

APPROVED BY  
BUREAU OF EXPLOSIVES

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DATE 1/29/93

# LOADING AND BRACING WITH WOODEN DUNNAGE IN SIDE OPENING ISO CONTAINERS OF CBU ITEMS PACKED IN MK427 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.

U.S. ARMY MATERIEL COMMAND DRAWING			
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FEBRUARY 1993			
CLASS	DIVISION	DRAWING	FILE
19	48	8534	SP15J33

DO NOT SCALE

## GENERAL NOTES

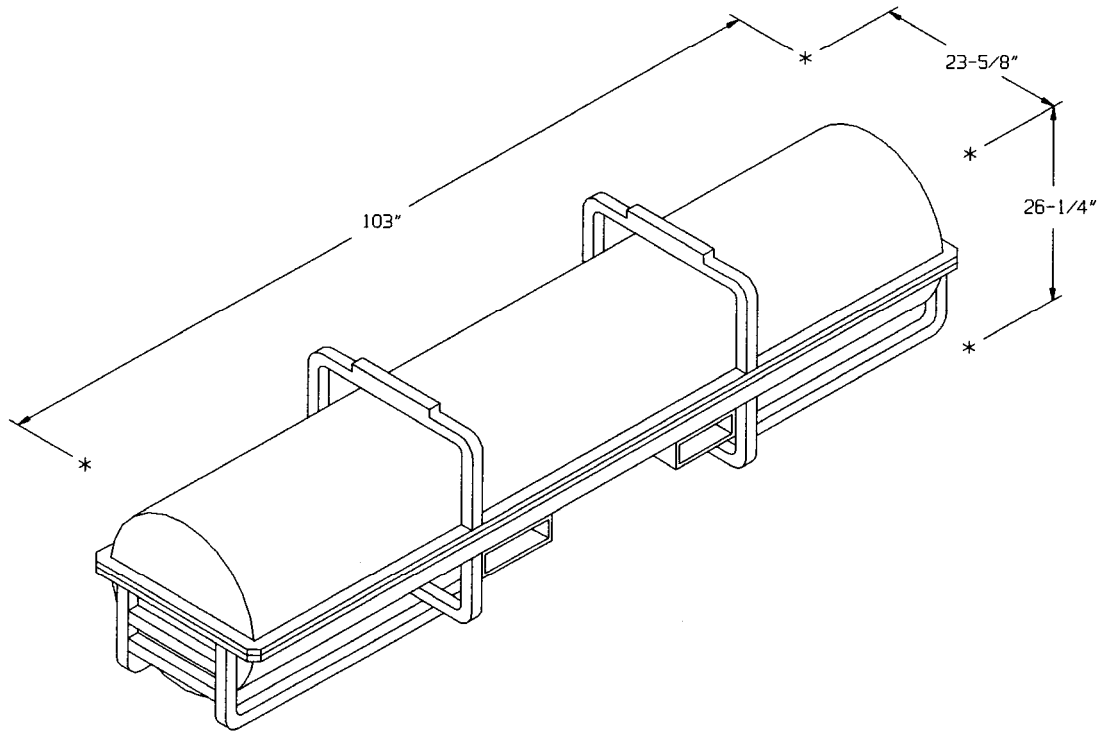
(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF CBU ITEMS PACKED IN THE MK427 MOD 0 OR MOD 1 CONTAINER WHEN ONE OF THE FOLLOWING ITEMS IS PACKED THEREIN:  
CBU-MK20 AND MODS (ROCKEYE II)  
CBU-78/B (GATOR)  
CBU-59/B, COMPLETE (APAM)  
CBU (T-1)/B, TRAINING  
SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE MK427 MOD 0 OR MOD 1 CONTAINER WITH CBU ITEMS INSTALLED.  
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. FOR DETAILS OF THE CONTAINER, SEE PAGE 3.  
CONTAINER DIMENSIONS:  
MK427 MOD 0 - - - 102-17/32" L X 23-5/32" W X 25-31/32" H  
CUBE - - - - - 35.7 CU FT  
MK427 MOD 1 - - - 103" L X 23-5/8" W X 26-1/4" H  
CUBE - - - - - 37.0 CU FT  
GROSS WEIGHT OF THE CONTAINER WILL BE 915 LBS TO 1,143 LBS (APPROX), DEPENDING ON THE CBU ITEM AND CONTAINER MOD.
- D. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" 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.
- E. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). ALTHOUGH A TOTAL OF 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 LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE BEARING PIECES ON THE SIDE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND/OR QUANTITY OF THE BEARING AND VERTICAL PIECES IN THE SIDE FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE CONTAINER SIZE.
- F. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" BY 3-1/2" WIDE.
- 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. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALLS. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE END BLOCKING ASSEMBLIES 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". THIS PIECE IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER ENDWALLS ARE SMOOTH AND FLAT.
- 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 SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.
- L. 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:  
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.
- N. 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.
- O. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE FILLER ASSEMBLY ON PAGE 7. WHEN A CONTAINER IS TO BE 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.

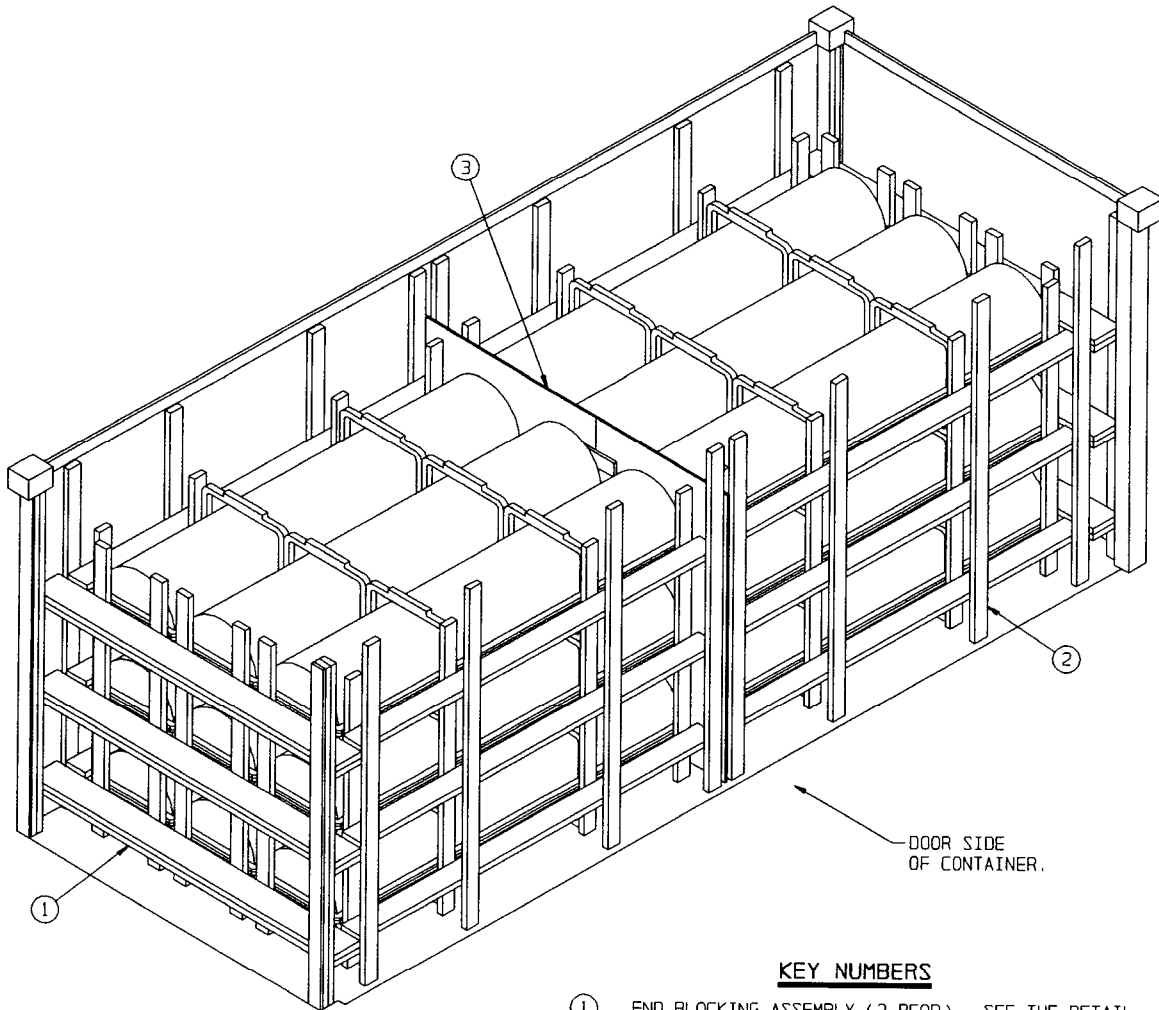
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## MATERIAL SPECIFICATIONS

- 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.



**MK427 CONTAINER**  
(MOD 1 SHOWN)



ISOMETRIC VIEW

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.
- ② SIDE FILL ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 7.
- ③ SPACER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6.

**RECOMMENDED SEQUENTIAL LOADING PROCEDURES**

1. PRE-FABRICATE TWO END BLOCKING ASSEMBLIES, FOUR SIDE FILL ASSEMBLIES AND ONE SPACER ASSEMBLY.
2. INSTALL ONE END BLOCKING ASSEMBLY, ONE SIDE FILL ASSEMBLY AND LOAD NINE CONTAINERS.
3. REPEAT STEP 2.
4. INSTALL SPACER ASSEMBLY AND TWO SIDE FILL ASSEMBLIES.

**SPECIAL NOTE:**

WHEN STACKING THE M427 CONTAINERS FOR THE LOAD SHOWN ON PAGE 4 THE FOLLOWING CRITERIA WILL BE APPLIED:

1. THE M427 MOD 0 CONTAINERS WILL BE STACKED WITH THE FORE AND AFT ENDS IN THE OPPOSITE DIRECTIONS.
2. THE M427 MOD 1 CONTAINERS WILL BE STACKED WITH THE FORE AND AFT END IN THE SAME DIRECTION.

**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	31	11
2" X 4"	310	207
2" X 8"	145	194
NAILS	NO. REQD	POUNDS
6d (2")	40	1/4
10d (3")	396	6
PLYWOOD, 1/2"	43 SQ FT REQD	59.13 LBS

**LOAD AS SHOWN**

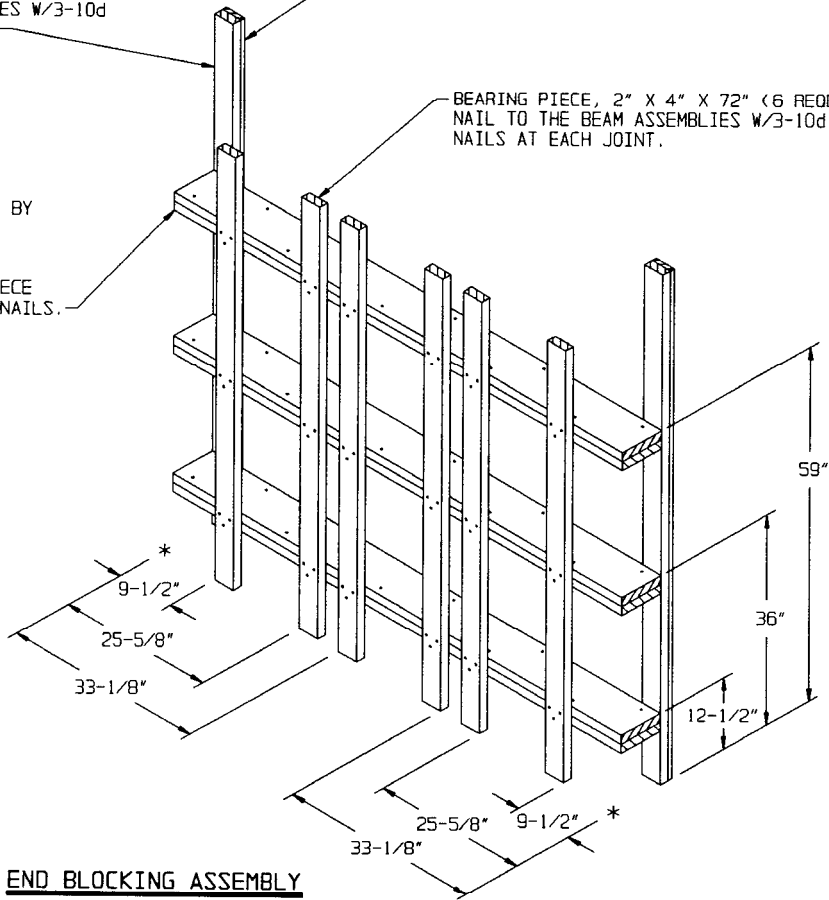
ITEM	QUANTITY	WEIGHT (APPROX)
MK427 CONTAINER	18	20,574 LBS
DUNNAGE		890 LBS
CONTAINER		6,050 LBS
<b>TOTAL WEIGHT</b>		<b>27,514 LBS (APPROX)</b>

BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-1") (2 REOD). NAIL TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT.

FILL PIECE, 1" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-1") (2 REOD). NAIL TO THE BUFFER PIECE W/7-6d NAILS.

BEARING PIECE, 2" X 4" X 72" (6 REOD). NAIL TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT.

BEAM ASSEMBLY, 2" X 8" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (DOUBLED) (3 REOD). LAMINATE THE SECOND PIECE TO THE FIRST W/10-10d NAILS.

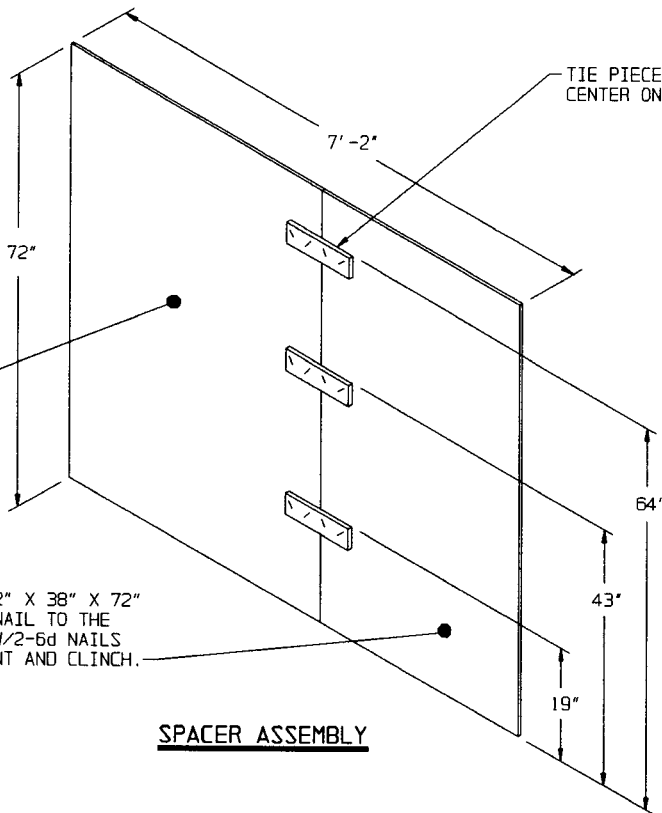


**END BLOCKING ASSEMBLY**

PLYWOOD, 1/2" X 48" X 72" (1 REOD). NAIL TO THE TIE PIECES W/2-6d NAILS AT EACH JOINT AND CLINCH.

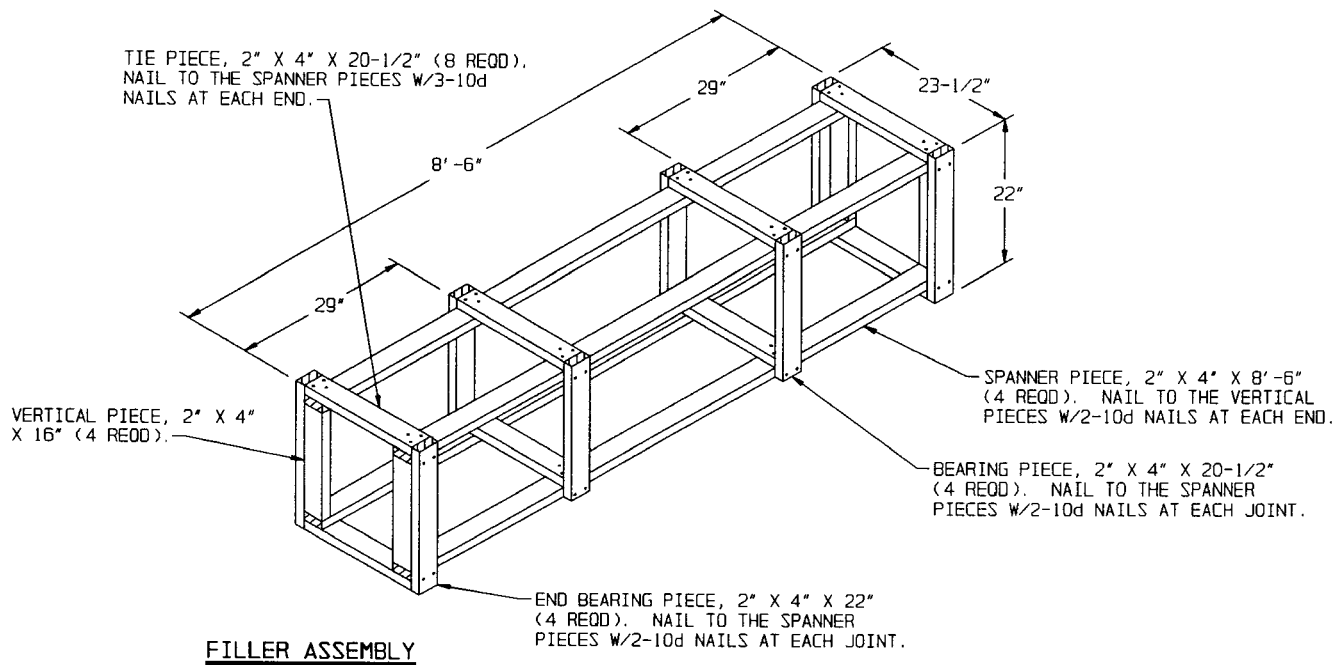
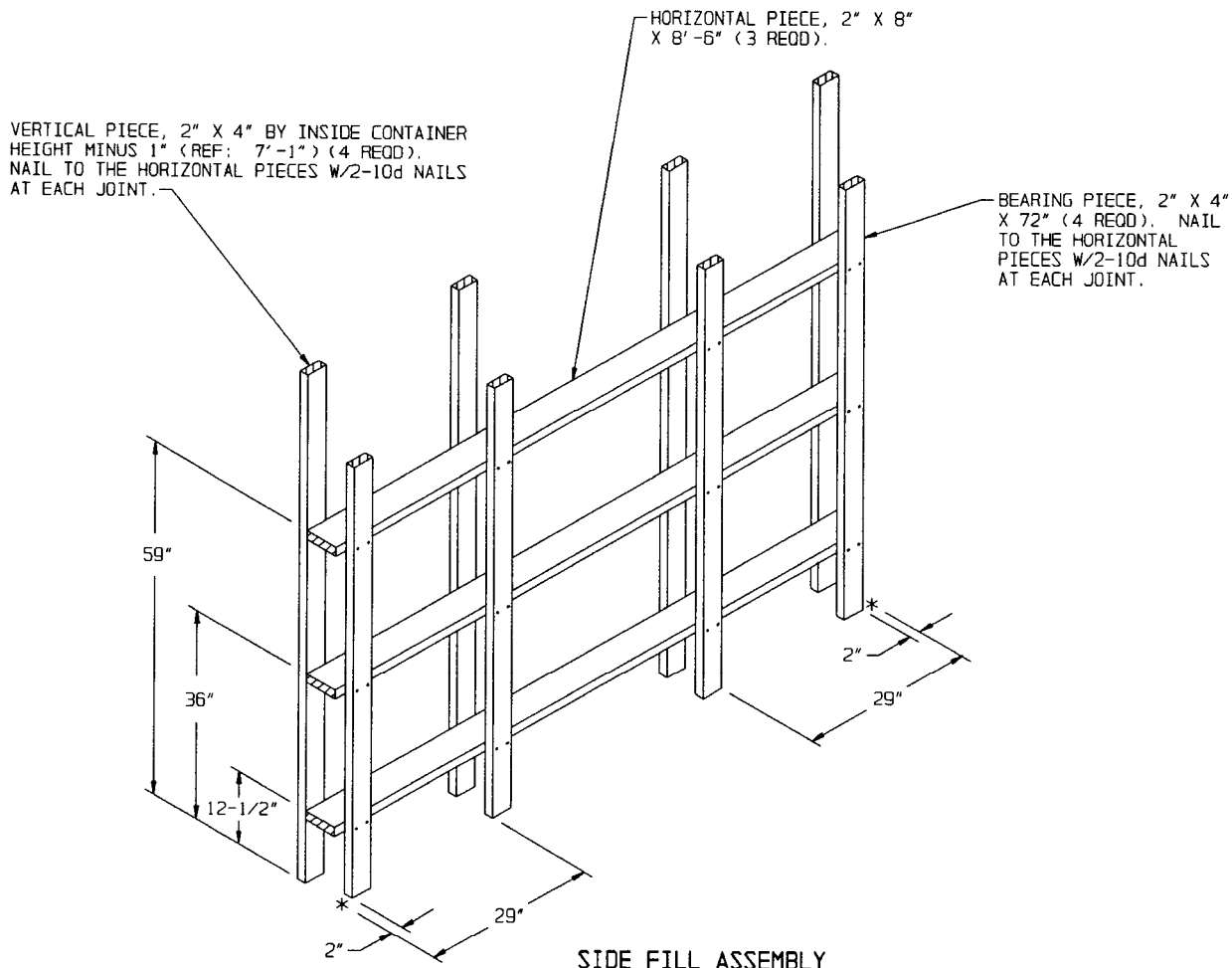
TIE PIECE, 1" X 4" X 10" (3 REOD). CENTER ON JOINT OF PLYWOOD PIECES.

PLYWOOD, 1/2" X 38" X 72" (1 REOD). NAIL TO THE TIE PIECES W/2-6d NAILS AT EACH JOINT AND CLINCH.



**SPACER ASSEMBLY**

**DETAILS**



**DETAILS**

