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DATE 4-20-97

LOADING AND BRACING* IN END OPENING ISO CONTAINERS OF PROPELLING CHARGES PACKED IN CYLINDRICAL METAL CONTAINERS

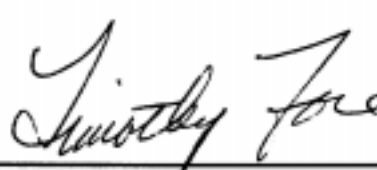

PA103 SERIES CONTAINERS

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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 INDUSTRIAL OPERATIONS COMMAND 	ENGINEER	BASIC	MICHAEL SARDONE	DO NOT SCALE			
		REV.	MICHAEL SARDONE				
	TECHNICIAN	BASIC		WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
		REV.		SEPTEMBER 1996			
DRAFTSMAN	BASIC						
		REV.		REVISION NO. 1	OCTOBER 1998		
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND 	TRANSPORTATION ENGINEERING DIVISION		<i>W. P. Smith</i>	SEE THE REVISION LISTING ON PAGE 2			
	VALIDATION ENGINEERING DIVISION		<i>James H. K... TESTED</i>	CLASS	DIVISION	DRAWING	FILE
	LOGISTICS ENGINEERING OFFICE		<i>William Ernest</i>	19	48	4154/ 22	15PM1002

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 PROPELLING CHARGES PACKED IN PA103 SERIES METAL CONTAINERS. SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS THE PALLET UNIT WITH AMMUNITION ITEMS. SEE PAGE 3 AND AMC DRAWING 19-48-4042A/22-20PM1001 FOR DETAILS OF THE PALLET UNIT. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH END OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 93" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95", BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93", VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (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 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 VERTICAL PIECES ON THE SIDE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE WITH APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND/OR QUANTITY OF THE VERTICAL OR HORIZONTAL PIECES IN THE SIDE FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" 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 THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY 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". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER FORWARD WALL, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.

- H. 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.
- 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 SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- L. MAXIMUM LOAD WEIGHT CRITERIA:

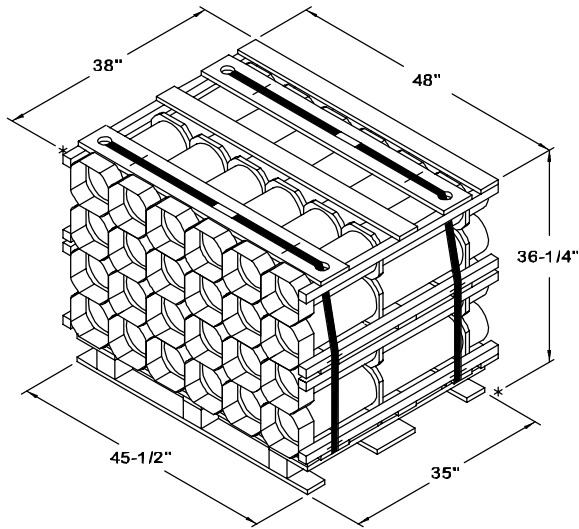
THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION 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 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:
 - 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.
- 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. 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.
- P. THE QUANTITY OF PALLET UNITS SHOWN IN THE ANY OF THE LOADS DEPICTED HEREIN MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE OMITTED UNIT ASSEMBLY ON PAGE 3.
 - 1. IF A LOAD IS REDUCED BY ONLY A SMALL AMOUNT (ONE OR TWO LADING UNITS), LADING UNITS NORMALLY MAY BE ELIMINATED FROM THE CENTER OF THE LOAD.
 - 2. IF A LOAD IS REDUCED BY A LARGE AMOUNT (MORE THAN TWO LADING UNITS), LADING UNITS SHOULD BE ELIMINATED AS REQUIRED AND THE TOTAL LOAD SHIFTED FORE OR AFT, AS NECESSARY, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION. THE DEPICTED PROCEDURES WILL BE FOLLOWED AS CLOSELY AS POSSIBLE, MAKING ONLY THOSE ADJUSTMENTS TO THE DUNNAGE WHICH ARE REQUIRED TO ACCOMMODATE THE NUMBER OF UNITS TO BE SHIPPED.

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).
PLYWOOD	---	COMMERCIAL ITEM DESCRIPTION A-A-55057, 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.
WIRE, CARBON STEEL	-:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
STEEL, STRUCTURAL	---	ASTM A501, STEEL STRUCTURAL TUBING; AND ASTM A570, STEEL, STRIP, HOT-ROLLED, GRADE 36 (MINIMUM).

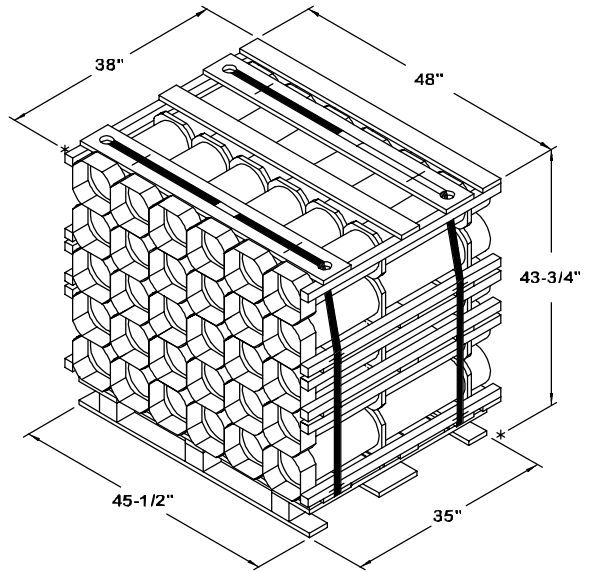
REVISION

- REVISION NUMBER 1, DATED OCTOBER 1998, CONSISTS OF
- 1. RECONFIGURING LOAD PATTERN.
 - 2. ADDING LOADS FOR 5 AND 6 LAYER PALLETS.
 - 3. ADDING OMITTED UNIT ASSEMBLY.
 - 4. ADDING ALTERNATIVE FORWARD/REAR BLOCKING ASSEMBLY.
 - 5. UPDATE GENERAL NOTES AND DRAWING FORMAT.



4-LAYER PALLET

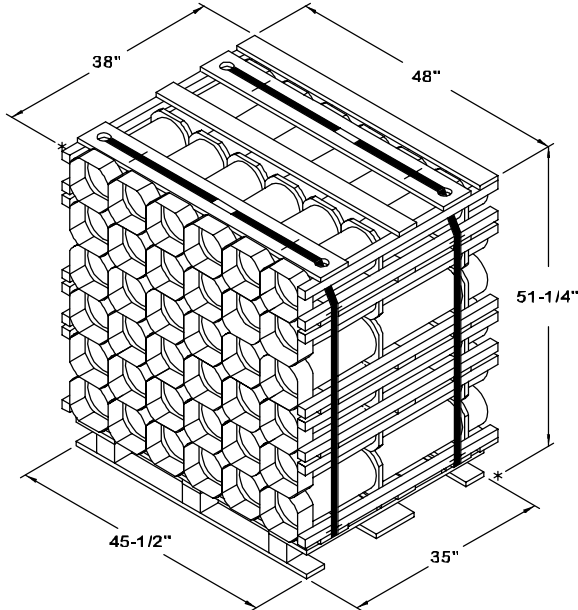
GROSS WEIGHT - - - - - 1,370 POUNDS
 CUBE - - - - - 38.3 CUBIC FEET



5-LAYER PALLET

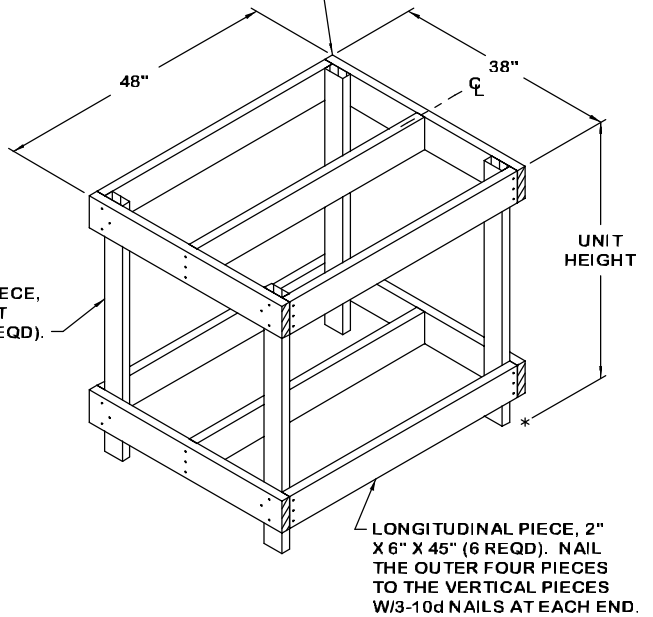
GROSS WEIGHT - - - - - 1,699 POUNDS
 CUBE - - - - - 46.2 CUBIC FEET

LATERAL PIECE, 2" X 6" X 38" (4 REQD).
 NAIL TO THE VERTICAL PIECES AND
 TO THE CENTER LONGITUDINAL
 PIECE W/3-10d NAILS AT EACH JOINT.



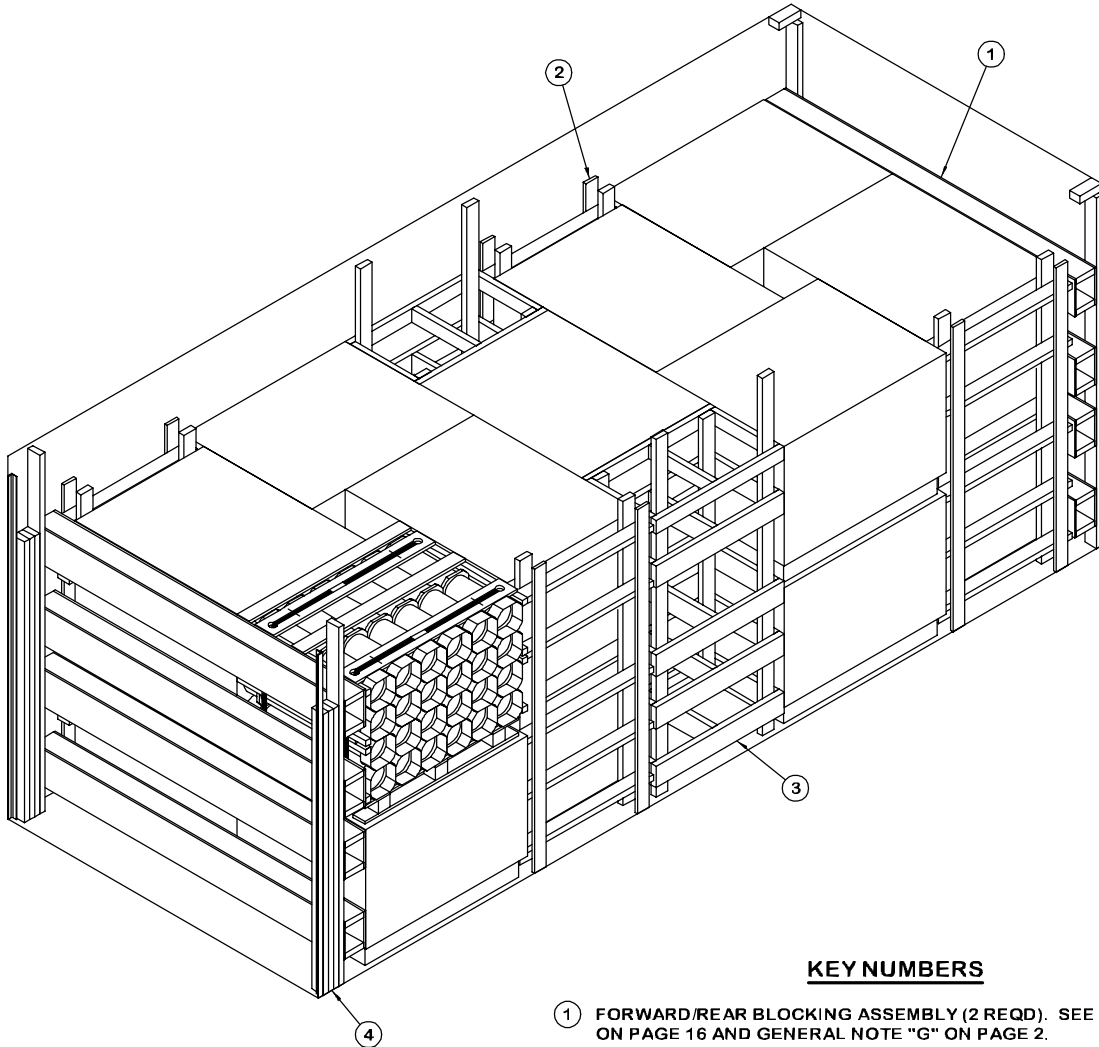
6-LAYER PALLET

GROSS WEIGHT - - - - - 2,011 POUNDS
 CUBE - - - - - 54.1 CUBIC FEET



OMITTED UNIT ASSEMBLY

THIS ASSEMBLY IS FOR USE IN PLACE OF AN OMITTED PALLET UNIT.
 NO MORE THAN FOUR OMITTED UNIT ASSEMBLIES MAY BE USED
 PER LOAD. DO NOT INSTALL AN OMITTED UNIT ASSEMBLY
 IMMEDIATELY ADJACENT TO ANOTHER OMITTED UNIT ASSEMBLY.



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 16 AND GENERAL NOTE "G" ON PAGE 2.
- ② SIDE FILL ASSEMBLY (4 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ④ FILL MATERIAL, 4" WIDE BY 72" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/7 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

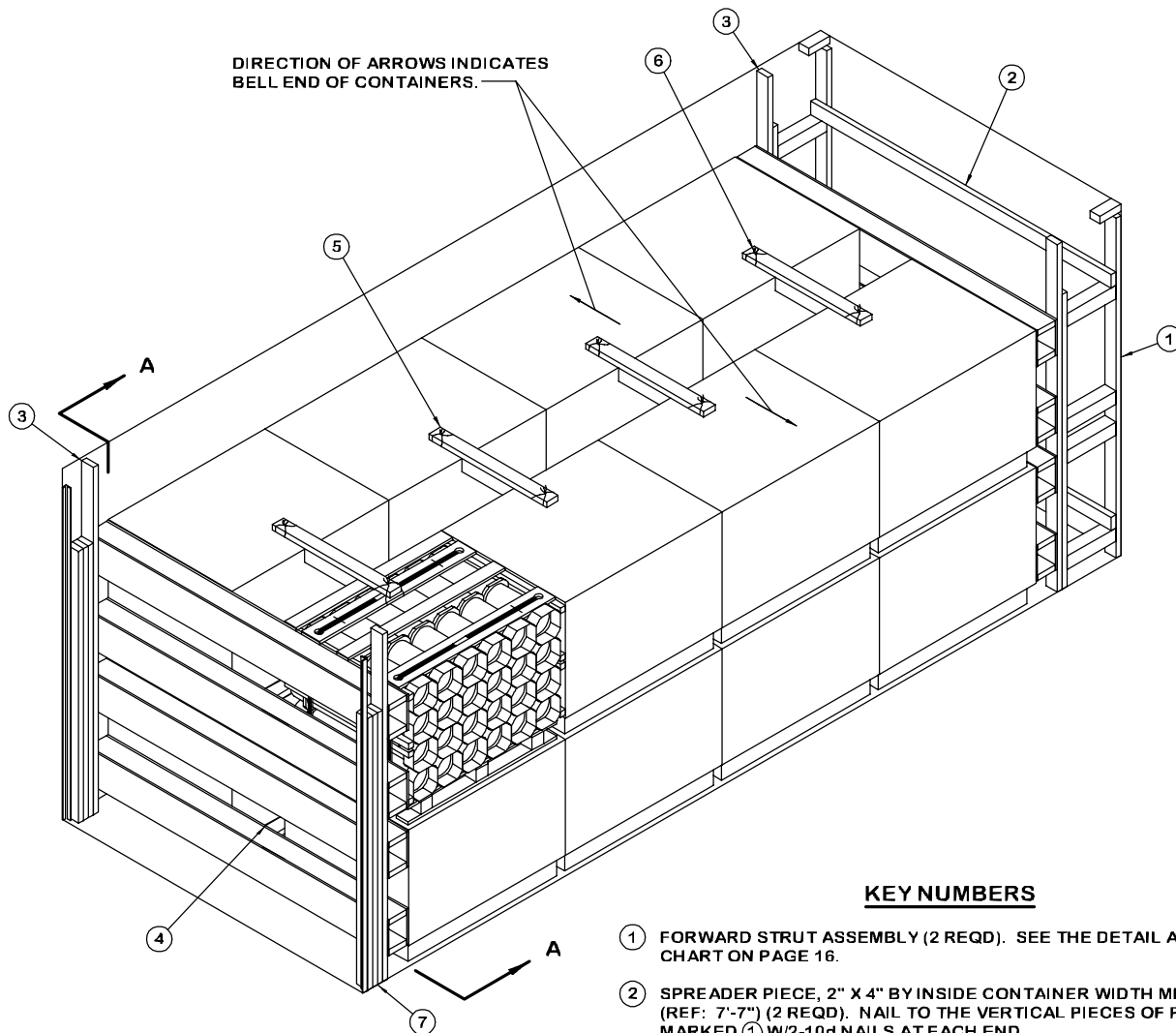
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, FOUR SIDE FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR PALLET UNITS AND INSTALL ONE SIDE FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD TWO PALLET UNITS AND INSTALL THE TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3 TWICE.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.

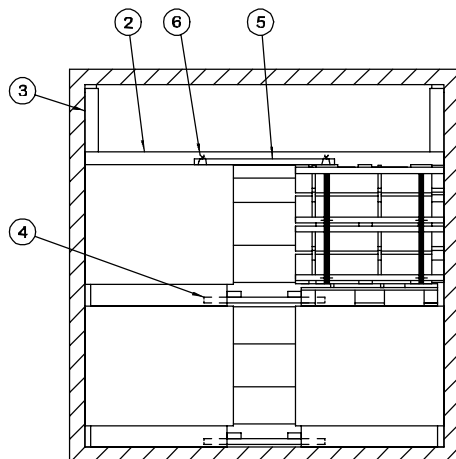
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	52	18
2" X 4"	259	173
2" X 6"	210	210
NAILS	NO. REQD	POUNDS
6d (2")	432	2-3/4
10d (3")	466	7-1/4
PLYWOOD, 1/2" - - - 96.06 SQ FT REQD - - 132-1/4 LBS		

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	18 - - - - -	24,660 LBS
DUNNAGE - - - - -	- - - - -	945 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		30,305 LBS (APPROX)



ISOMETRIC VIEW



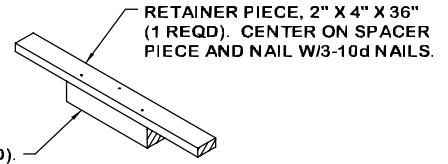
SECTION A-A

KEY NUMBERS

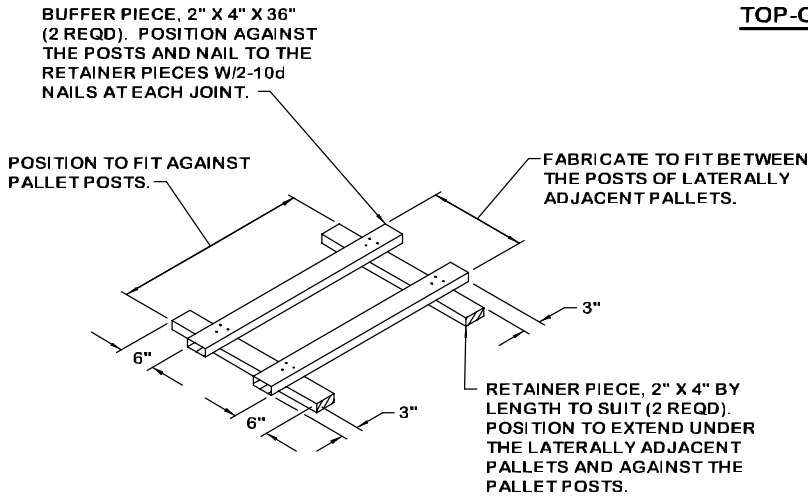
- ① FORWARD STRUT ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (2 REQD). NAIL TO THE VERTICAL PIECES OF PIECE MARKED ① W/2-10d NAILS AT EACH END.
- ③ FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16. NAIL THROUGH THE BUFFER PIECES INTO THE VERTICAL PIECES OF PIECE MARKED ① W/5-10d NAILS.
- ④ ANTI-SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 7.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑥ TIE WIRE, .0800" DIAMETER WIRE 24" LONG (8 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE TOP-OF-LOAD ANTI-SWAY BRACE AND A HORIZONTAL PIECE OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT. BRING ENDS TOGETHER AND TWIST. SECURE W/1-10d NAIL BENT OVER WIRE OR WITH STRAP STAPLE.
- ⑦ FILL MATERIAL, 4" WIDE BY 72" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/7 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD STRUT ASSEMBLIES, TWO FORWARD/REAR BLOCKING ASSEMBLIES, AND FOUR TOP-OF-LOAD ANTI-SWAY BRACES.
2. INSTALL THE TWO FORWARD STRUT ASSEMBLIES.
3. INSTALL THE TWO SPREADER PIECES.
4. INSTALL THE FORWARD BLOCKING ASSEMBLY.
5. LOAD TWO PALLET UNITS AND INSTALL ONE LOWER ANTI-SWAY BRACE (THIS ASSEMBLY MUST BE FABRICATED IN PLACE, BETWEEN THE PALLET UNITS).
6. REPEAT STEP 5.
7. INSTALL ONE TOP-OF-LOAD ANTI-SWAY BRACE AND WIRE TIE.
8. REPEAT STEPS 5, 6, AND 7 THREE TIMES APIECE.
9. INSTALL THE REAR BLOCKING ASSEMBLY.
10. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.



TOP-OF-LOAD ANTI-SWAY BRACE

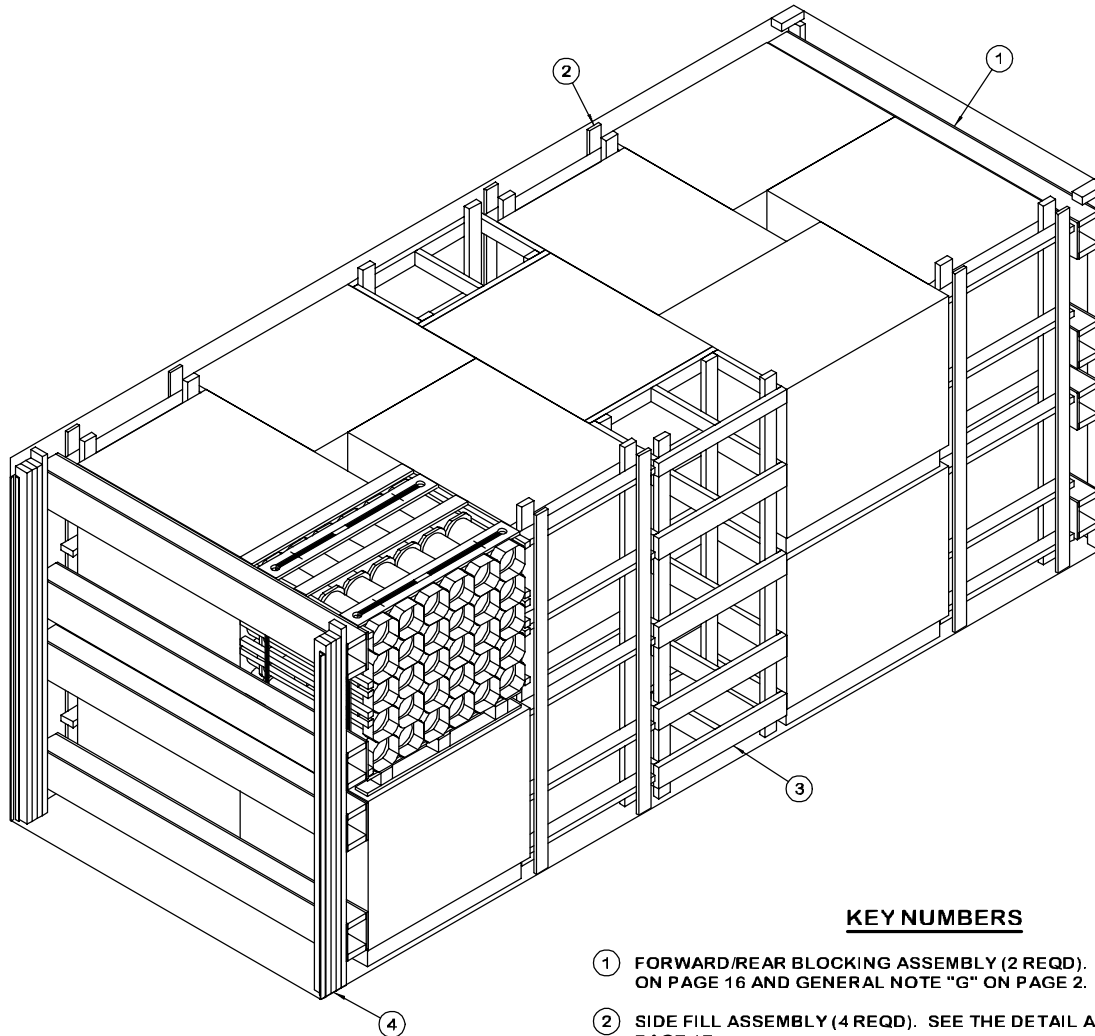


ANTI-SWAY BRACE

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	208	139
2" X 6"	122	122
4" X 4"	16	22
NAILS	NO. REQD	POUNDS
6d (2")	352	2-1/4
10d (3")	222	3-1/2
PLYWOOD, 1/2"	96.06 SQ FT REQD	132-1/4 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	16	21,920 LBS
DUNNAGE		704 LBS
CONTAINER		4,700 LBS
TOTAL WEIGHT		27,324 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 16 AND GENERAL NOTE "G" ON PAGE 2.
- ② SIDE FILL ASSEMBLY (4 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ④ FILL MATERIAL, 4" WIDE BY 7'-6" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/9 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

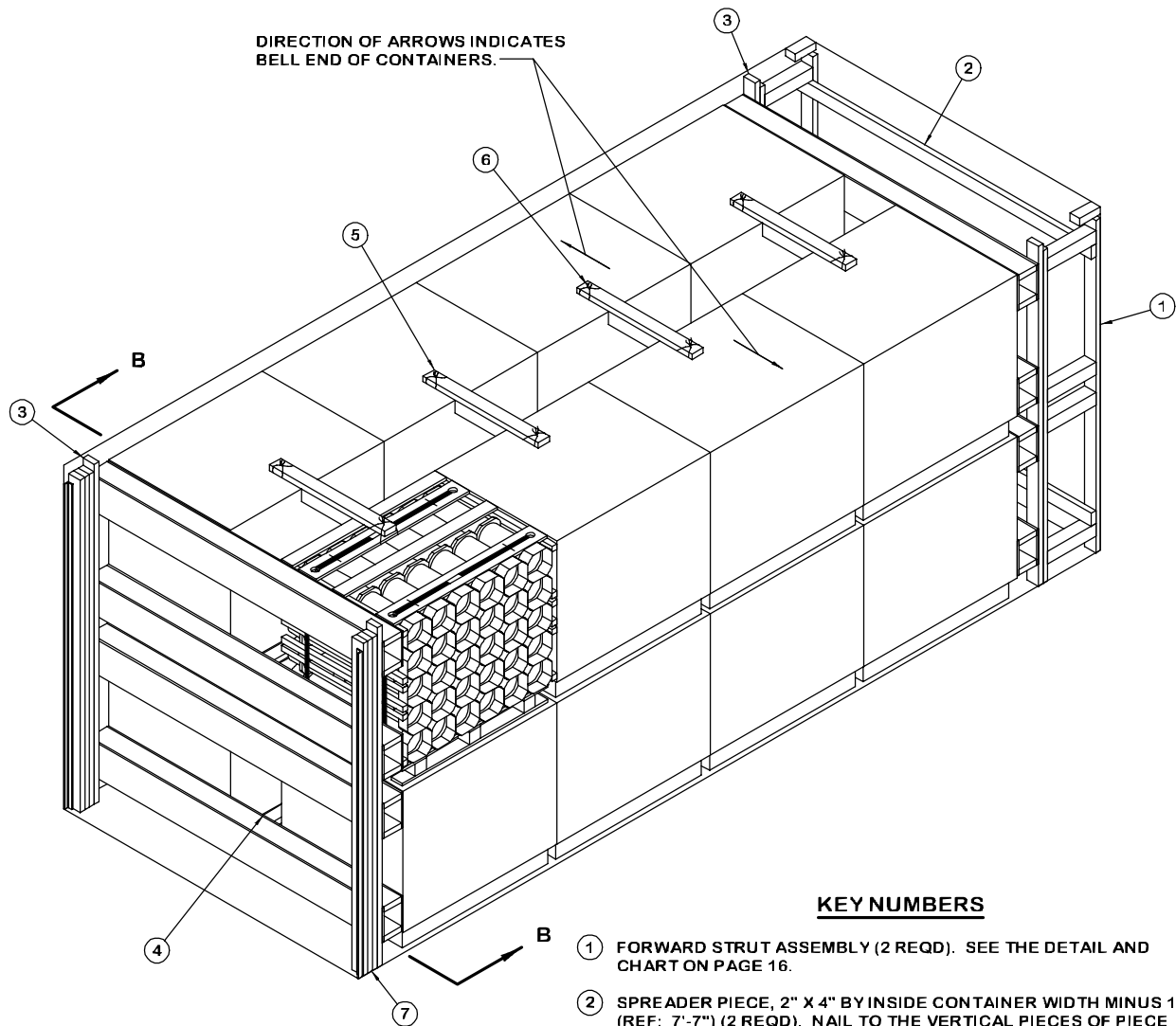
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, FOUR SIDE FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR PALLET UNITS AND INSTALL ONE SIDE FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD TWO PALLET UNITS AND INSTALL THE TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3 TWICE.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.

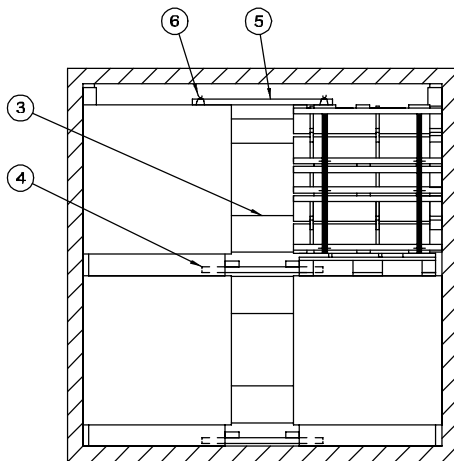
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	62	21
2" X 4"	282	188
2" X 6"	210	210
NAILS	NO. REQD	POUNDS
6d (2")	432	2-3/4
10d (3")	466	7-1/4
PLYWOOD, 1/2" - - - 96.06 SQ FT REQD - - - 132-1/4 LBS		

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	18 - - - - -	30,582 LBS
DUNNAGE - - - - -	- - - - -	981 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		36,263 LBS (APPROX)



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

- ① FORWARD STRUT ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (2 REQD). NAIL TO THE VERTICAL PIECES OF PIECE MARKED ① W/2-10d NAILS AT EACH END.
- ③ FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16. NAIL THROUGH THE BUFFER PIECES INTO THE VERTICAL PIECES OF PIECE MARKED ① W/5-10d NAILS.
- ④ ANTI-SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 7.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑥ TIE WIRE, .0800" DIAMETER WIRE 24" LONG (8 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE TOP-OF-LOAD ANTI-SWAY BRACE AND A HORIZONTAL PIECE OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT. BRING ENDS TOGETHER AND TWIST. SECURE W/1-10d NAIL BENT OVER WIRE OR WITH STRAP STAPLE.
- ⑦ FILL MATERIAL, 4" WIDE BY 7'-6" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/7 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

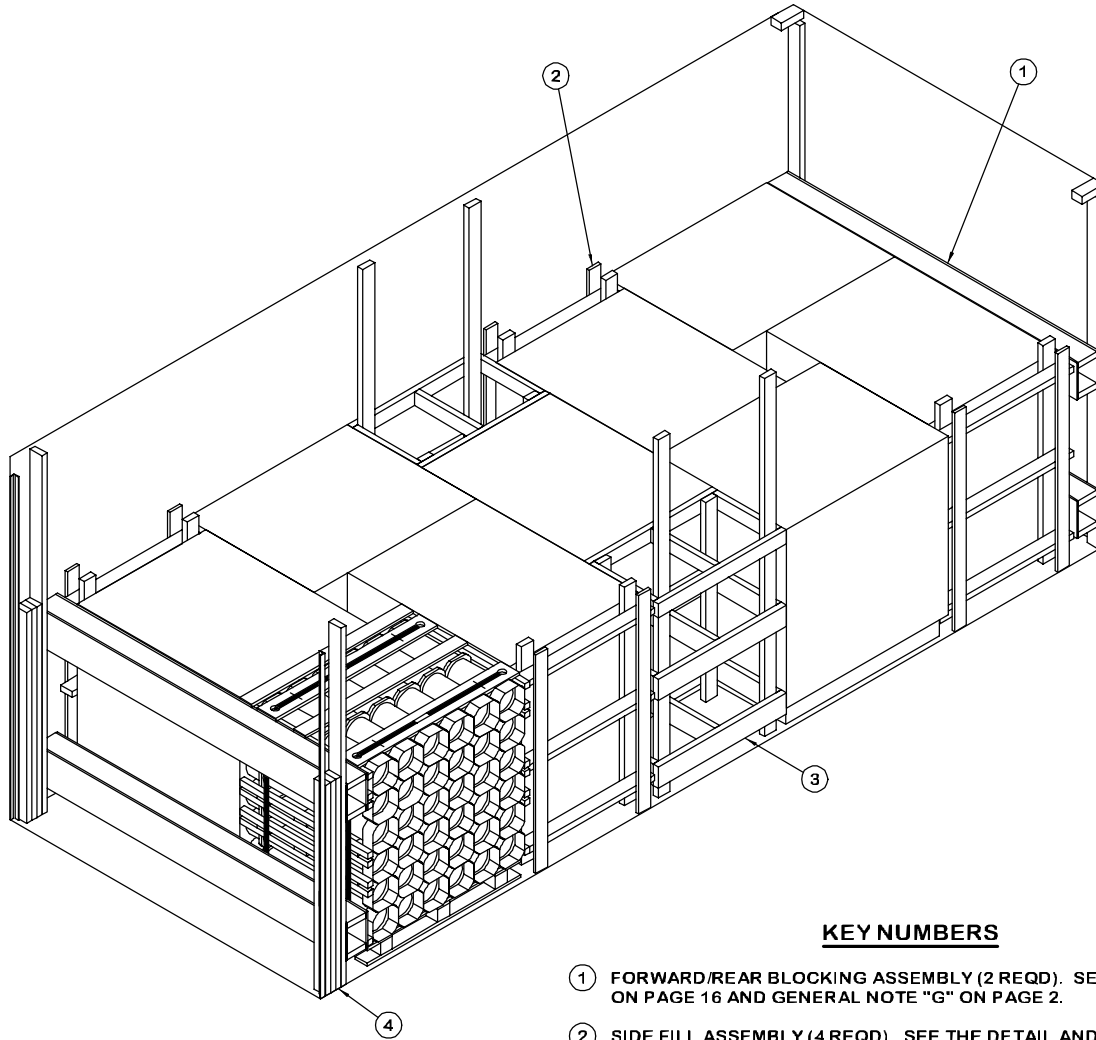
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD STRUT ASSEMBLIES, TWO FORWARD/REAR BLOCKING ASSEMBLIES, AND FOUR TOP-OF-LOAD ANTI-SWAY BRACES.
2. INSTALL THE TWO FORWARD STRUT ASSEMBLIES.
3. INSTALL THE TWO SPREADER PIECES.
4. INSTALL THE FORWARD BLOCKING ASSEMBLY.
5. LOAD TWO PALLET UNITS AND INSTALL ONE LOWER ANTI-SWAY BRACE (THIS ASSEMBLY MUST BE FABRICATED IN PLACE, BETWEEN THE PALLET UNITS).
6. REPEAT STEP 5.
7. INSTALL ONE TOP-OF-LOAD ANTI-SWAY BRACE AND WIRE TIE.
8. REPEAT STEPS 5, 6, AND 7 THREE TIMES.
9. INSTALL THE REAR BLOCKING ASSEMBLY.
10. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	219	146
2" X 6"	122	122
4" X 4"	16	22
NAILS	NO. REQD	POUNDS
6d (2")	352	2-1/4
10d (3")	234	3-3/4
PLYWOOD, 1/2" - - - 96.06 SQ FT REQD - - 132-1/4 LBS		

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	16 - - - - -	27,184 LBS
DUNNAGE - - - - -	- - - - -	719 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		32,603 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 16 AND GENERAL NOTE "G" ON PAGE 2.
- ② SIDE FILL ASSEMBLY (4 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 17.
- ④ FILL MATERIAL, 4" WIDE BY 54" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/7 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. **NOTE:** MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

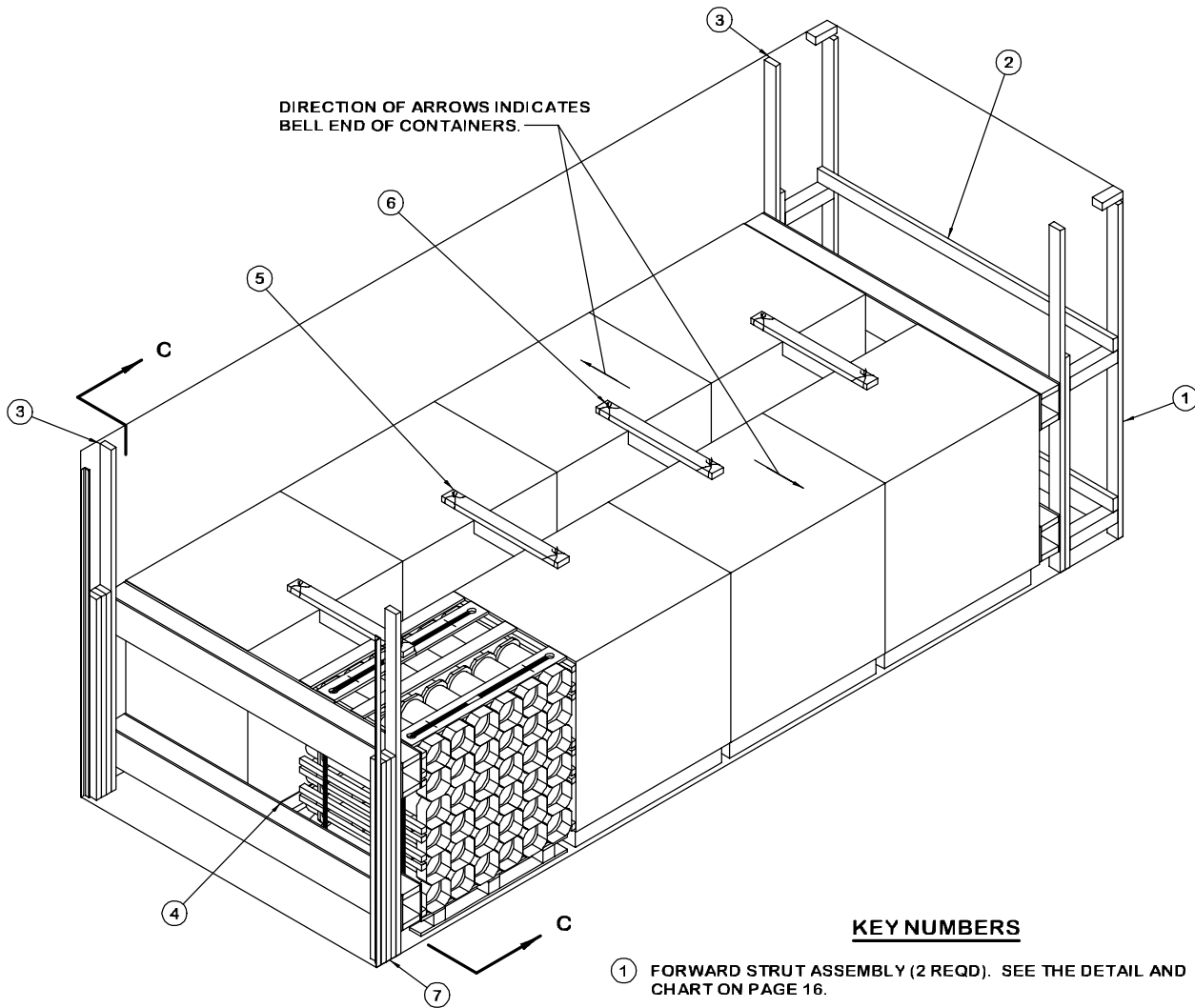
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, FOUR SIDE FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD TWO PALLET UNITS AND INSTALL ONE SIDE FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD ONE PALLET UNIT AND INSTALL THE TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3 TWICE.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.

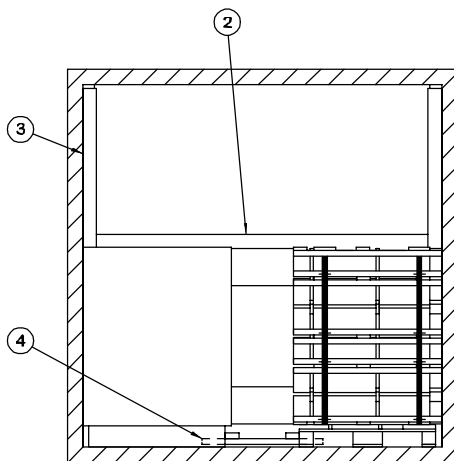
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	38	13
2" X 4"	203	136
2" X 6"	105	105
NAILS	NO. REQD	POUNDS
6d (2")	224	1-1/2
10d (3")	270	4-1/4
PLYWOOD, 1/2" - - - 48.03 SQ FT REQD - - - 66-1/4 LBS		

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	9 - - - - -	18,099 LBS
DUNNAGE - - - - -	- - - - -	580 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		23,379 LBS (APPROX)



ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

- ① FORWARD STRUT ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (2 REQD). NAIL TO THE VERTICAL PIECES OF PIECE MARKED ① W/2-10d NAILS AT EACH END.
- ③ FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 16. NAIL THROUGH THE BUFFER PIECES INTO THE VERTICAL PIECES OF PIECE MARKED ① W/5-10d NAILS.
- ④ ANTI-SWAY BRACE (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑤ TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD). SEE THE DETAIL ON PAGE 7.
- ⑥ TIE WIRE, .0800" DIAMETER WIRE 24" LONG (8 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE TOP-OF-LOAD ANTI-SWAY BRACE AND A HORIZONTAL PIECE OF THE TOP DUNNAGE ASSEMBLY OF THE PALLET UNIT. BRING ENDS TOGETHER AND TWIST. SECURE W/1-10d NAIL BENT OVER WIRE OR WITH STRAP STAPLE.
- ⑦ FILL MATERIAL, 4" WIDE BY 54" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/7 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS IN A LIKE MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.

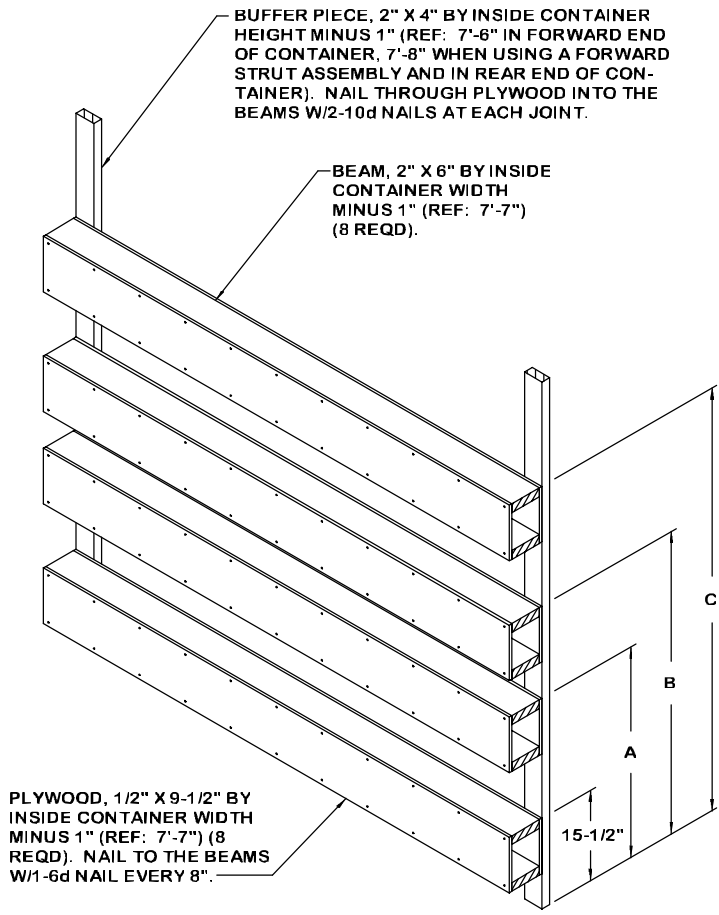
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD STRUT ASSEMBLIES, TWO FORWARD/REAR BLOCKING ASSEMBLIES AND TWO TOP-OF-LOAD ANTI-SWAY BRACES.
2. INSTALL THE TWO FORWARD STRUT ASSEMBLIES.
3. INSTALL THE TWO SPREADER PIECES.
4. INSTALL THE FORWARD BLOCKING ASSEMBLY.
5. LOAD TWO PALLET UNITS,INSTALL ONE ANTI-SWAY BRACE (THIS ASSEMBLY MUST BE FABRICATED IN PLACE, BETWEEN THE PALLET UNITS), AND INSTALL ONE TOP-OF-LOAD ANTI-SWAY BRACE.
6. REPEAT STEP 5 THREE TIMES.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	152	102
2" X 6"	61	61
4" X 4"	11	15
NAILS	NO. REQD	POUNDS
6d (2")	176	1-1/4
10d (3")	130	2
PLYWOOD, 1/2" - - - 48.03 SQ FT REQD - - - 66-1/4 LBS		

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	8 - - - - -	16,088 LBS
DUNNAGE - - - - -	- - - - -	426 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		21,214 LBS (APPROX)



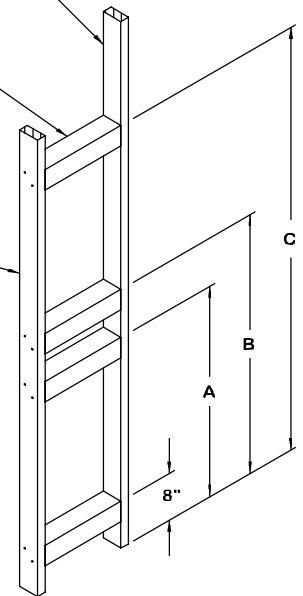
FORWARD/REAR BLOCKING ASSEMBLY CHART			
UNIT	DIMENSION		
	A	B	C
4-LAYER PALLET	36"	51-3/4"	6'-0-1/4"
5-LAYER PALLET	43-1/2"	59-1/4"	7'-3-1/4"
6-LAYER PALLET	51"	- -	- -

FORWARD/REAR BLOCKING ASSEMBLY

VERTICAL PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-6") (1 REQD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.

STRUT, 4" X 4" X 18" (4 REQD).

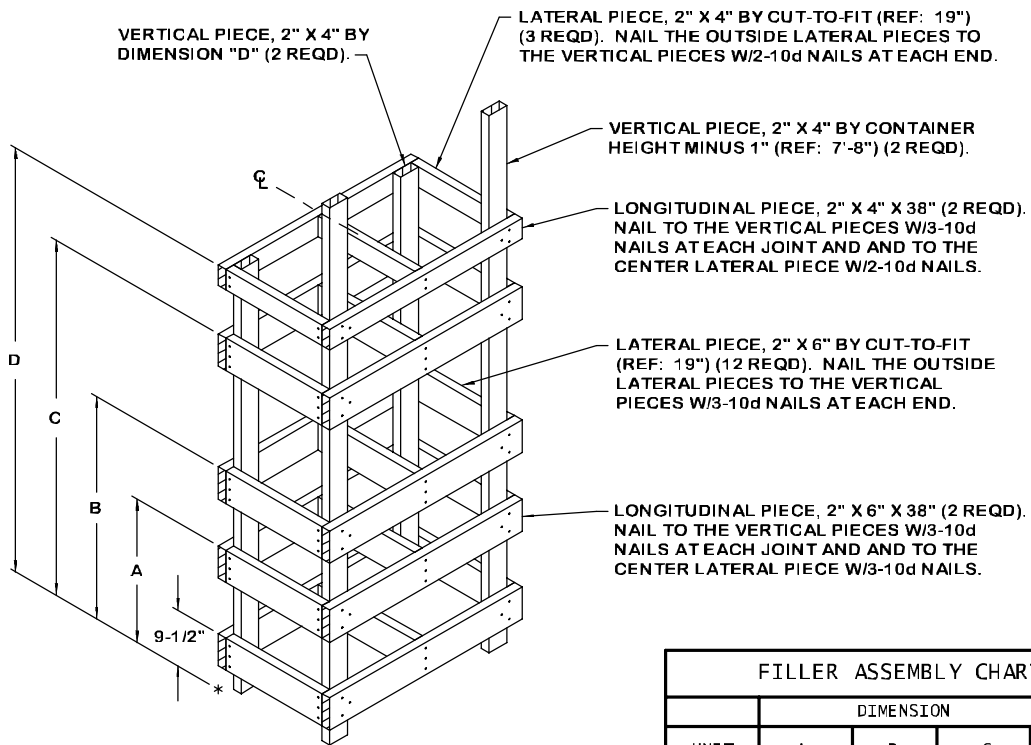
BEARING PIECE, 2" X 4" X 6'-6" FOR A 4-LAYER PALLET, 7'-6" FOR A 5-LAYER PALLET, 57" FOR A 6-LAYER PALLET (1 REQD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.



FORWARD STRUT ASSEMBLY CHART			
UNIT	DIMENSION		
	A	B	C
4-LAYER PALLET	36"	44-1/4"	6'-0-1/4"
5-LAYER PALLET	43-1/2"	51-3/4"	7'-3-1/4"
6-LAYER PALLET	51"	- -	- -

FORWARD STRUT ASSEMBLY

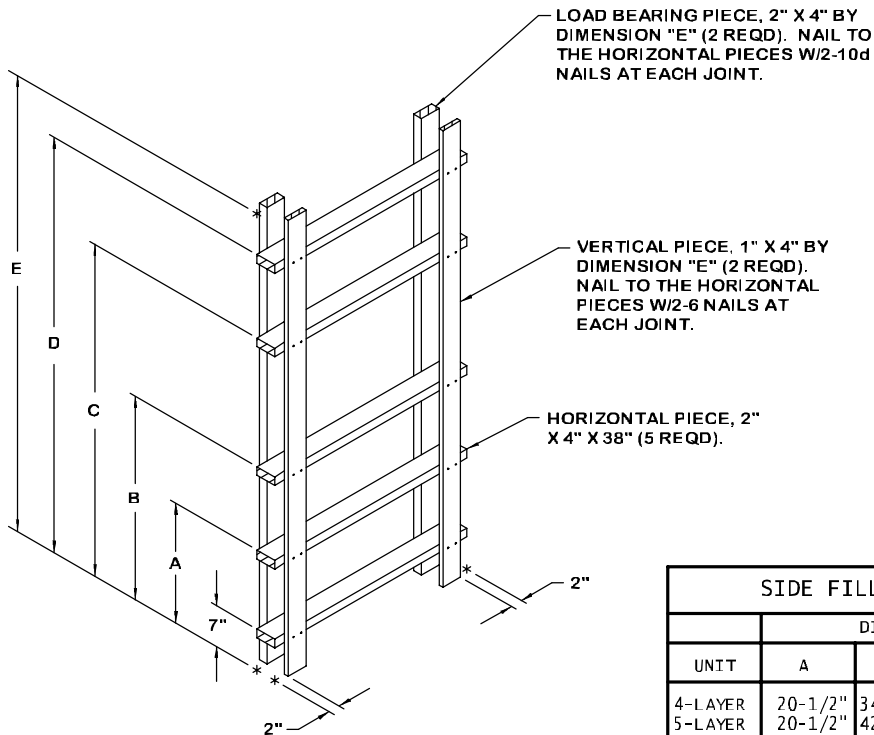
FOR A ONE HIGH 4-LAYER LOAD, REDUCE THE BEARING PIECE TO 51"; FOR A ONE HIGH 5-LAYER LOAD, REDUCE THE BEARING PIECE TO 58".



FILLER ASSEMBLY

FOR A ONE HIGH 4-LAYER OR 5-LAYER LOAD, ELIMINATE THE TOP TWO 2" X 6" LONGITUDINAL PIECES AND THE TOP SIX 2" X 6" LATERAL PIECES. REDUCE THE SHORTER VERTICAL PIECES AND VERTICAL PIECES TO 38" FOR A 4-LAYER LOAD AND TO 45-1/2" FOR A 5-LAYER LOAD.

FILLER ASSEMBLY CHART				
UNIT	DIMENSION			
	A	B	C	D
4-LAYER	24-1/2"	38"	60-3/4"	6'-0-1/2"
5-LAYER	24-1/2"	45-1/2"	68-1/4"	7'-3-1/2"
6-LAYER	32"	- -	- -	51-1/4"



SIDE FILL ASSEMBLY

FOR A ONE HIGH 4-LAYER OR 5-LAYER LOAD, ELIMINATE THE TOP TWO HORIZONTAL PIECES AND REDUCE THE BEARING PIECES AND TO 38" FOR A 4-LAYER LOAD AND TO 46" FOR A 5-LAYER LOAD.

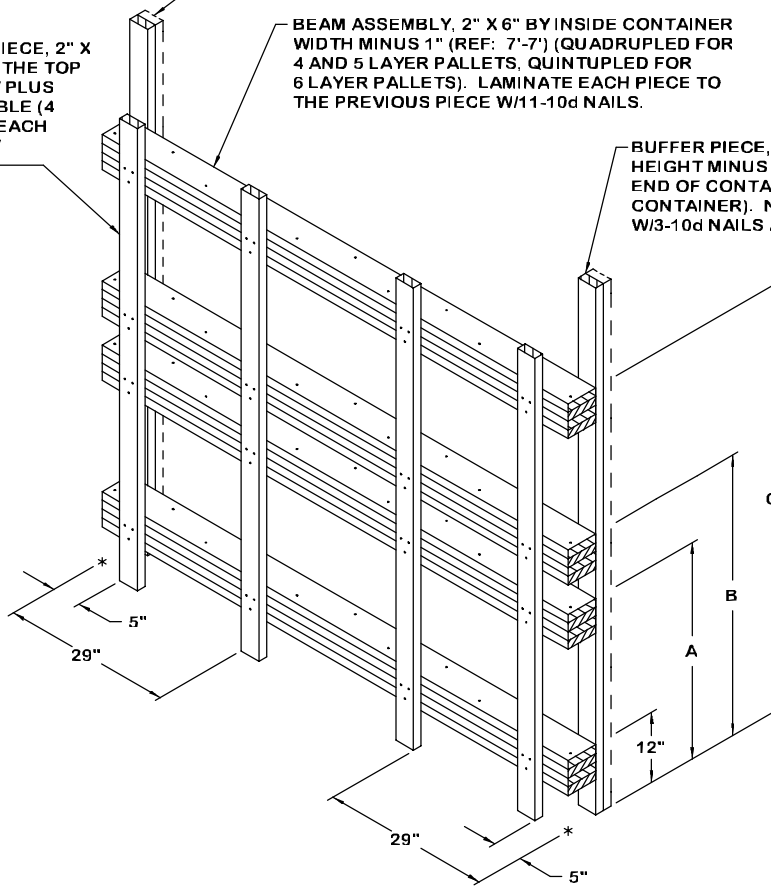
SIDE FILL ASSEMBLY CHART					
UNIT	DIMENSION				
	A	B	C	D	E
4-LAYER	20-1/2"	34-3/4"	56-3/4"	71"	6'-6"
5-LAYER	20-1/2"	42-1/4"	64-1/4"	7'-2"	7'-8"
6-LAYER	28"	49-3/4"	- -	- -	56"

SEE GENERAL NOTE "G" ON PAGE 2.

LOAD BEARING PIECE, 2" X 4" BY HEIGHT OF THE TOP BEAM ASSEMBLY PLUS 6" WHERE POSSIBLE (4 REQD). NAIL TO EACH BEAM ASSEMBLY W/3-10d NAILS.

BEAM ASSEMBLY, 2" X 6" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (QUADRUPLED FOR 4 AND 5 LAYER PALLETS, QUINTUPLED FOR 6 LAYER PALLETS). LAMINATE EACH PIECE TO THE PREVIOUS PIECE W/11-10d NAILS.

BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-6" FOR FORWARD END OF CONTAINER, 7'-8" FOR REAR END OF CONTAINER). NAIL TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT.



BLOCKING CHART			
UNIT	DIMENSION		
	A	B	C
4-LAYER	37"	48"	73"
5-LAYER	45"	56"	7'-3"
6-LAYER	52"	- -	- -

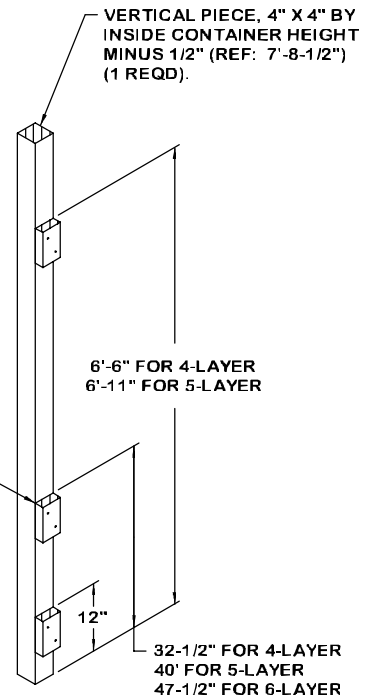
ALTERNATIVE FORWARD/REAR BLOCKING ASSEMBLY

VERTICAL PIECE, 4" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1/2" (REF: 7'-8-1/2") (1 REQD).

STRUT LEDGER, 2" X 4" X 6" (3 REQD FOR 4 AND 5 LAYER PALLETS, 2 REQD FOR 6 LAYER PALLETS). NAIL TO THE VERTICAL PIECE W/2-10d NAILS.

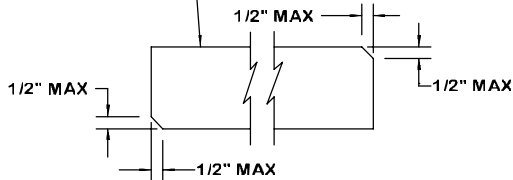
6'-6" FOR 4-LAYER
6'-11" FOR 5-LAYER

32-1/2" FOR 4-LAYER
40" FOR 5-LAYER
47-1/2" FOR 6-LAYER



DOOR POST VERTICAL

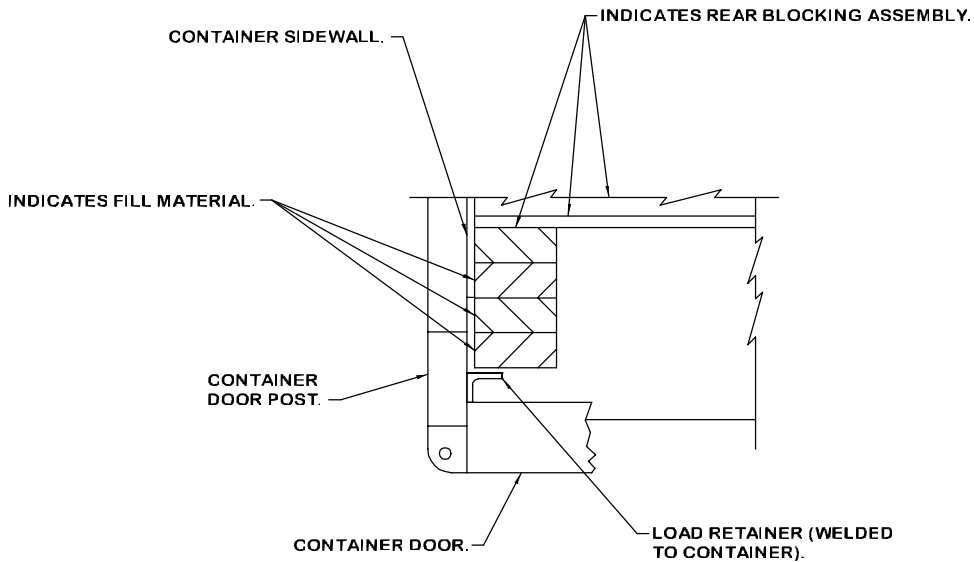
INDICATES A DOOR SPANNER.



BEVEL-CUT

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

DETAILS

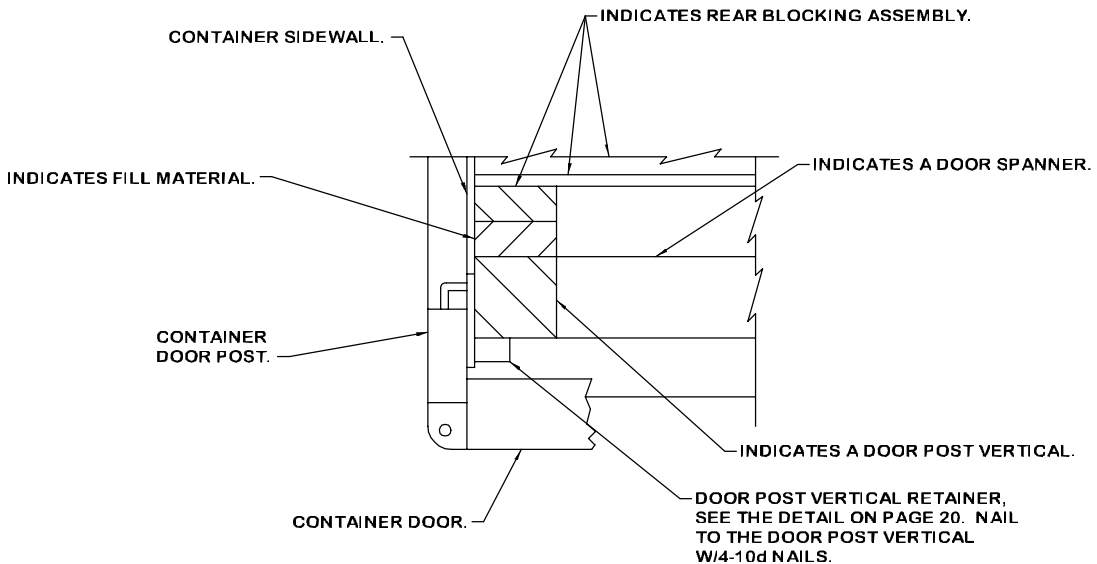


DETAIL A

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

SPECIAL NOTE:

WHEN ISO CONTAINERS ARE NOT EQUIPPED WITH PRE-WELDED LOAD RETAINERS, AS DEPICTED IN "DETAIL A" ABOVE, DOOR POST VERTICALS, DOOR POST VERTICAL RETAINERS AND DOOR SPANNERS WILL BE REQUIRED FOR THE LOADS DEPICTED HEREIN. SEE VARIOUS LOADS WITHIN AMC DRAWING 19-48-4153-15PA1002 FOR EXAMPLES. SEE PAGE 20 FOR DETAILS OF THE METAL DOOR POST VERTICAL RETAINER.

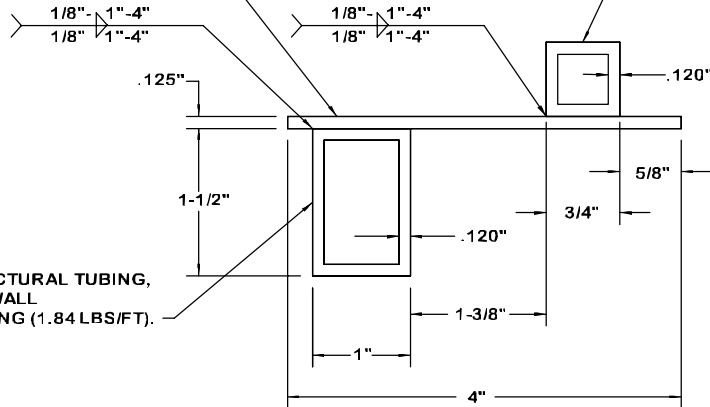


DETAIL B

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

STEEL STRIP, 1/8" THICK BY 4" WIDE
BY 83" LONG (1.70 LBS/FT).

SQUARE STRUCTURAL TUBING, 3/4" SQUARE
BY .120" WALL THICKNESS BY 83" LONG
(1.03 LBS/FT). SEE SPECIAL NOTE BELOW.



RECTANGULAR STRUCTURAL TUBING,
1-1/2" BY 1" BY .120" WALL
THICKNESS BY 83" LONG (1.84 LBS/FT).

VIEW A

SPECIAL NOTE:

IN MOST CORRUGATED STEEL CONTAINERS, LASHING OR TIE BARS WILL BE PRESENT IN THE SLOT WHERE THE 3/4" SQUARE STRUCTURAL TUBING IS TO BE INSTALLED. TO ENSURE PROPER ENGAGEMENT OF THE SQUARE TUBING AND THE CONTAINER DOOR POST, THE TUBING MUST BE NOTCHED AT THE TIE BAR LOCATIONS.

VIEW A
SQUARE STRUCTURAL TUBING,
3/4" SQUARE BY .120" WALL
THICKNESS BY 83" LONG
(1.03 LBS/FT).



RECTANGULAR STRUCTURAL TUBING,
1-1/2" BY 1" BY .120" WALL THICKNESS
BY 83" LONG (1.84 LBS/FT).

DRILL 5/32", 4 HOLES.

STEEL STRIP, 1/8" THICK BY 4" WIDE
BY 83" LONG (1.70 LBS/FT).

DOOR POST VERTICAL RETAINER

NOTE: THE ABOVE ASSEMBLY HAS BEEN SHOWN ROTATED 90° FROM THE ORIENTATION IN WHICH IT IS INSTALLED IN THE LEFT REAR CORNER OF THE CONTAINER. THE ASSEMBLY HAS BEEN ROTATED FOR HOLE LOCATION CLARITY.