

APPROVED BY  
BUREAU OF EXPLOSIVES

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# CHAPARRAL

## LOADING AND BRACING • WITH WOODEN DUNNAGE IN SIDE OPENING ISO CONTAINERS OF THE COMPLETE ROUND, PACKED IN THE M570 SHIPPING AND STORAGE CONTAINER, PALLETIZED AND UNPALLETIZED

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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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DRAWING

FILE

19

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GM15CH3

DO NOT SCALE

## GENERAL NOTES

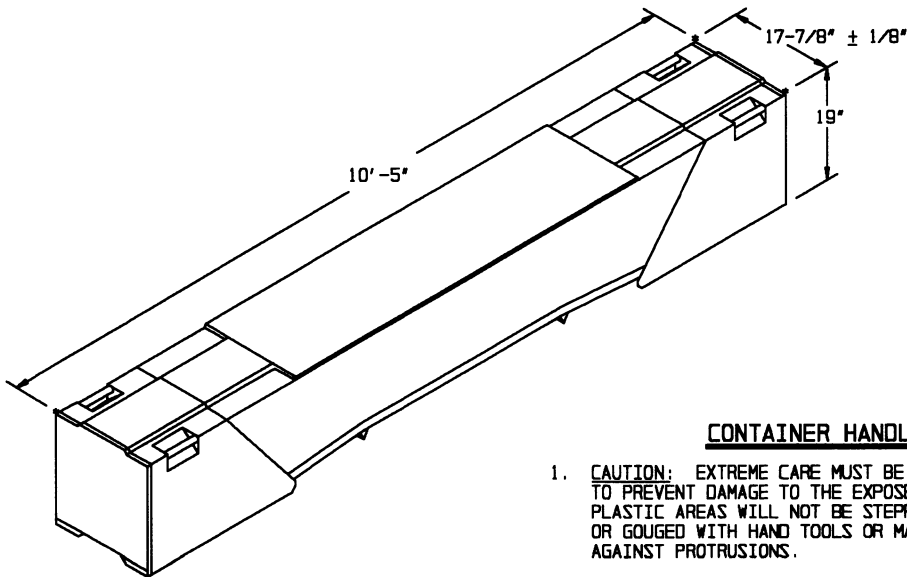
(GENERAL NOTES CONTINUED)

- 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 CHAPARRAL COMPLETE ROUND PACKED IN THE M570 SHIPPING AND STORAGE CONTAINER, UNPALLETIZED AND PALLETIZED FOUR (4) M570 CONTAINERS PER PALLET UNIT. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE SHIPPING AND STORAGE CONTAINER; SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS THE PALLET UNIT WITH FOUR (4) M570 CONTAINERS. SEE PAGE 3 AND AMC DRAWING 19-48-5235-GM20CH1 FOR DETAILS OF THE PALLET UNIT. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE 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 89" 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 OR 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 FILLER ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECES W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND QUANTITY OF THE DUNNAGE LUMBER USED MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE LADING UNIT.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 4" X 4" MATERIAL IS ACTUALLY 3-1/2" THICK BY 3-1/2" 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 THERE IS A SLOT AT THE CORNERS OF THE ENDWALLS. A PIECE OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES OF THE STRUT ASSEMBLIES TO PROVIDE A FLAT SURFACE FOR THE 2" X 4" 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 ENDWALL 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 CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.
- K. 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.
- L. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C 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.

(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.
- PLYWOOD - - - - - : COMMERCIAL ITEM DESCRIPTION  
A-A-55057, TYPE A, CONSTRUCTION AND 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.

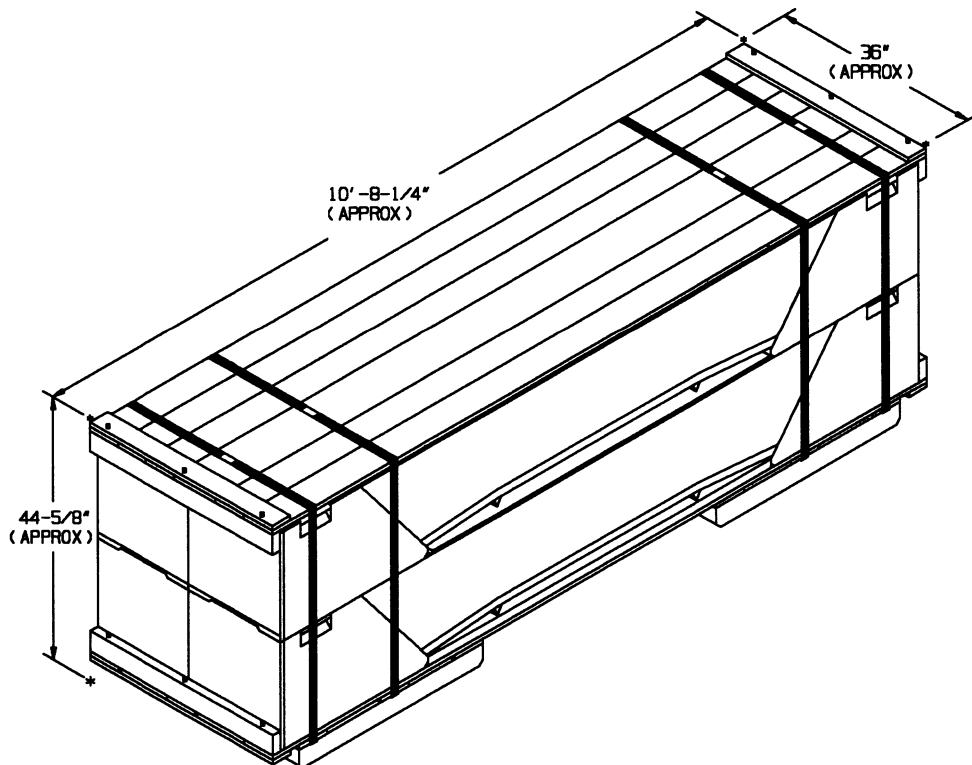


**CONTAINER DETAIL**

GROSS WEIGHT - - - - 280 POUNDS (APPROX)  
 TARE WEIGHT - - - - 95 POUNDS (APPROX)  
 CUBE - - - - - - - - 24.7 CUBIC FEET

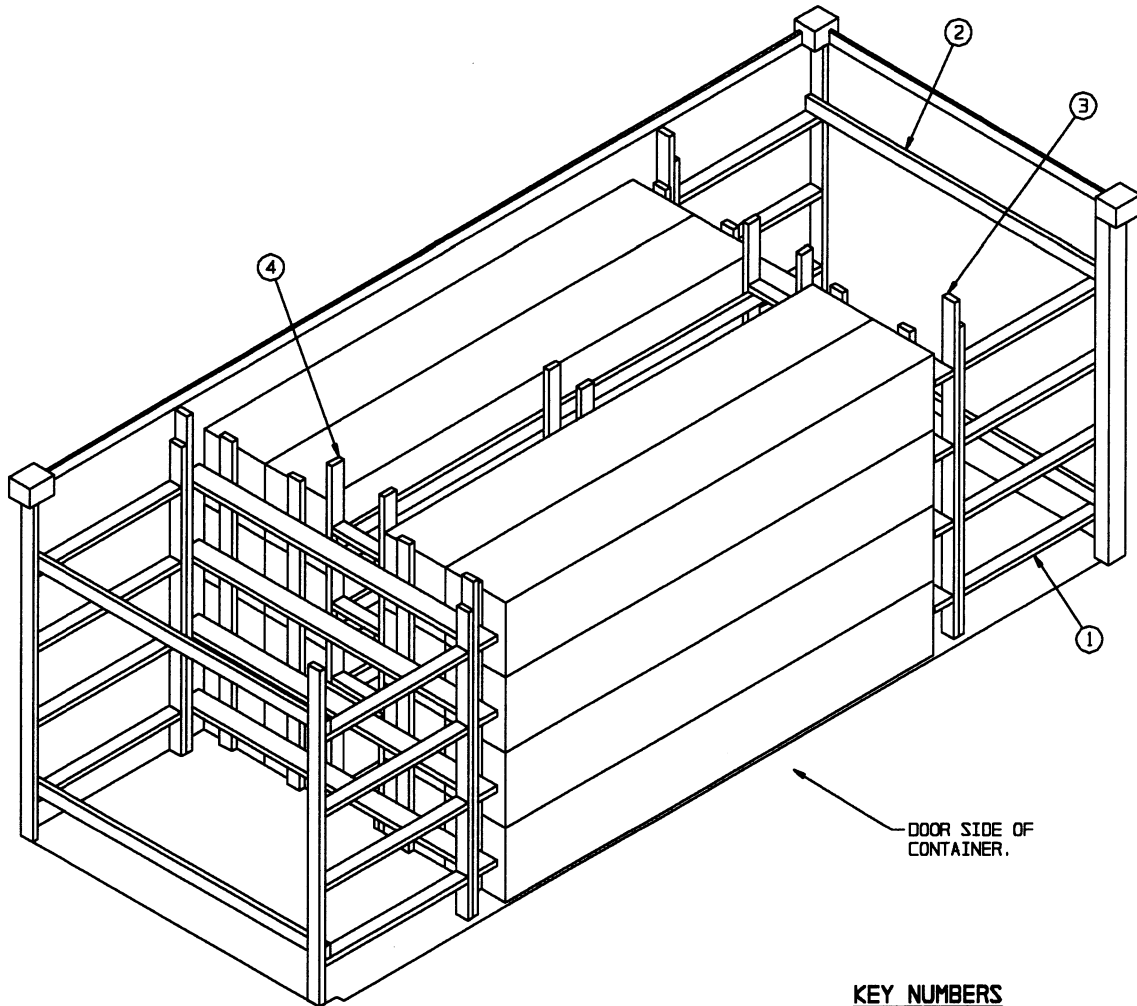
**CONTAINER HANDLING INSTRUCTIONS**

1. CAUTION: EXTREME CARE MUST BE EXERCISED DURING OUTLOADING OPERATIONS TO PREVENT DAMAGE TO THE EXPOSED PLASTIC AREAS OF THE CONTAINER. PLASTIC AREAS WILL NOT BE STEPPED ON, WALKED ON, PRIED AGAINST, STRUCK OR GOUGED WITH HAND TOOLS OR MATERIALS HANDLING EQUIPMENT, OR BUMPED AGAINST PROTRUSIONS.
2. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, CONTAINERS SHOULD BE HAULED FROM A SIDE POSITION. CAUTION: THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED. HOWEVER, FORK TINES MAY BE PLACED UNDER THE SKIDS FROM AN END DIRECTION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER OR WITHDRAWING FORKS FROM UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINERS BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.



**PALLET UNIT**

GROSS WEIGHT - - - - 1,402 POUNDS (APPROX)  
 CUBE - - - - - - - - 119.2 CUBIC FEET



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① STRUT ASSEMBLY (4 REQD). SEE THE "STRUT ASSEMBLY A" DETAIL ON PAGE 8.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (4 REQD). NAIL TO THE BUFFER PIECES OF PIECE MARKED ① W/2-10d NAILS AT EACH END.
- ③ END BLOCKING ASSEMBLY (2 REQD). SEE THE "END BLOCKING ASSEMBLY A" DETAIL ON PAGE 8. NAIL TO EACH STRUT ASSEMBLY, PIECE MARKED ①, W/5-10d NAILS.
- ④ FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY A" DETAIL ON PAGE 9.

**RECOMMENDED SEQUENTIAL LOADING PROCEDURES**

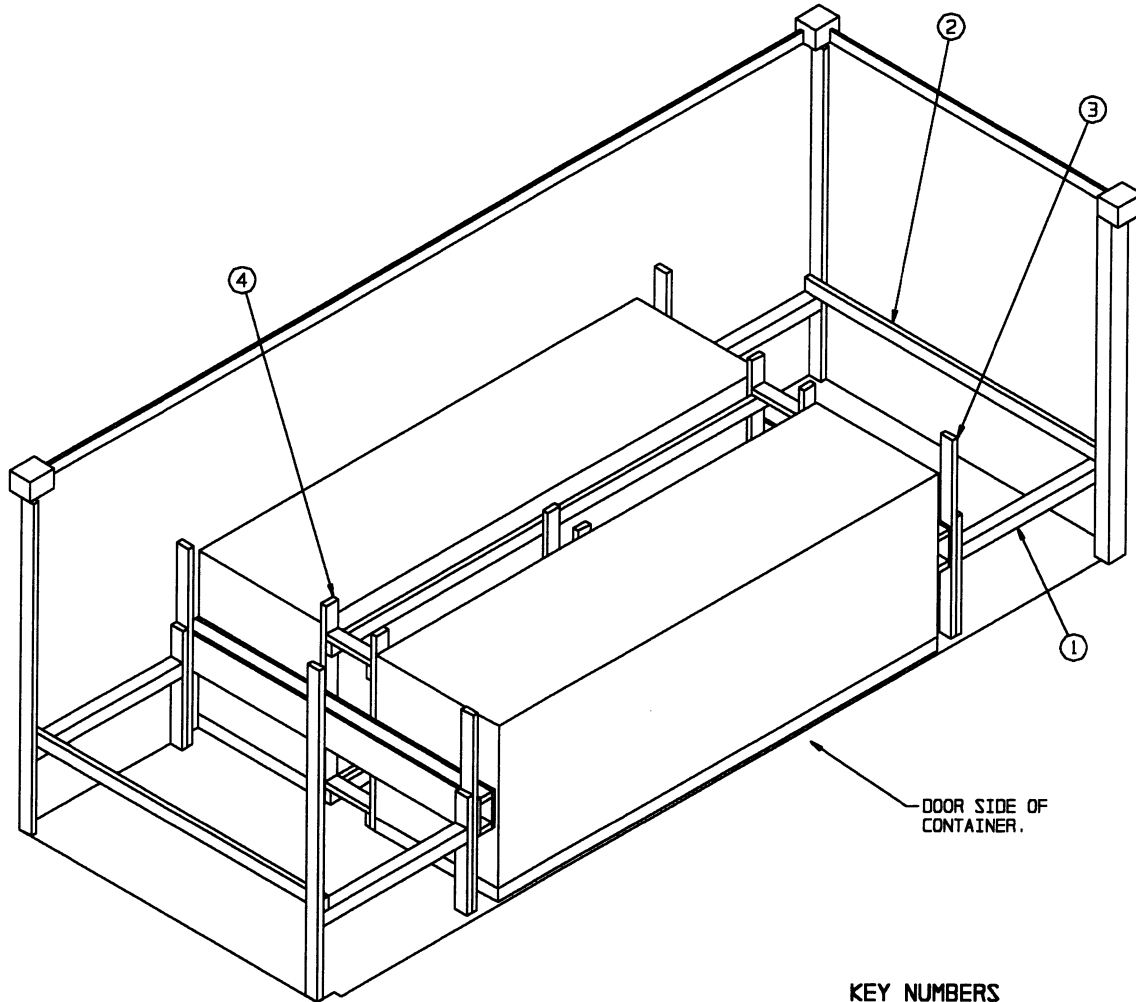
1. PRE-FABRICATE FOUR STRUT ASSEMBLIES A, TWO END BLOCKING ASSEMBLIES A AND ONE FILLER ASSEMBLY A.
2. INSTALL FOUR STRUT ASSEMBLIES, FOUR SPREADER PIECES AND TWO END BLOCKING ASSEMBLIES.
3. LOAD EIGHT CONTAINERS, INSTALL THE FILLER ASSEMBLY AND LOAD THE REMAINING EIGHT CONTAINERS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	462	308
2" X 6"	176	176
NAILS	NO. REOD	POUNDS
10d (3")	692	10-3/4

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
CONTAINERS - - - - -	16 - - - - -	4,480 LBS
DUNNAGE - - - - -	- - - - -	524 LBS
CONTAINER - - - - -	- - - - -	6,050 LBS
TOTAL WEIGHT - - - - -		11,054 LBS (APPROX)

**UNPALLETIZED LOAD**



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① STRUT ASSEMBLY (4 REQD). SEE THE "STRUT ASSEMBLY B" DETAIL ON PAGE 10.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (2 REQD). NAIL TO THE BUFFER PIECES OF PIECE MARKED ① W/2-10d NAILS AT EACH END.
- ③ END BLOCKING ASSEMBLY (2 REQD). SEE THE "END BLOCKING ASSEMBLY B" DETAIL ON PAGE 10. NAIL TO EACH STRUT ASSEMBLY, PIECE MARKED ①, W/4-10d NAILS.
- ④ FILLER ASSEMBLY (1 REQD). SEE THE "FILLER ASSEMBLY B" DETAIL ON PAGE 9.

**RECOMMENDED SEQUENTIAL LOADING PROCEDURES**

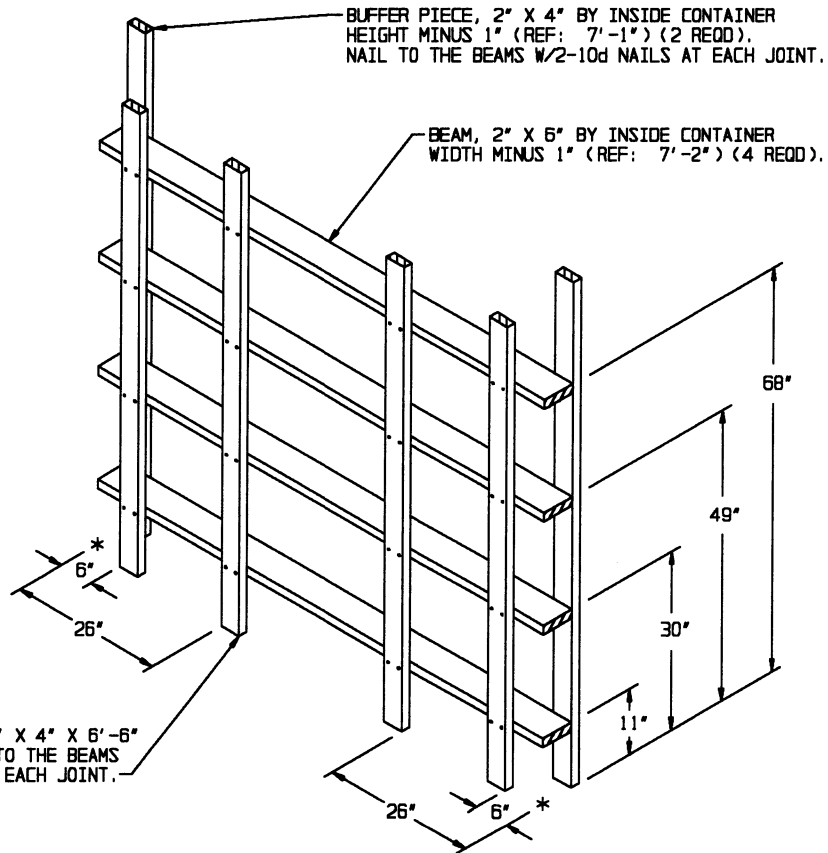
1. PRE-FABRICATE FOUR STRUT ASSEMBLIES B, TWO END BLOCKING ASSEMBLIES B AND ONE FILLER ASSEMBLY B.
2. INSTALL FOUR STRUT ASSEMBLIES, TWO SPREADER PIECES AND TWO END BLOCKING ASSEMBLIES.
3. LOAD ONE PALLET UNIT, INSTALL THE FILLER ASSEMBLY AND LOAD THE REMAINING PALLET UNIT.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	171	114
4" X 4"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	80	1/2
10d	88	1-1/2
PLYWOOD, 1/2"	----- 22.69 SQ FT REQD ----- 31.20 LBS	

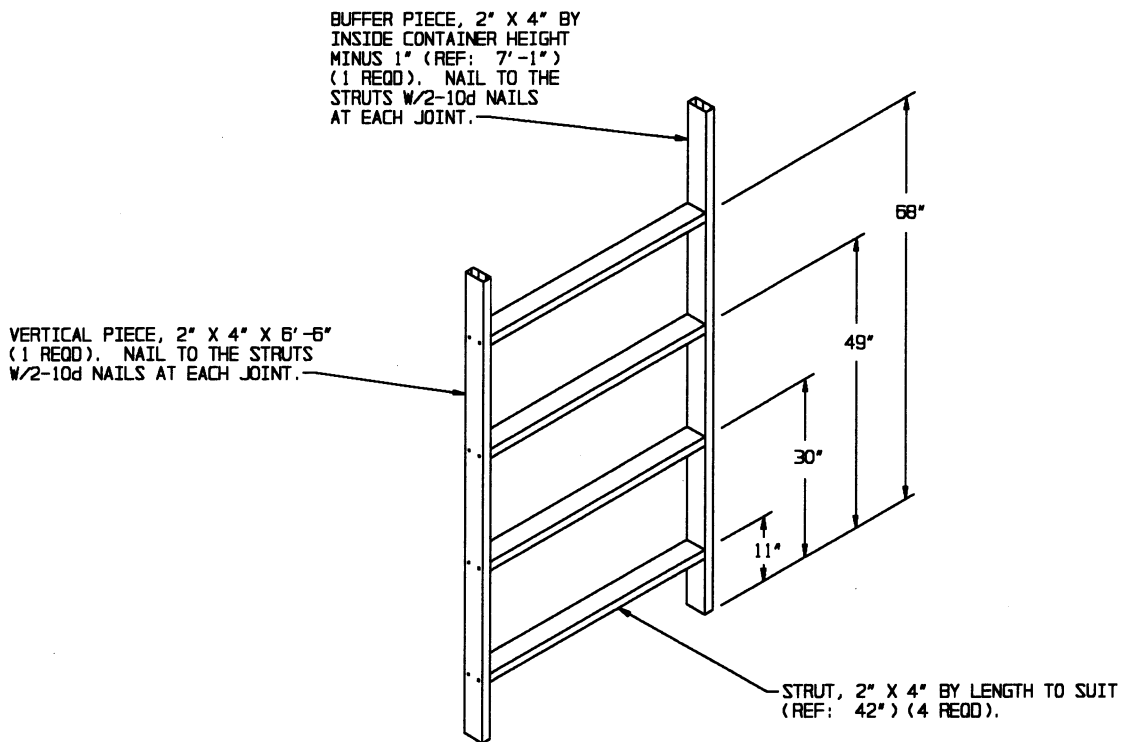
**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT-----	2 -----	2,804 LBS
DUNNAGE -----		302 LBS
CONTAINER-----		6,050 LBS
TOTAL WEIGHT -----		9,156 LBS (APPROX)

**PALLETIZED LOAD**



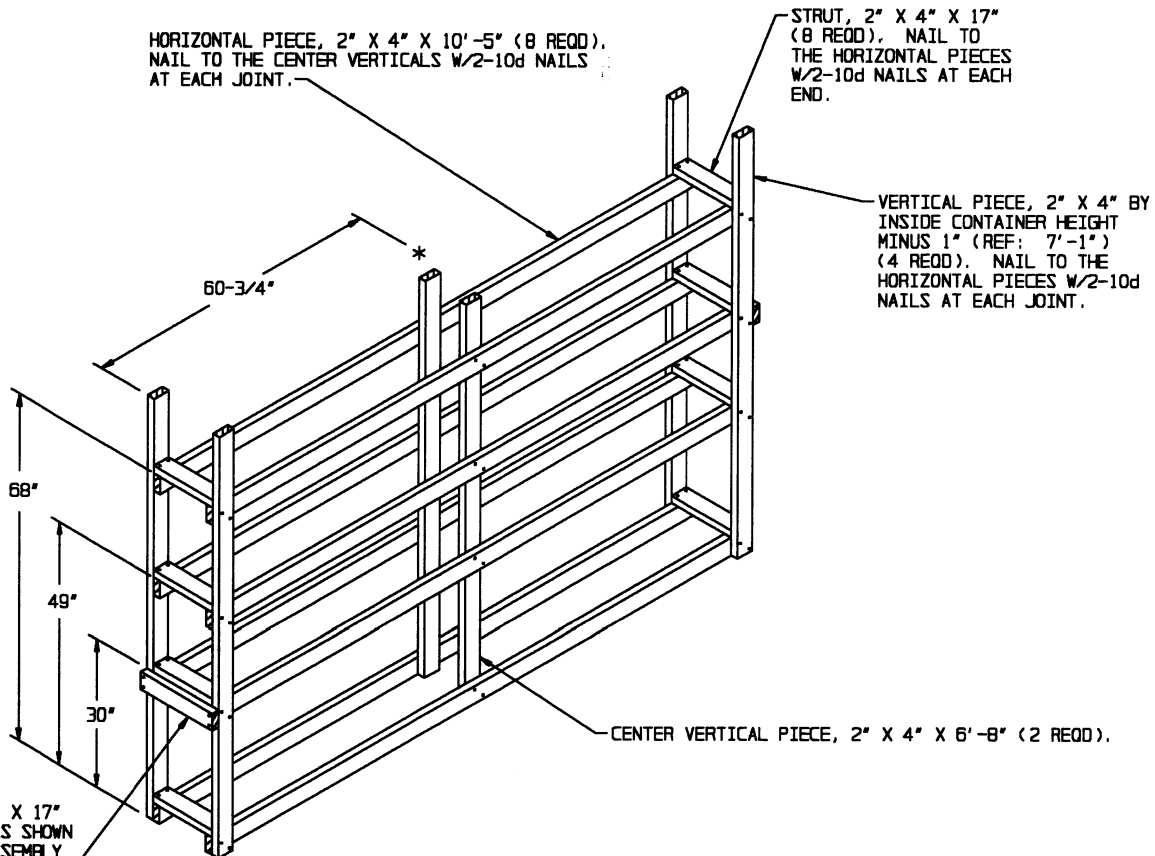
**END BLOCKING ASSEMBLY A**



**STRUT ASSEMBLY A**



SPACER PIECE, 2" X 4" X 17"  
(2 REQD). POSITION AS SHOWN  
AT EACH END OF THE ASSEMBLY  
AND NAIL TO THE VERTICAL  
PIECES W/2-10d NAILS AT  
EACH END.



HORIZONTAL PIECE, 2" X 4" X 10'-5" (8 REQD).  
NAIL TO THE CENTER VERTICALS W/2-10d NAILS  
AT EACH JOINT.

STRUT, 2" X 4" X 17"  
(8 REQD). NAIL TO  
THE HORIZONTAL PIECES  
W/2-10d NAILS AT EACH  
END.

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

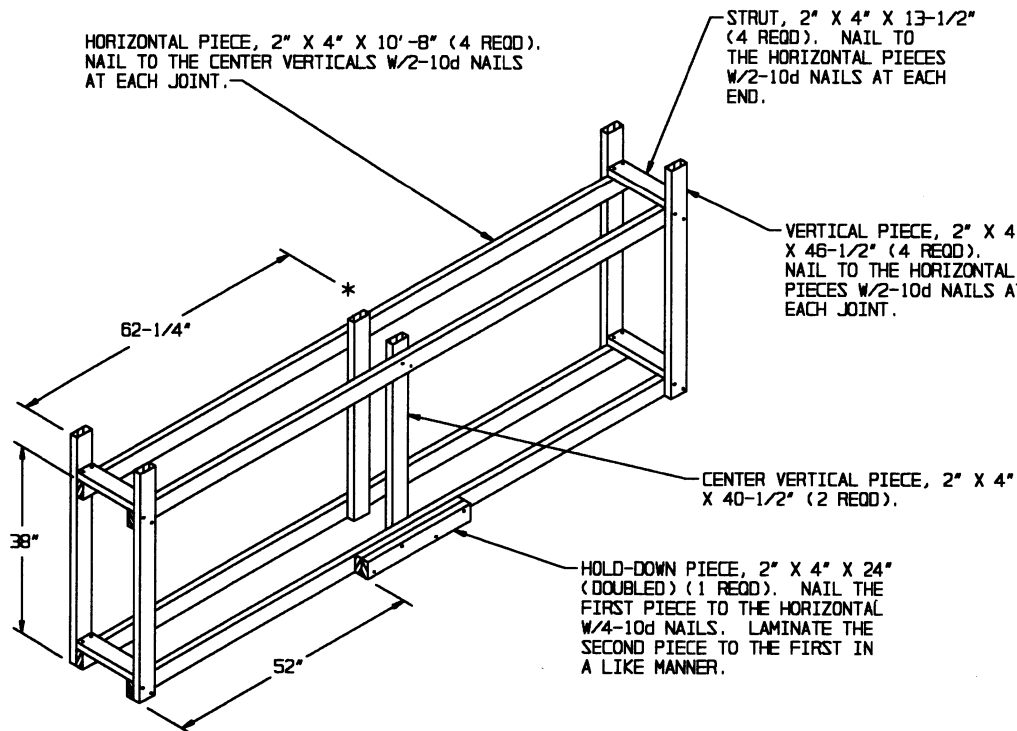
CENTER VERTICAL PIECE, 2" X 4" X 6'-8" (2 REQD).

**FILLER ASSEMBLY A**

HORIZONTAL PIECE, 2" X 4" X 10'-8" (4 REQD).  
NAIL TO THE CENTER VERTICALS W/2-10d NAILS  
AT EACH JOINT.

STRUT, 2" X 4" X 13-1/2"  
(4 REQD). NAIL TO  
THE HORIZONTAL PIECES  
W/2-10d NAILS AT EACH  
END.

VERTICAL PIECE, 2" X 4"  
X 46-1/2" (4 REQD).  
NAIL TO THE HORIZONTAL  
PIECES W/2-10d NAILS AT  
EACH JOINT.



CENTER VERTICAL PIECE, 2" X 4"  
X 40-1/2" (2 REQD).

HOLD-DOWN PIECE, 2" X 4" X 24"  
(DOUBLED) (1 REQD). NAIL THE  
FIRST PIECE TO THE HORIZONTAL  
W/4-10d NAILS. LAMINATE THE  
SECOND PIECE TO THE FIRST IN  
A LIKE MANNER.

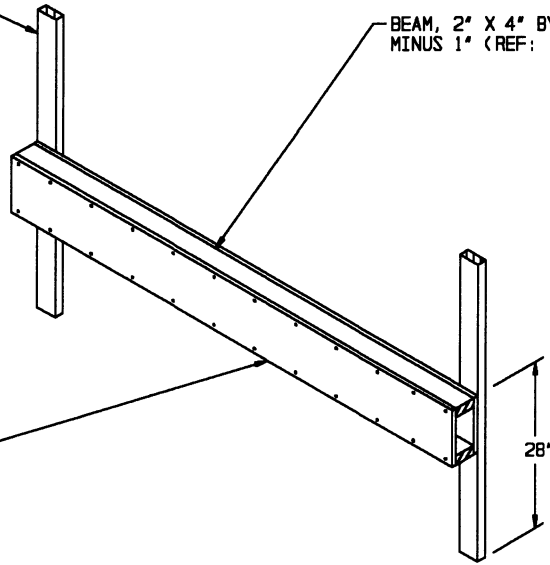
**FILLER ASSEMBLY B**

**DETAILS**

BUFFER PIECE, 2" X 4" X 50"  
(2 REQD). NAIL TO THE BEAMS  
W/2-10d NAILS AT EACH JOINT.

BEAM, 2" X 4" BY INSIDE CONTAINER WIDTH  
MINUS 1" (REF: 7'-2") (2 REQD).

PLYWOOD, 1/2" X 9-1/2" BY INSIDE  
CONTAINER WIDTH MINUS 1" (REF:  
7'-2") (2 REQD). NAIL TO THE  
BEAMS W/1-6d NAIL EVERY 8".

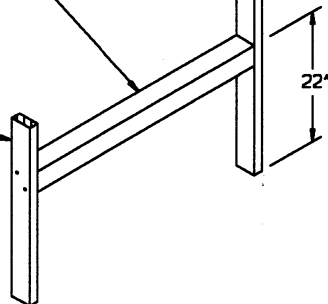


END BLOCKING ASSEMBLY B

BUFFER PIECE, 2" X 4" BY  
INSIDE CONTAINER HEIGHT  
MINUS 1" (REF: 7'-1")  
(1 REQD). NAIL TO THE  
STRUT W/2-10d NAILS.

STRUT, 4" X 4" BY LENGTH  
TO SUIT (REF: 43-1/2")  
(1 REQD).

VERTICAL PIECE, 2" X 4" X 30"  
(1 REQD). NAIL TO THE STRUT  
W/2-10d NAILS.



STRUT ASSEMBLY B