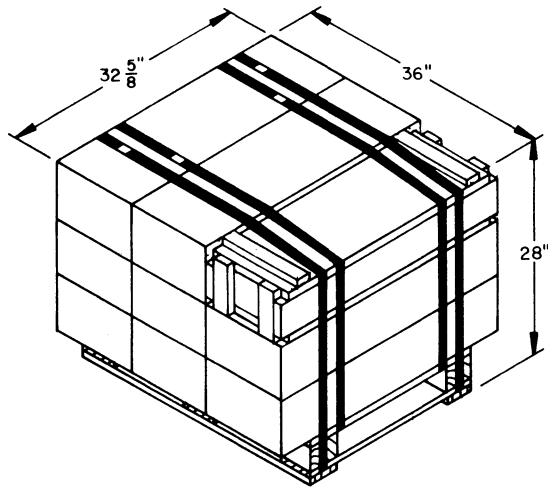
BEVEL-CUT

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

SPECIAL NOTE

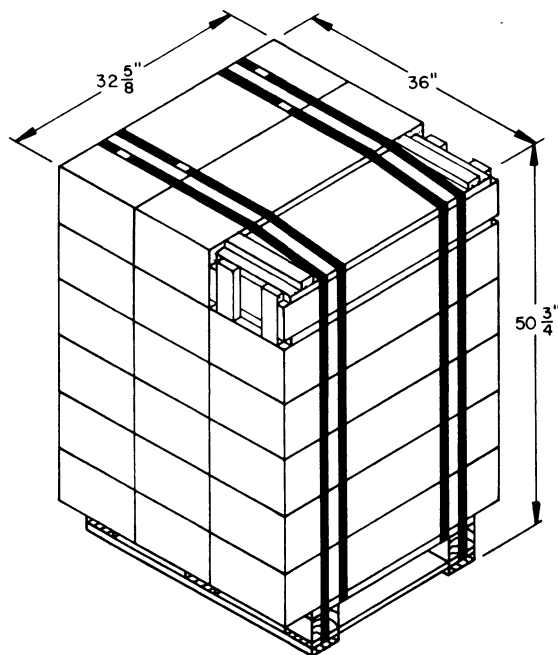
THE STRUT LEDGERS CAN ONLY BE PRE-NAILED TO THE DOOR POST VERTICAL ON ONE SIDE OF THE CONTAINER FOR THE DOOR SPANNER PIECES. ALSO, THE STRUT LEDGERS FOR THE STRUTS CAN ONLY BE PRE-NAILED TO THE REAR BLOCKING ASSEMBLY OR THE DOOR POST VERTICAL AT THE LOWEST DIMENSION.





SKIDDED UNIT (MODIFIED)

UNIT WEIGHT ----- 793 POUNDS (APPROX)
 CUBE ----- 19.0 CUBIC FEET



SKIDDED UNIT (STANDARD)

UNIT WEIGHT ----- 1,100 POUNDS (APPROX)
 CUBE ----- 34.1 CUBIC FEET