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JAVELIN

LOADING AND BRACING* IN SIDE OPENING CONTAINERS OF GUIDED MISSILES PACKED ONE PER CYLINDRICAL METAL CONTAINER

INDEX

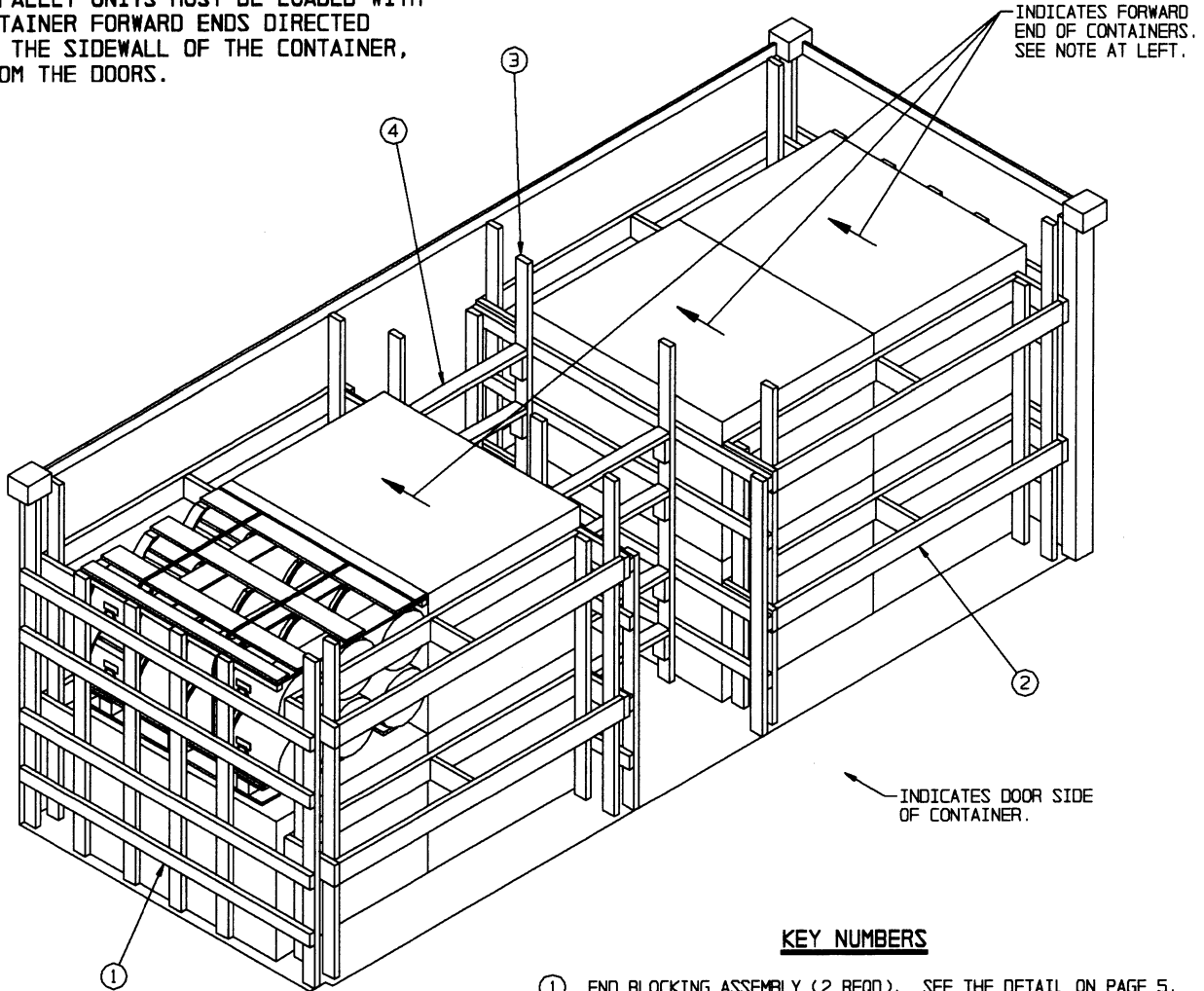
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- * LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND <i>John W. Wheeler</i> APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>William F. Ernst</i> DEFENSE AMMUNITION CENTER	ENGINEER REV. TECHNICIAN BASIC REV. DRAFTSMAN BASIC REV.	BASIC LAURA FIEFFER BASIC BASIC REV. TRANSPORTATION ENGINEERING DIVISION <i>William R. Fernald</i> VALIDATION ENGINEERING DIVISION <i>W. Ernst</i> TESTED LOGISTICS ENGINEERING OFFICE <i>William F. Ernst</i>	DO NOT SCALE WEBSITE: HTTP://WWW.DAC.ARMY.MIL JANUARY 1997 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">CLASS</td> <td style="width: 15%;">DIVISION</td> <td style="width: 15%;">DRAWING</td> <td style="width: 55%;">FILE</td> </tr> <tr> <td>19</td> <td>48</td> <td>5989</td> <td>GM15JV3</td> </tr> </table>	CLASS	DIVISION	DRAWING	FILE	19	48	5989	GM15JV3
CLASS	DIVISION	DRAWING	FILE								
19	48	5989	GM15JV3								

NOTE: PALLET UNITS MUST BE LOADED WITH THE CONTAINER FORWARD ENDS DIRECTED TOWARDS THE SIDEWALL OF THE CONTAINER, AWAY FROM THE DOORS.



ISOMETRIC VIEW

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.
- ② CRIB FILL ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 6.
- ③ CENTER GATE (2 REQD). SEE THE DETAIL ON PAGE 7.
- ④ STRUT, 2" X 4" BY CUT-TO-FIT IN LENGTH (REF: 37") (8 REQD). TOENAIL TO THE CENTER GATE W/2-10d NAILS AT EACH END.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	379	253
2" X 6"	146	146
NAILS	NO. REQD	POUNDS
10d (3")	464	7-1/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	8	4,392 LBS
DUNNAGE		806 LBS
CONTAINER		6,050 LBS

TOTAL WEIGHT ----- 11,248 LBS (APPROX)

L. 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.

M. 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 TOFF 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.

N. 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.

O. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN, FOR EXAMPLE, IN AMC DRAWING 19-48-4153-15PA1002. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES.

P. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO SIDE OPENING CONTAINERS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.

Q. THE QUANTITY OF PALLET UNITS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN-FULL-LOAD" DETAIL ON PAGE 8. 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.

R. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE TWO END BLOCKING ASSEMBLIES (ONE LEFT HAND AND ONE RIGHT HAND), TWO CRIB FILL ASSEMBLIES, AND TWO CENTER GATES (ONE LEFT HAND AND ONE RIGHT HAND).
2. INSTALL ONE END BLOCKING ASSEMBLY.
3. INSTALL ONE CRIB FILL ASSEMBLY.
4. LOAD FOUR PALLET UNITS.
5. REPEAT STEPS 2 THRU 4.
6. INSTALL THE TWO CENTER GATES AND EIGHT STRUTS.
7. INSTALL TWO CRIB FILL ASSEMBLIES.

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 JAVELIN MISSILES PACKED ONE PER CYLINDRICAL METAL CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE COMPONENTS. CAUTION: REGARDLESS OF THE QUANTITY OF MISSILES TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.

C. FOR DETAIL ON THE PALLET UNIT, SEE U.S. ARMY MATERIEL COMMAND DRAWING NO. 19-48-5266-GM20JV1 AND PAGE 4.

PALLET DIMENSIONS - - - - 45-3/4" LONG X 59-1/4" WIDE
 X 36-1/4" HIGH (APPROX)
 GROSS WEIGHT - - - - - 549 POUNDS (APPROX)
 CUBE - - - - - 56.9 CUBIC FEET (APPROX)

D. THE LOADS AS SHOWN ARE BASED ON 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.

E. WHEN LOADING THE 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 LONGITUDINAL PIECES ON THE CRIB FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE LENGTH OF THE LATERAL AND CENTER PIECES IN THE CRIB FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.

F. 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.

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. 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 25.4 MM AND ONE POUND EQUALS 0.454 KG.

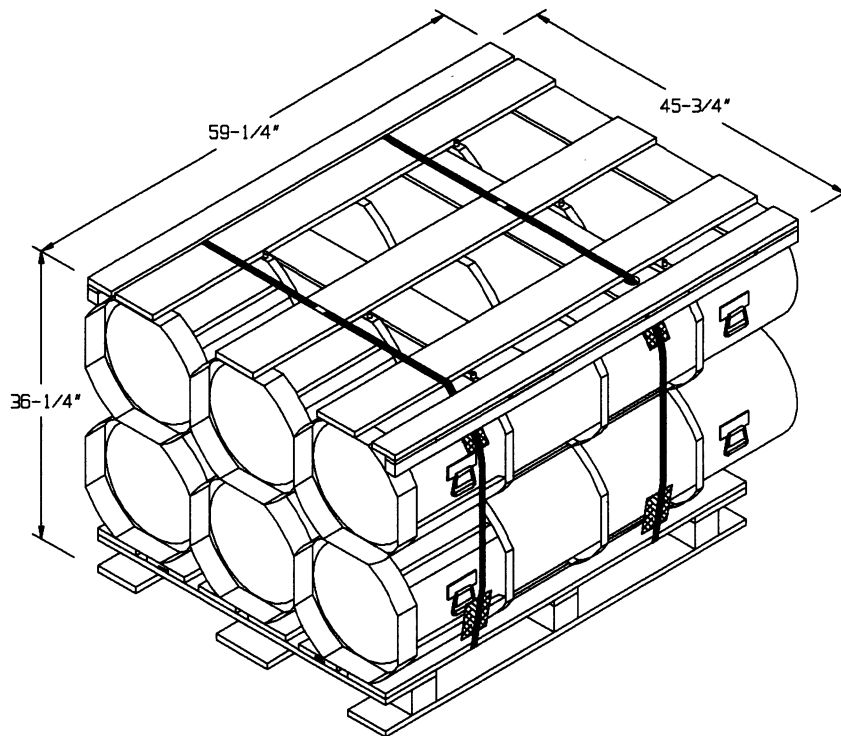
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MATERIAL SPECIFICATIONS

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

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

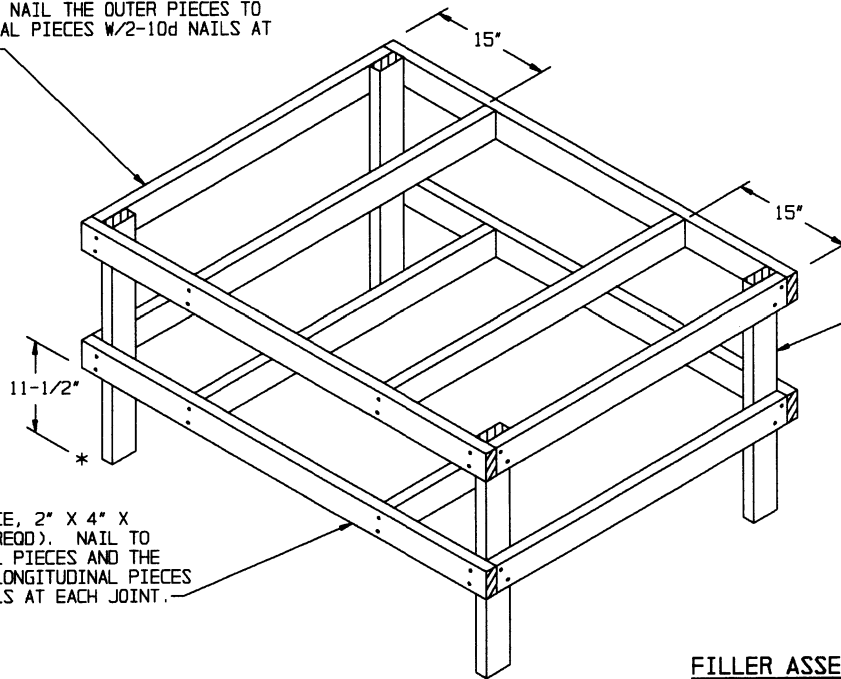
WIRE, CARBON STEEL - : ASTM A953; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.



PALLET UNIT DETAIL

GROSS WEIGHT - - - - - 549 LBS (APPROX)
 CUBE - - - - - 56.9 CUBIC FEET (APPROX)

LONGITUDINAL PIECE, 2" X 4" X 42-3/4"
 (8 REQD). NAIL THE OUTER PIECES TO
 THE VERTICAL PIECES W/2-10d NAILS AT
 EACH END.

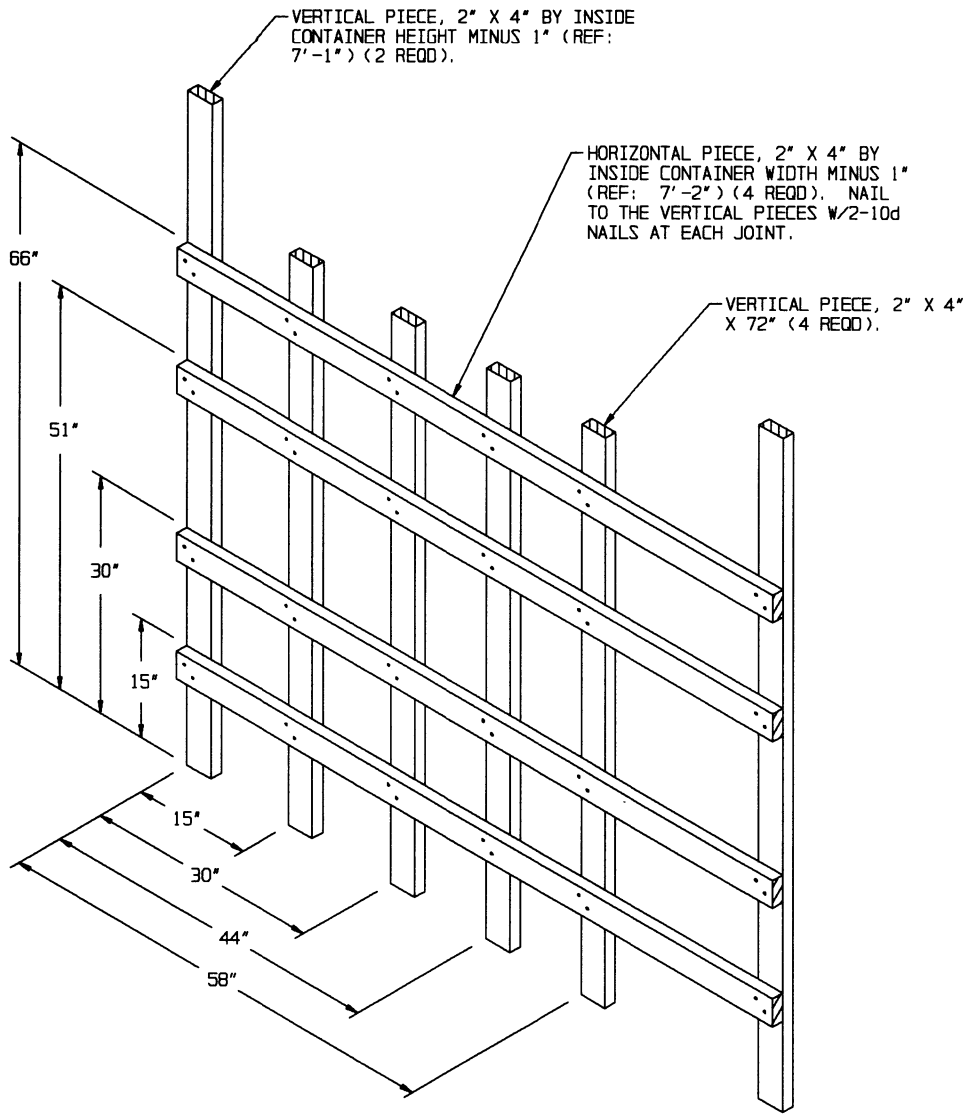


VERTICAL PIECE, 2" X
 4" X 30" (4 REQD).

LATERAL PIECE, 2" X 4" X
 59-1/4" (4 REQD). NAIL TO
 THE VERTICAL PIECES AND THE
 CENTER TWO LONGITUDINAL PIECES
 W/2-10d NAILS AT EACH JOINT.

FILLER ASSEMBLY

THE ASSEMBLY DEPICTED ABOVE IS FOR USE IN PLACE OF AN OMITTED PALLET UNIT. FILLER ASSEMBLIES MUST BE WIRE TIED TO AN ADJACENT PALLET UNIT OR DUNNAGE ASSEMBLY TO PREVENT UNDUE MOVEMENT. NO MORE THAN ONE FILLER ASSEMBLY MAY BE USED IN THE LOAD DEPICTED ON PAGE 2.



END BLOCKING ASSEMBLY

NOTE: A RIGHT HAND ASSEMBLY IS DEPICTED, A LEFT HAND ASSEMBLY IS ALSO REQUIRED. FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO HORIZONTAL PIECES AND SHORTEN THE FOUR 72" VERTICAL PIECES TO 36".

ORIENT WITH THIS SIDE AWAY FROM THE FORWARD ENDS OF THE CONTAINERS (TOWARDS THE DOOR).

VERTICAL PIECE, 2" X 4" BY
INSIDE CONTAINER HEIGHT MINUS
1" (REF: 7'-3") (2 REQD).

CENTER PIECE, 2" X 6"
X 11-1/2" (2 REQD).

42-1/2"

LATERAL PIECE, 2" X 6" X
14-1/2" (4 REQD). NAIL
TO THE VERTICAL PIECES
W/3-10d NAILS AT EACH END.

VERTICAL PIECE, 2" X 4"
X 67" (2 REQD).

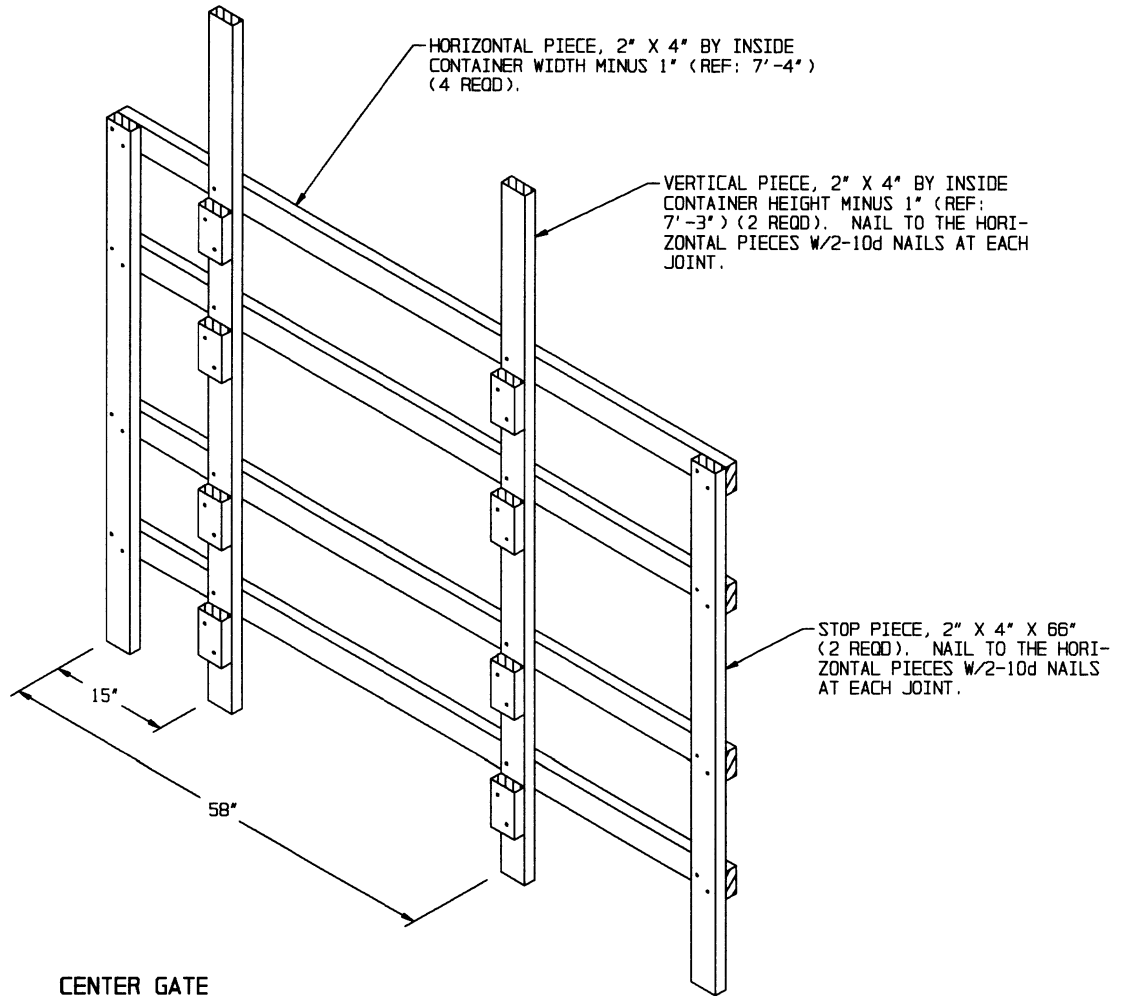
31"

LONGITUDINAL PIECE, 2" X 6" X 7'-5"
(4 REQD). NAIL TO THE VERTICAL PIECES
AND THE CENTER PIECE W/3-10d NAILS AT
EACH JOINT.

INSTALL WITH THIS SIDE TOWARD
THE CONTAINER ENDWALL.

CRIB FILL ASSEMBLY

NOTE: FOR A ONE HIGH LOAD, REPOSITION THE TOP TWO
LONGITUDINAL PIECES, THE TOP TWO LATERAL PIECES, AND
THE TOP CENTER PIECE AT 22". SHORTEN THE 67" VERTICAL
PIECES APPROPRIATELY. THE LENGTH OF THE LATERAL AND
CENTER PIECES IS DEPENDENT ON THE VOID BETWEEN THE
PALLET UNIT AND THE CONTAINER SIDEWALL.

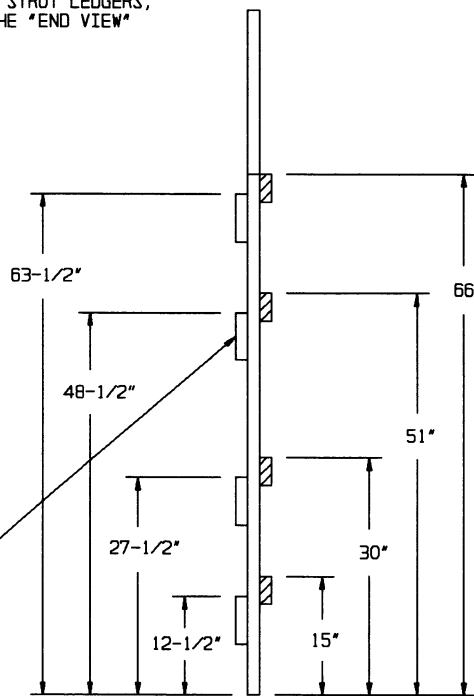


CENTER GATE

NOTE: A LEFT HAND GATE IS DEPICTED, A RIGHT HAND GATE IS ALSO REQUIRED. FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO HORIZONTAL PIECES AND THE TOP FOUR STRUT LEDGERS, AND SHORTEN THE STOP PIECES TO 30". SEE THE "END VIEW" BELOW FOR DUNNAGE LOCATIONS.

ORIENT WITH THIS SIDE AWAY FROM THE FORWARD ENDS OF THE CONTAINERS (TOWARDS THE DOOR).

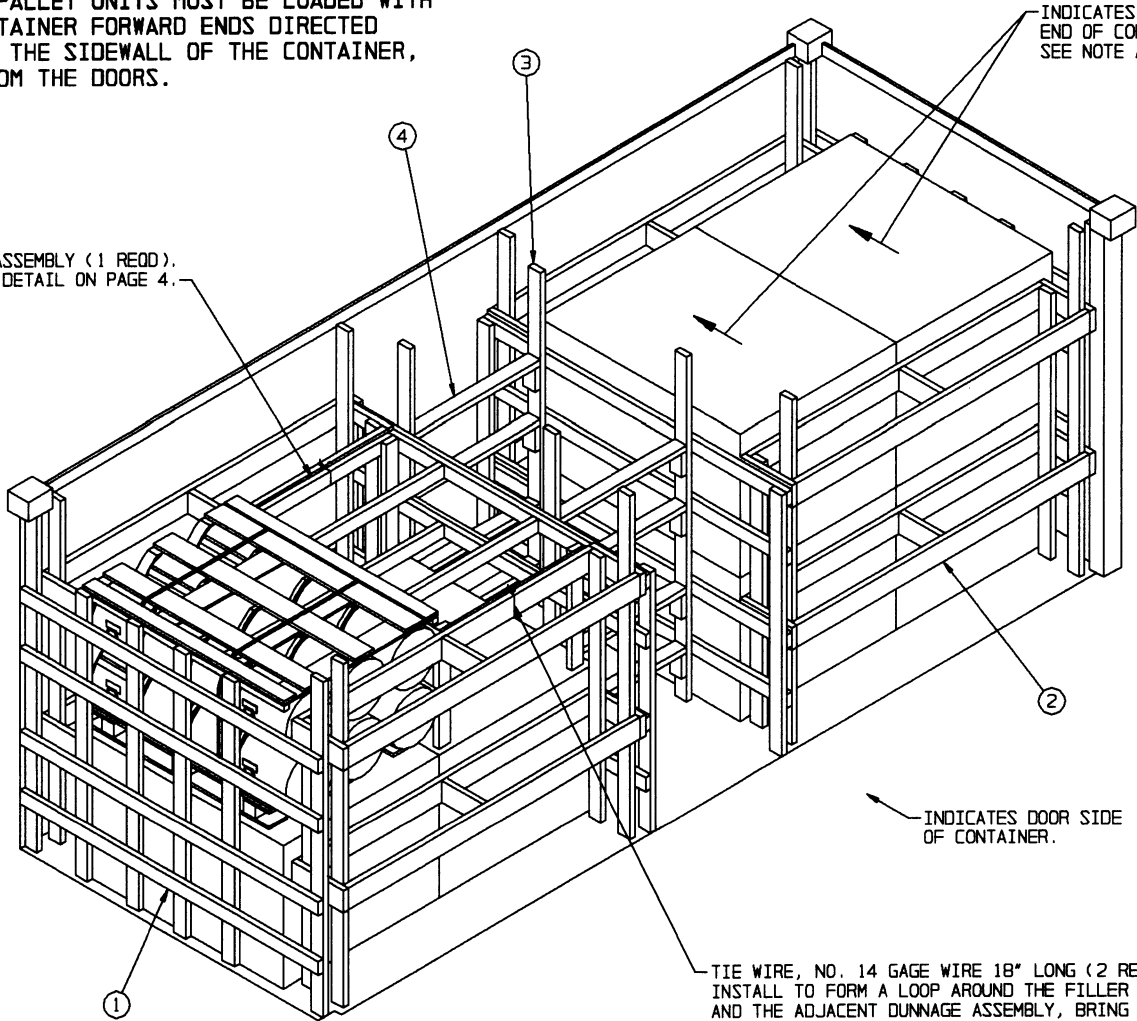
STRUT LEDGER, 2" X 4" X 6" (8 REQD). NAIL TO THE VERTICAL PIECE W/2-10d NAILS.



END VIEW

NOTE: PALLET UNITS MUST BE LOADED WITH THE CONTAINER FORWARD ENDS DIRECTED TOWARDS THE SIDEWALL OF THE CONTAINER, AWAY FROM THE DOORS.

FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 4.



INDICATES FORWARD END OF CONTAINERS. SEE NOTE AT LEFT.

INDICATES DOOR SIDE OF CONTAINER.

TIE WIRE, NO. 14 GAGE WIRE 18" LONG (2 REQD). INSTALL TO FORM A LOOP AROUND THE FILLER ASSEMBLY AND THE ADJACENT DUNNAGE ASSEMBLY, BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE FILLER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE OR WITH A STRAP STAPLE.

ISOMETRIC VIEW

LESS-THAN-FULL-LOAD PROCEDURE

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL CONTAINER LOAD (LESS THAN EIGHT UNITS). KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2. SEE GENERAL NOTE "O" ON PAGE 3.