

APPROVED BY
BUREAU OF EXPLOSIVES

D. L.

DATE 4-21-99

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

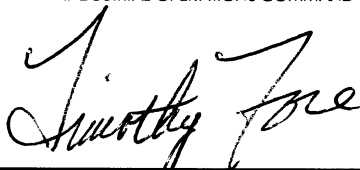

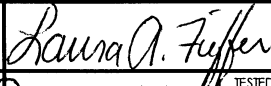


M460 SERIES CONTAINERS (W/O PROTECTIVE COVER)

INDEX

ITEM	PAGE(S)
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
PALLET UNIT DETAILS - - - - -	3-4
14-UNIT LOAD (ALTERNATED CONTAINERS - BASIC HEIGHT) - - - - -	6-7
7-UNIT LOAD (ALTERNATED CONTAINERS - INCREASED HEIGHT) - - - - -	8-9
7-UNIT LOAD (FLAT DUNNAGE - BASIC HEIGHT) - - - - -	10-11
14-UNIT LOAD (FLAT DUNNAGE - DECREASED HEIGHT) - - - - -	12-13
7-UNIT LOAD (ROUTED DUNNAGE - BASIC HEIGHT) - - - - -	14-15
14-UNIT LOAD (ROUTED DUNNAGE - DECREASED HEIGHT) - - - - -	16-17
DETAILS - - - - -	18-22

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.			WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
	TECHNICIAN	BASIC			NOVEMBER 1998			
		REV.						
	DRAFTSMAN	BASIC						
		REV.						
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND 	TRANSPORTATION ENGINEERING DIVISION							
	VALIDATION ENGINEERING DIVISION				CLASS	DIVISION	DRAWING	FILE
	LOGISTICS ENGINEERING OFFICE				19	48	4154/ 7	15PM1002

PROJECT CA 1757-80

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 OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE M460 SERIES PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 40" X 48" 4-WAY ENTRY PALLET. SEE PAGES 3 AND 4 AND AMC DRAWING 19-48-4042A/7-20PM1001 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 HORIZONTAL PIECES ON THE CENTER FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE LENGTH OF THE LATERAL PIECES THE CENTER 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.

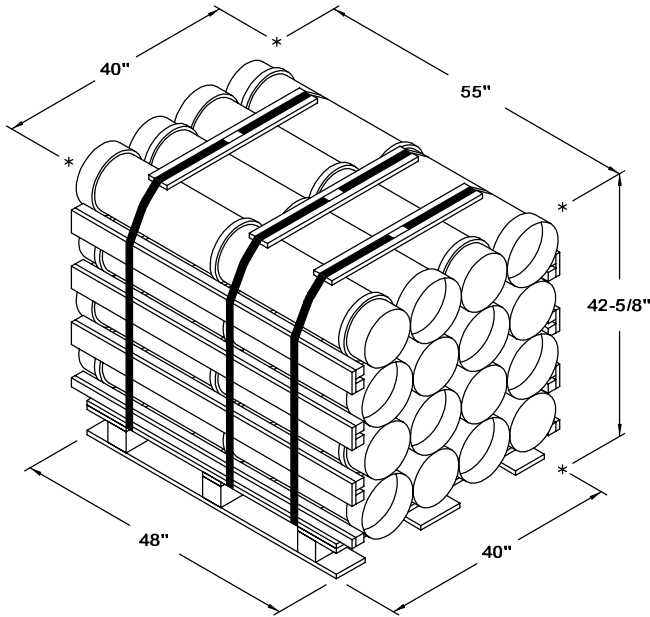
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(GENERAL NOTES CONTINUED)

- 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 LOAD ON PAGES 6 THROUGH 17 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE OMITTED UNIT ASSEMBLY ON PAGE 5.
 - 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.

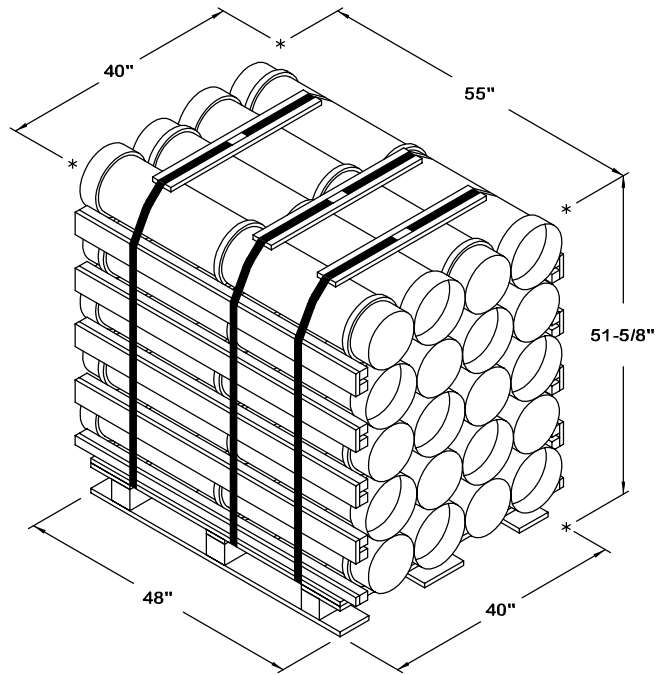
MATERIAL SPECIFICATIONS

- 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.
- STEEL, STRUCTURAL - - - - - -: ASTM A501, STEEL STRUCTURAL TUBING; AND ASTM A570, STEEL, STRIP, HOT-ROLLED, GRADE 36 (MINIMUM).



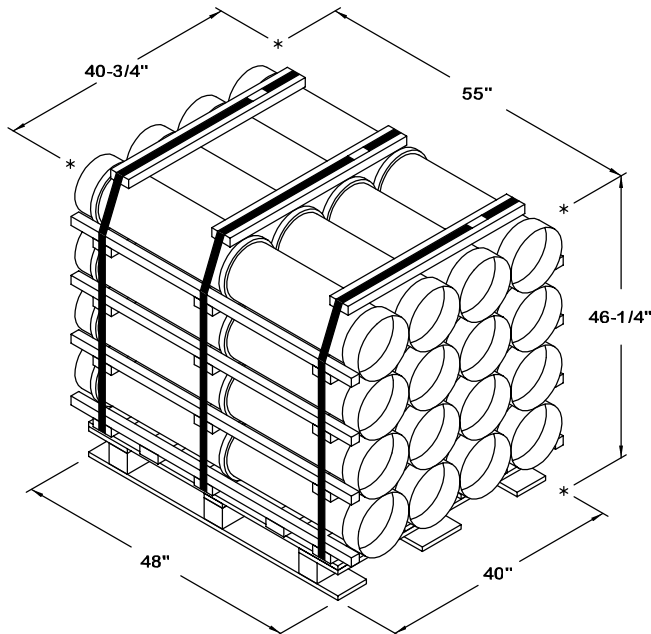
ALTERNATED CONTAINERS UNIT (BASIC HEIGHT)

CONTAINER - - - - - 16 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 54.3 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 1,907 LBS (APPROX)



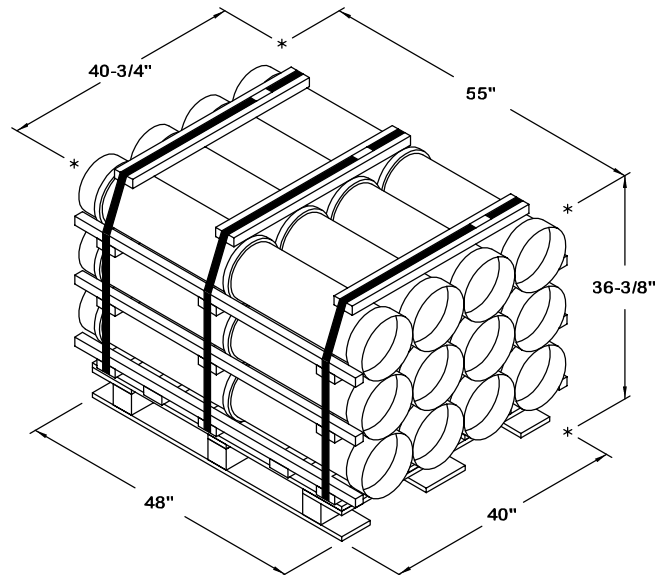
ALTERNATED CONTAINERS UNIT (INCREASED HEIGHT)

CONTAINER - - - - - 20 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 65.7 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 2,364 LBS (APPROX)



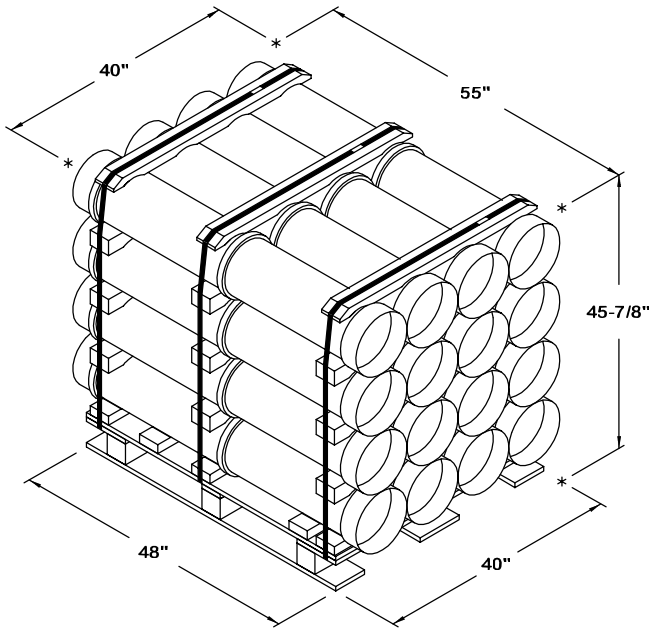
FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)

CONTAINER - - - - - 16 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 60.0 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 1,882 LBS (APPROX)



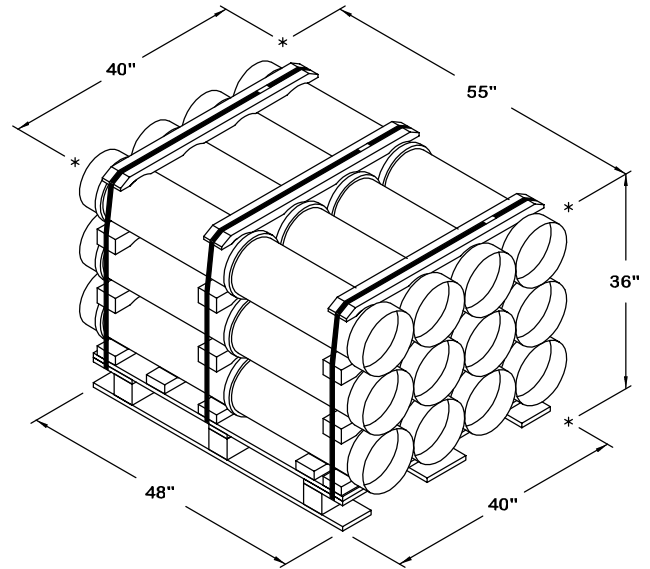
FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)

CONTAINER - - - - - 12 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 47.2 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 1,448 LBS (APPROX)



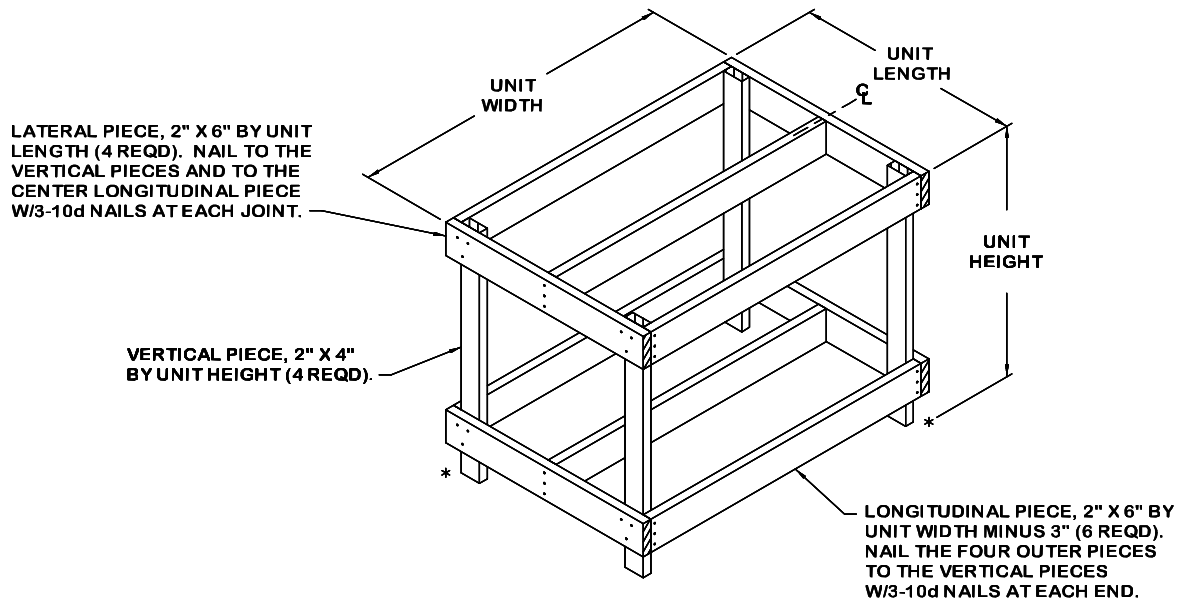
ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)

CONTAINER - - - - - 16 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 58.4 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 1,878 LBS (APPROX)



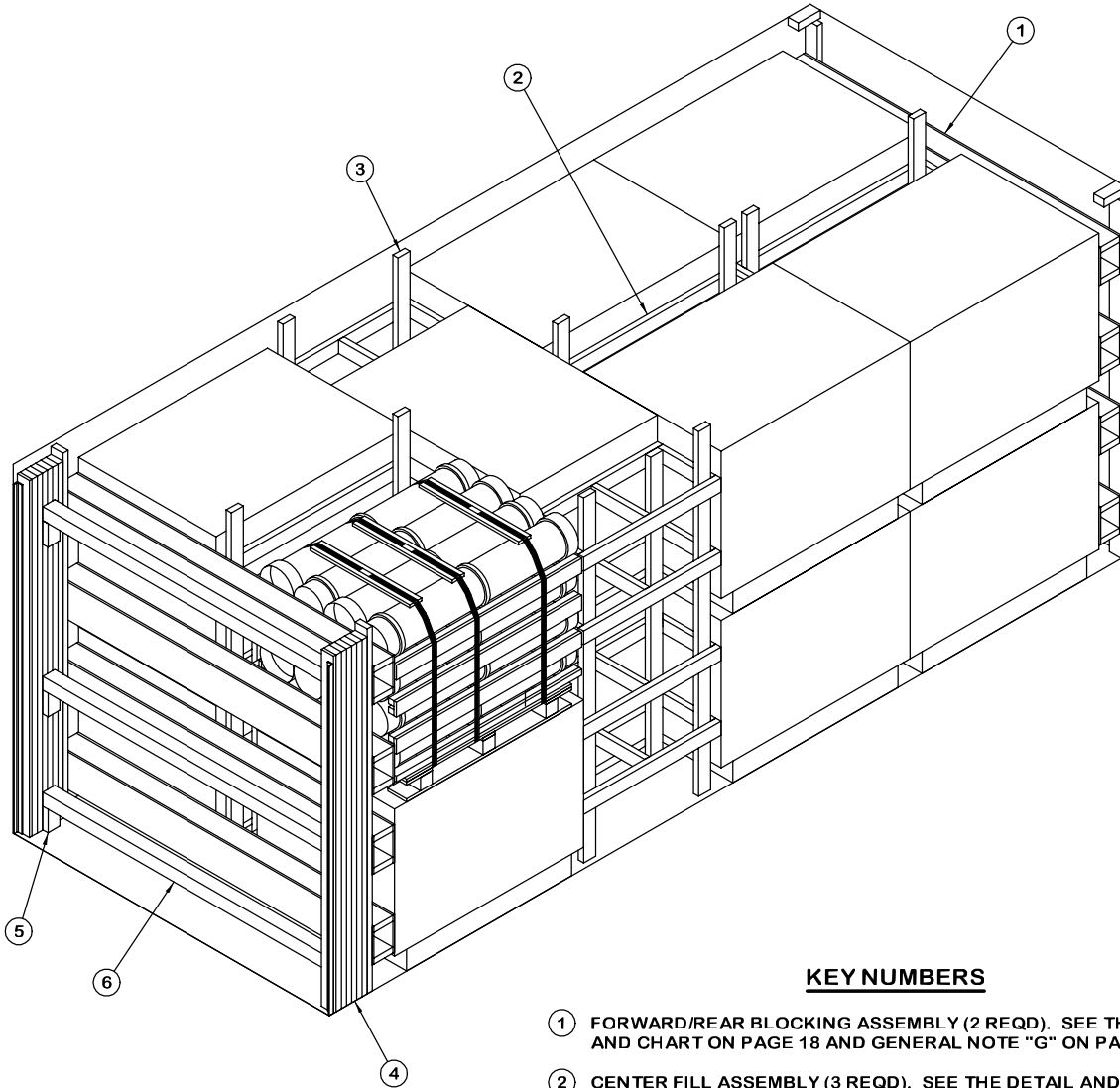
ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)

CONTAINER - - - - - 12 EACH @ 106 LBS (APPROX)
 CUBE - - - - - 45.8 CUBIC FEET (APPROX)
 GROSS WEIGHT - - - - - 1,433 LBS (APPROX)



OMITTED UNIT ASSEMBLY

THIS ASSEMBLY IS FOR USE IN PLACE OF AN OMITTED PALLET UNIT. NO MORE THAN THREE 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 AND CHART ON PAGE 18 AND GENERAL NOTE "G" ON PAGE 2.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ④ FILL MATERIAL, 4" WIDE BY 7'-6" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/8 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE IN A SIMILAR MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (6 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (3 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. NOTE THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

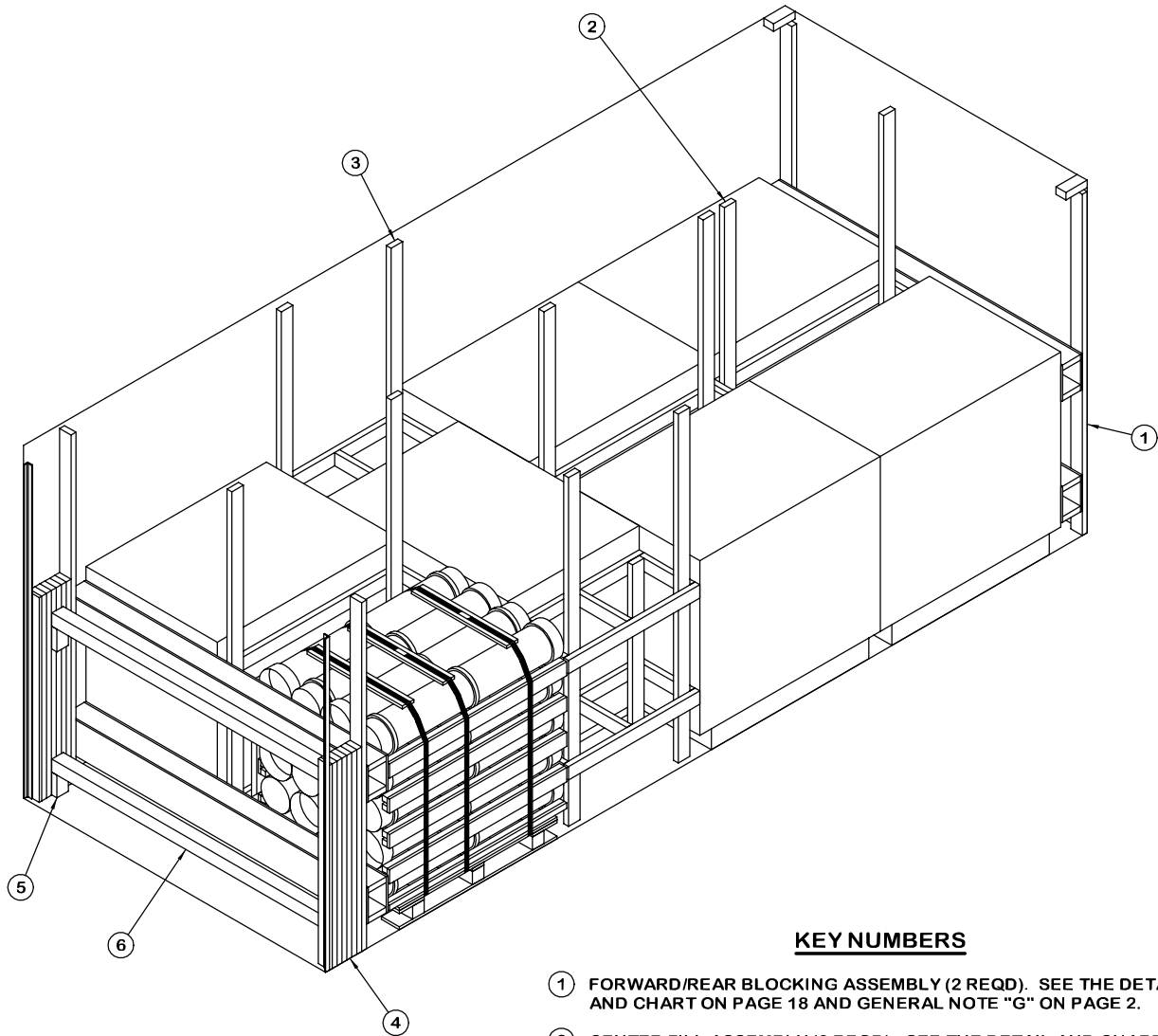
1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD TWO PALLETS AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE SIX STRUT LEDGERS AND THREE DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	15	5
2" X 4"	469	313
2" X 6"	122	122
4" X 4"	22	30
NAILS	NO. REQD	POUNDS
6d (2")	368	2-1/4
10d (3")	620	9-3/4
12d (3-1/4")	12	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 - - - - -	14 - - - - -	26,698 LBS
DUNNAGE - - - - -	- - - - -	1,085 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS

TOTAL WEIGHT - - - - - 32,483 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

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- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ④ FILL MATERIAL, 4" WIDE BY 54" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/5 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE IN A SIMILAR MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (4 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (2 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. NOTE THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

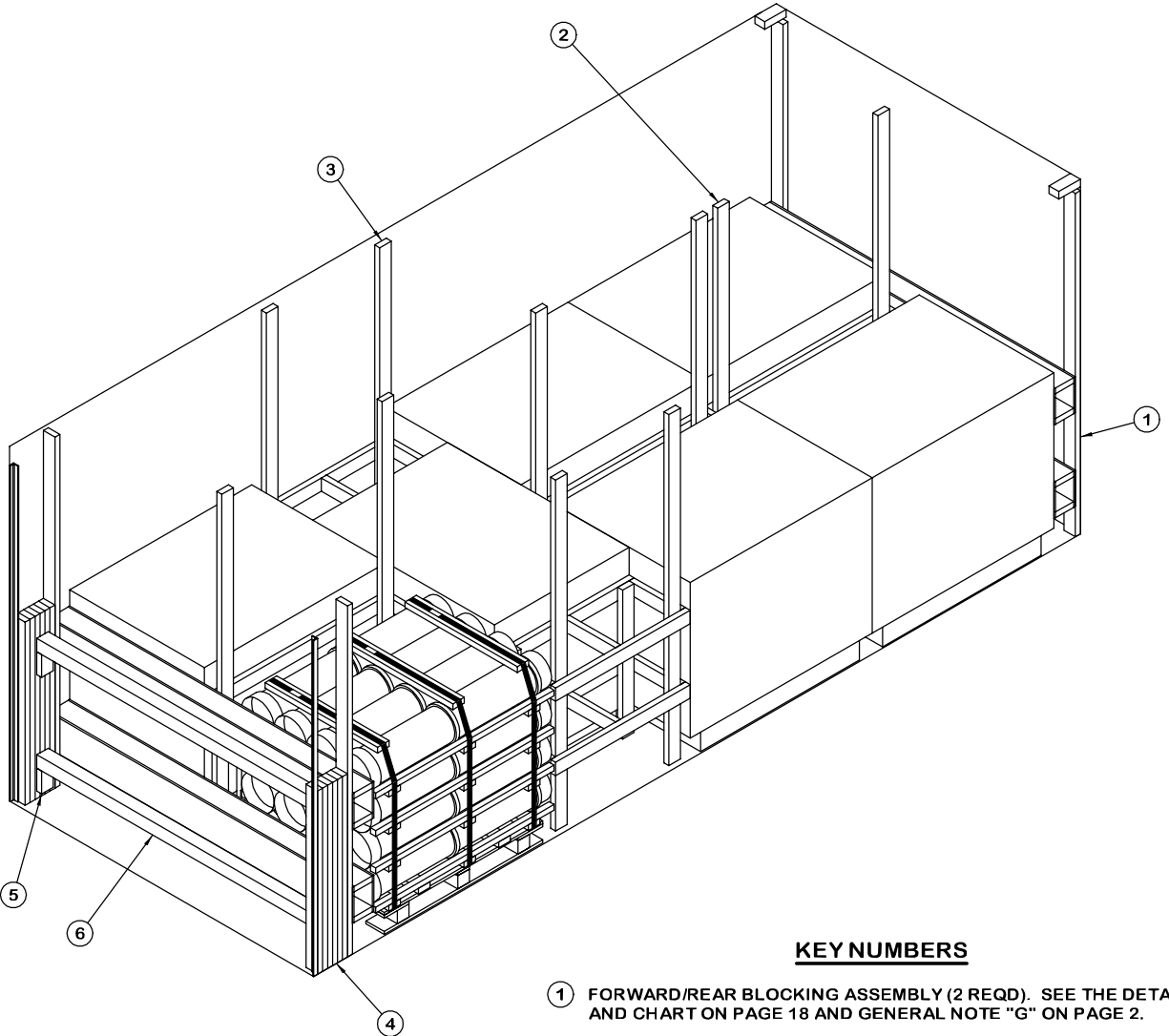
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD TWO PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD ONE PALLET AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE FOUR STRUT LEDGERS AND TWO DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	9	3
2" X 4"	283	189
2" X 6"	61	61
4" X 4"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	186	1-1/4
10d (3")	324	5
12d (3-1/4")	8	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 - - - - -	7 - - - - -	16,548 LBS
DUNNAGE - - - - -	- - - - -	619 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		21,867 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 18 AND GENERAL NOTE "G" ON PAGE 2.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ④ FILL MATERIAL, 4" WIDE BY 48" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/5 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE IN A SIMILAR MANNER. **NOTE:** MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (4 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (2 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. **NOTE:** THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

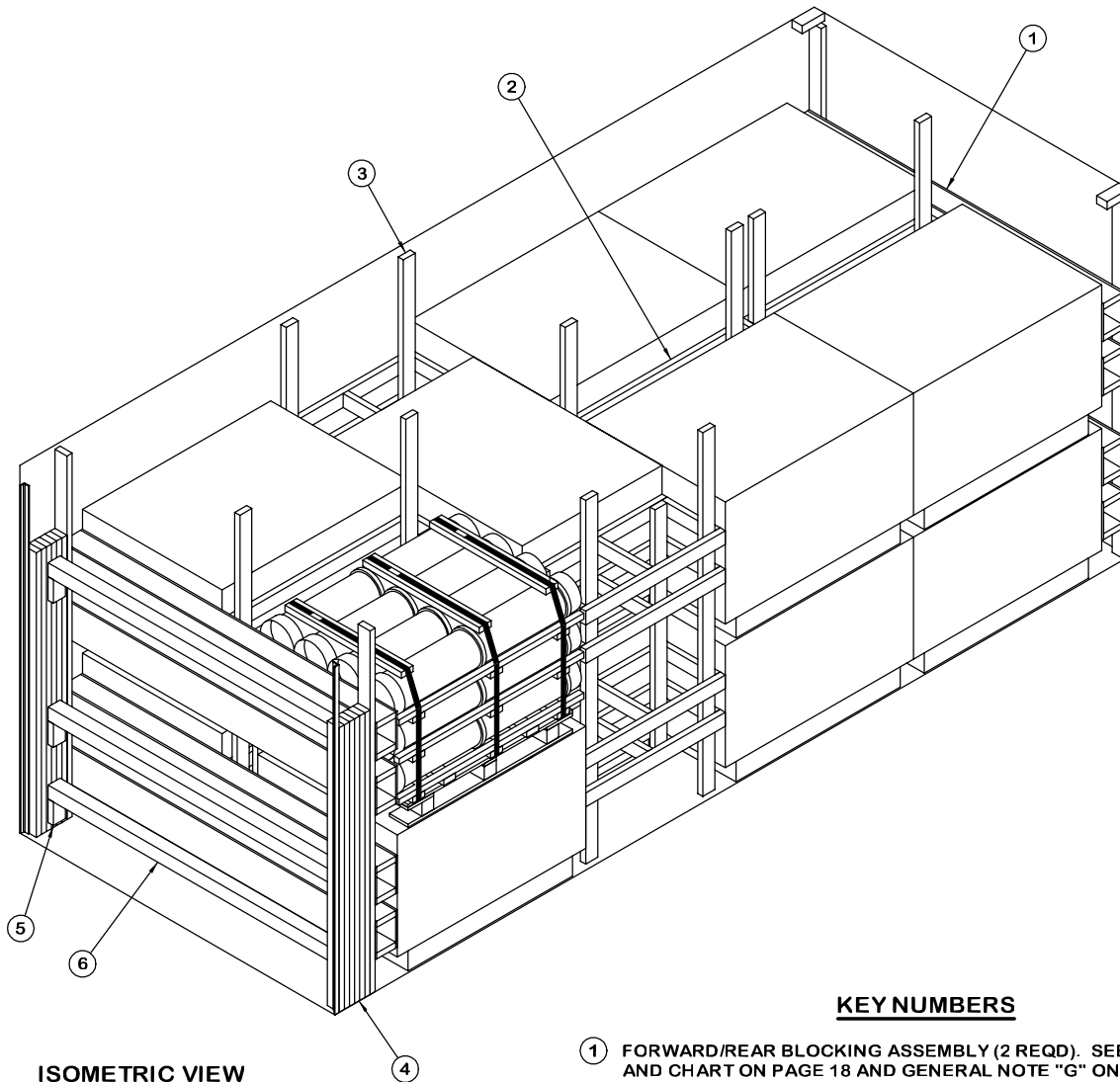
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD TWO PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD ONE PALLET AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE FOUR STRUT LEDGERS AND TWO DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	269	180
2" X 6"	61	61
4" X 4"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	176	1-1/4
10d (3")	324	5
12d (3-1/4")	8	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 - - - - -	7 - - - - -	13, 174 LBS
DUNNAGE - - - - -	- - - - -	595 LBS
CONTAINER - - - - -	- - - - -	4, 700 LBS
TOTAL WEIGHT - - - - -		18, 469 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 18 AND GENERAL NOTE "G" ON PAGE 2.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- 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 IN A SIMILAR MANNER. **NOTE:** MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (6 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (3 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. **NOTE:** THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

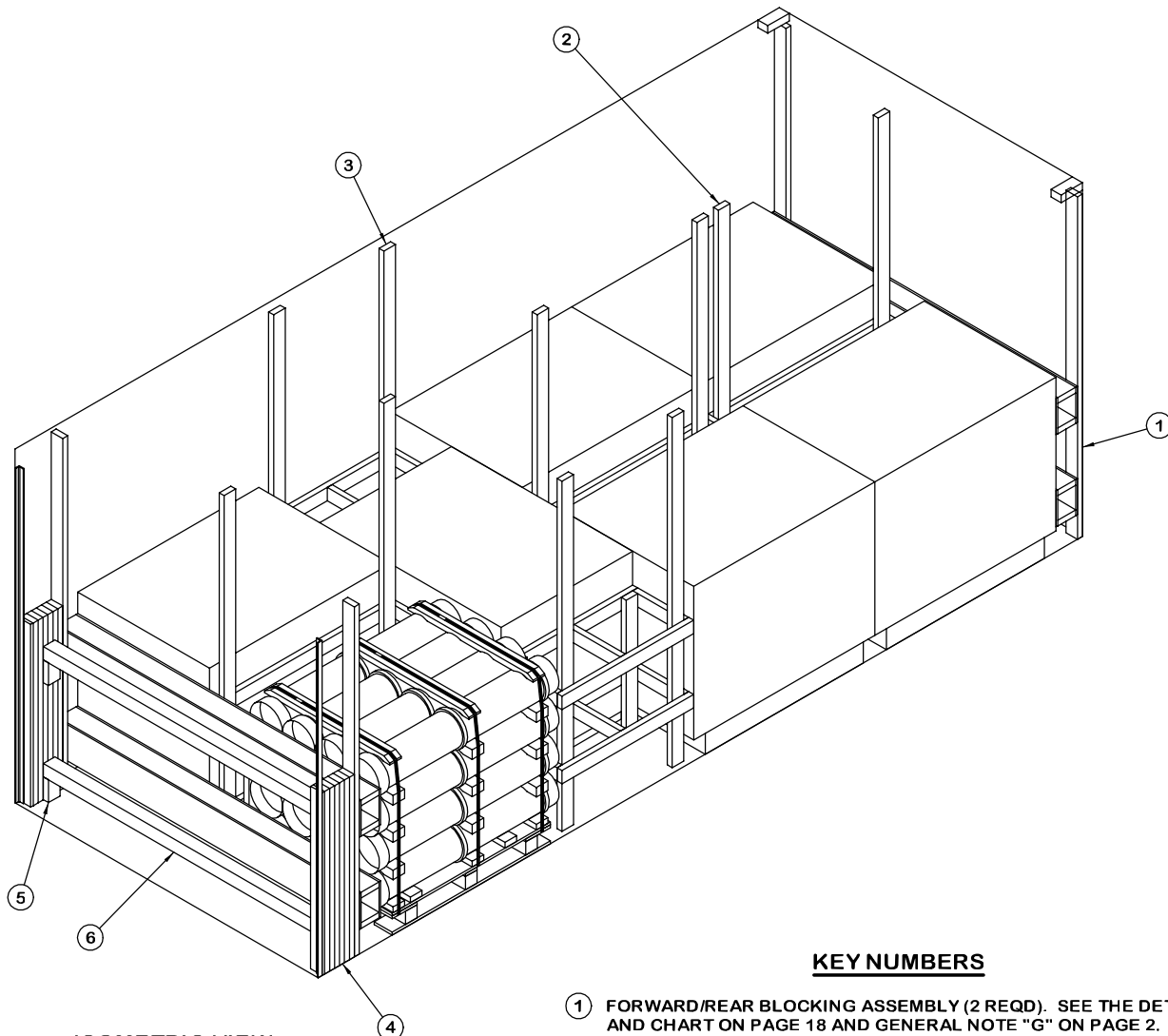
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD TWO PALLETS AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE SIX STRUT LEDGERS AND THREE DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	432	288
2" X 6"	122	122
4" X 4"	22	30
NAILS	NO. REQD	POUNDS
6d (2")	352	2-1/4
10d (3")	608	9-1/2
12d (3-1/4")	12	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 - - - - -	14 - - - - -	20, 272 LBS
DUNNAGE - - - - -	- - - - -	1, 025 LBS
CONTAINER - - - - -	- - - - -	4, 700 LBS
TOTAL WEIGHT - - - - -		25, 997 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 18 AND GENERAL NOTE "G" ON PAGE 2.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ④ FILL MATERIAL, 4" WIDE BY 48" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/5 NAILS OF A SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE IN A SIMILAR MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (4 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (2 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. NOTE THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

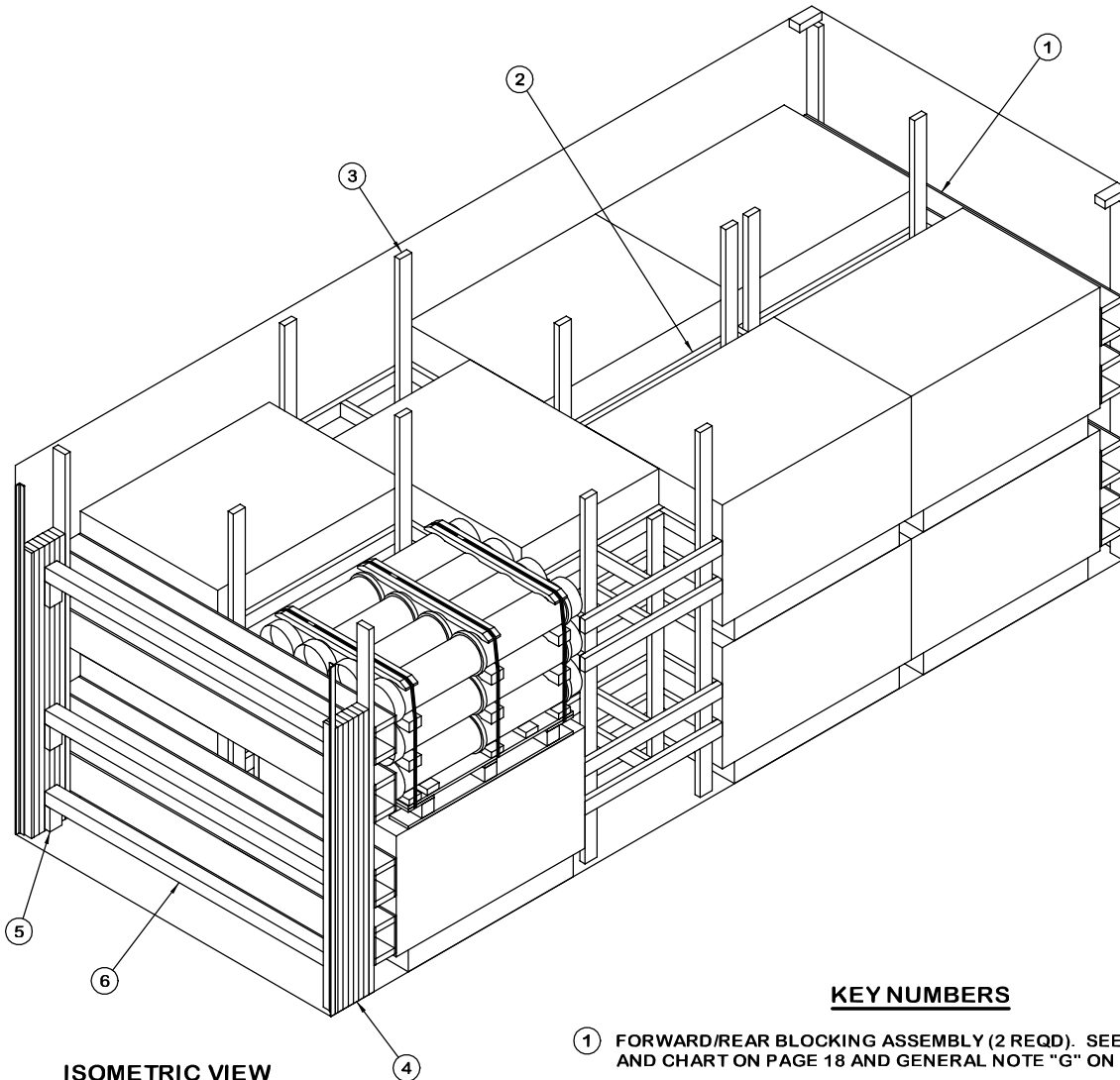
RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD TWO PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD ONE PALLET AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE FOUR STRUT LEDGERS AND TWO DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	8	3
2" X 4"	266	178
2" X 6"	61	61
4" X 4"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	186	1-1/4
10d (3")	324	5
12d (3-1/4")	8	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 - - - - -	7 - - - - -	13, 146 LBS
DUNNAGE - - - - -	- - - - -	597 LBS
CONTAINER - - - - -	- - - - -	4, 700 LBS
TOTAL WEIGHT - - - - -		18, 443 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD/REAR BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 18 AND GENERAL NOTE "G" ON PAGE 2.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- ③ FILLER ASSEMBLY (2 REQD). SEE THE DETAIL AND CHART ON PAGE 19.
- 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 IN A SIMILAR MANNER. NOTE: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY.
- ⑤ STRUT LEDGER, 2" X 4" X 6" (6 SHOWN - OPTIONAL). INSTALL IF DESIRED TO AID IN THE INSTALLATION OF SPANNER PIECES. NAIL TO THE FILL MATERIAL W/2-10d NAILS.
- ⑥ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-3/8") (3 REQD). TOENAIL TO THE FILL MATERIAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL CUT DETAIL ON PAGE 20. NOTE THAT THE SPANNER PIECES ARE NOT REQUIRED IF THE SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINER IS NOT GREATER THAN 6".

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PRE-FABRICATE TWO FORWARD/REAR BLOCKING ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, AND TWO FILLER ASSEMBLIES.
2. INSTALL THE FORWARD BLOCKING ASSEMBLY.
3. LOAD FOUR PALLETS AND INSTALL ONE CENTER FILL ASSEMBLY.
4. REPEAT STEP 3.
5. LOAD TWO PALLETS AND TWO FILLER ASSEMBLIES.
6. REPEAT STEP 3.
7. INSTALL THE REAR BLOCKING ASSEMBLY.
8. INSTALL THE FILL MATERIAL BETWEEN THE REAR BLOCKING ASSEMBLY AND THE LOAD RETAINERS.
9. INSTALL THE SIX STRUT LEDGERS AND THREE DOOR SPANNER PIECES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	12	4
2" X 4"	431	288
2" X 6"	122	122
4" X 4"	22	30
NAILS	NO. REQD	POUNDS
6d (2")	366	2-1/4
10d (3")	608	9-1/2
12d (3-1/4")	12	1/4
PLYWOOD, 1/2" - - - 96.06 SQ FT REQD - - 132-1/4 LBS		

LOAD AS SHOWN

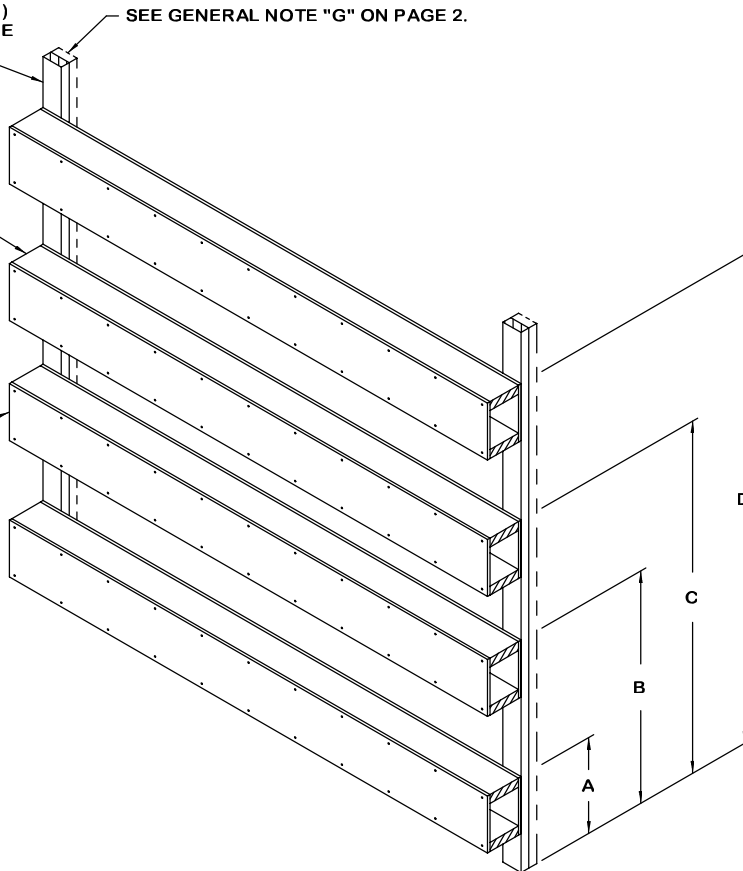
<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	14 - - - - -	20,062 LBS
DUNNAGE - - - - -	- - - - -	1,033 LBS
CONTAINER - - - - -	- - - - -	4,700 LBS
TOTAL WEIGHT - - - - -		25,795 LBS (APPROX)

BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-6" IN FORWARD END OF CONTAINER, 7'-8" IN REAR OF CONTAINER) (2 REQD). NAIL THROUGH PLYWOOD INTO THE BEAMS W/2-10d NAILS AT EACH JOINT.

SEE GENERAL NOTE "G" ON PAGE 2.

BEAM, 2" X 6" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (8 REQD).

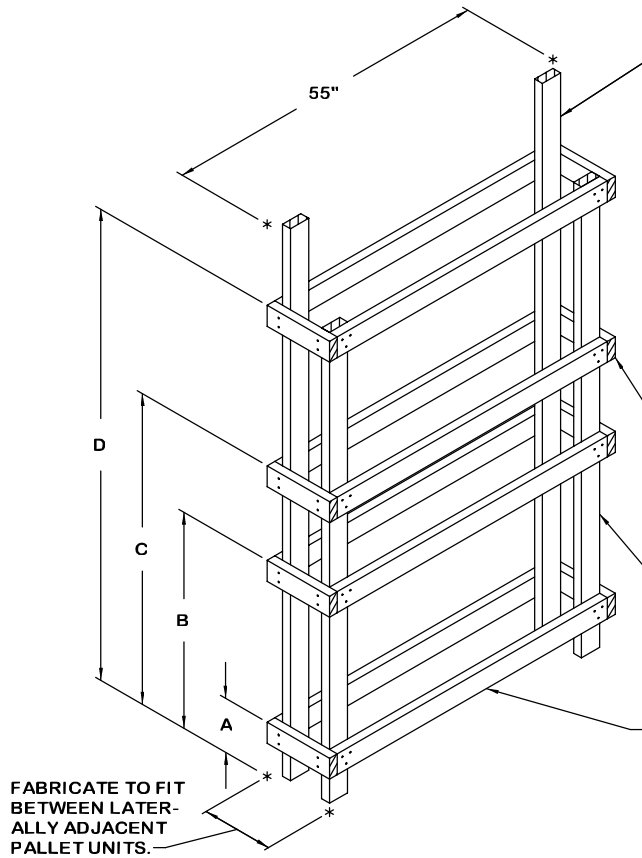
PLYWOOD, 1/2" X 9-1/2" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (8 REQD). NAIL TO THE BEAMS W/1-6d NAIL EVERY 8".



FORWARD/REAR BLOCKING ASSEMBLY

FOR A ONE HIGH LOAD, REMOVE THE TOP TWO BOX BEAM ASSEMBLIES.

FORWARD/REAR BLOCKING CHART				
PALLET UNIT	DIMENSION			
	A	B	C	D
ALTERNATED (BASIC)	16"	38-3/4"	58-3/4"	6'-9-1/2"
ALTERNATED (INCREASED)	16"	48"	- -	- -
FLAT (BASIC)	17-1/2"	42"	- -	- -
FLAT (DECREASED)	17-1/2"	31-1/4"	54"	67-3/4"
ROUTED (BASIC)	16"	40-1/4"	- -	- -
ROUTED (DECREASED)	16"	30-1/2"	52"	66-1/2"



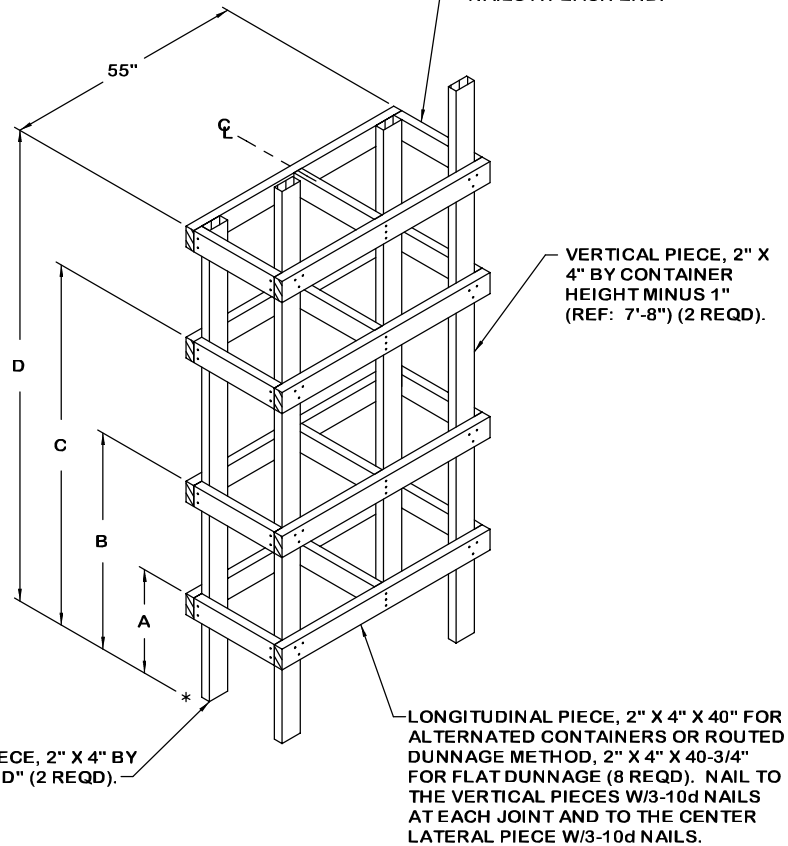
CENTER FILL ASSEMBLY CHART				
PALLET UNIT	DIMENSION			
	A	B	C	D
ALTERNATED (BASIC)	9"	36"	51-3/4"	6' -6-1/2"
ALTERNATED (INCREASED)	9"	45-1/4"	- -	- -
FLAT (BASIC)	9"	39"	- -	- -
FLAT (DECREASED)	9"	29"	45-1/4"	65-1/2"
ROUTED (BASIC)	8"	37"	- -	- -
ROUTED (DECREASED)	8"	27"	44"	63"

FABRICATE TO FIT BETWEEN LATERALLY ADJACENT PALLET UNITS.

CENTER FILL ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP FOUR LATERAL PIECES AND THE TOP FOUR LONGITUDINAL PIECES, AND SHORTEN THE TWO SHORTER VERTICAL PIECES APPROPRIATELY.

FILLER ASSEMBLY CHART				
PALLET UNIT	DIMENSION			
	A	B	C	D
ALTERNATED (BASIC)	17-1/4"	36"	60"	6' -6-1/2"
ALTERNATED (INCREASED)	17-1/4"	45-1/4"	- -	- -
FLAT (BASIC)	19-1/2"	39"	- -	- -
FLAT (DECREASED)	19-1/2"	29"	55-3/4"	65-1/2"
ROUTED (BASIC)	17-1/4"	37"	- -	- -
ROUTED (DECREASED)	17-1/4"	27"	53-1/4"	63"



VERTICAL PIECE, 2" X 4" BY DIMENSION "D" (2 REQD).

FILLER ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP SIX LATERAL PIECES AND THE TOP FOUR LONGITUDINAL PIECES, AND SHORTEN THE SHORTER VERTICAL PIECES APPROPRIATELY.

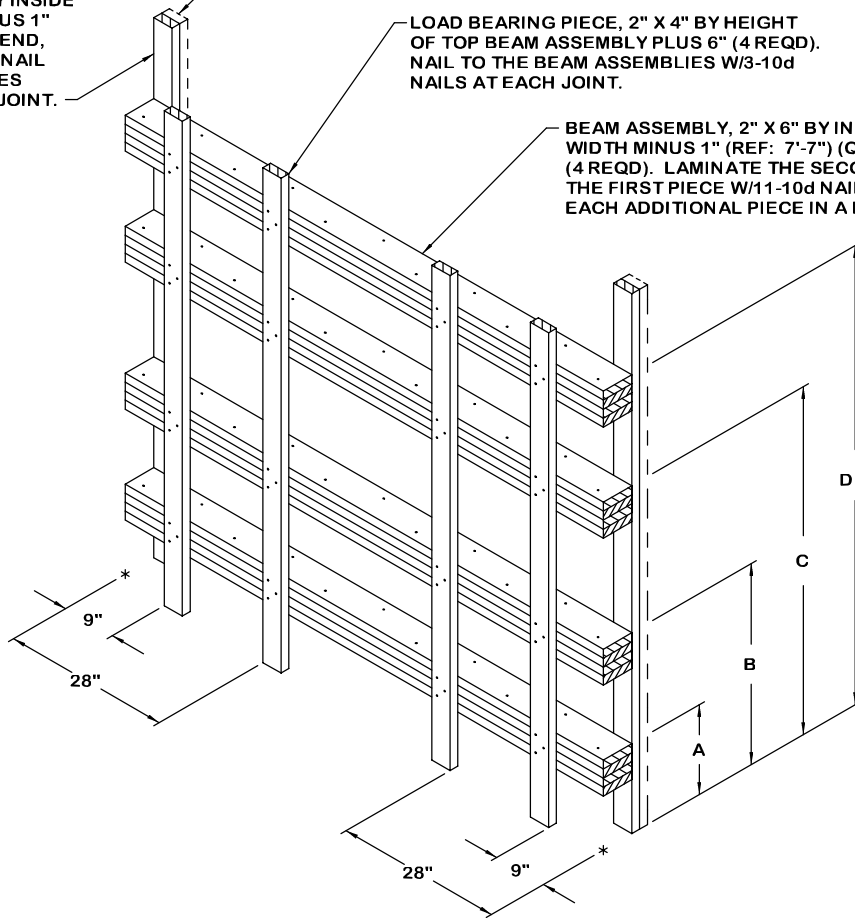
DETAILS

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

SEE GENERAL NOTE "G" ON PAGE 2.

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

BEAM ASSEMBLY, 2" X 6" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (QUADRUPLED) (4 REQD). LAMINATE THE SECOND PIECE TO THE FIRST PIECE W/11-10d NAILS. LAMINATE EACH ADDITIONAL PIECE IN A LIKE MANNER.



ALTERNATIVE FORWARD/REAR BLOCKING ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO BEAM ASSEMBLIES AND SHORTEN THE LOAD BEARING PIECES APPROPRIATELY. FOR THE LOCATION OF THE BEAM ASSEMBLIES, REFER TO THE "FORWARD/REAR BLOCKING CHART" ON PAGE 18 AND SUBTRACT 1-1/2" FROM EACH DIMENSION.

VERTICAL PIECE, 4" X 4" X 7'-4" (1 REQD).

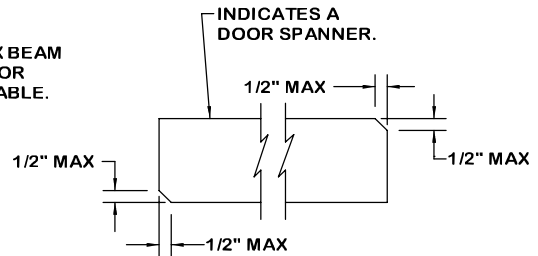
STRUT LEDGER, 2" X 4" X 6" (3 REQD). NAIL TO THE VERTICAL PIECE W/2-10d NAILS.

HEIGHT OF HIGHEST BOX BEAM ASSEMBLY MINUS 3-1/2" OR PLUS 6", WHERE APPLICABLE.

HEIGHT OF SECOND HIGHEST BOX BEAM ASSEMBLY MINUS 3-1/2".

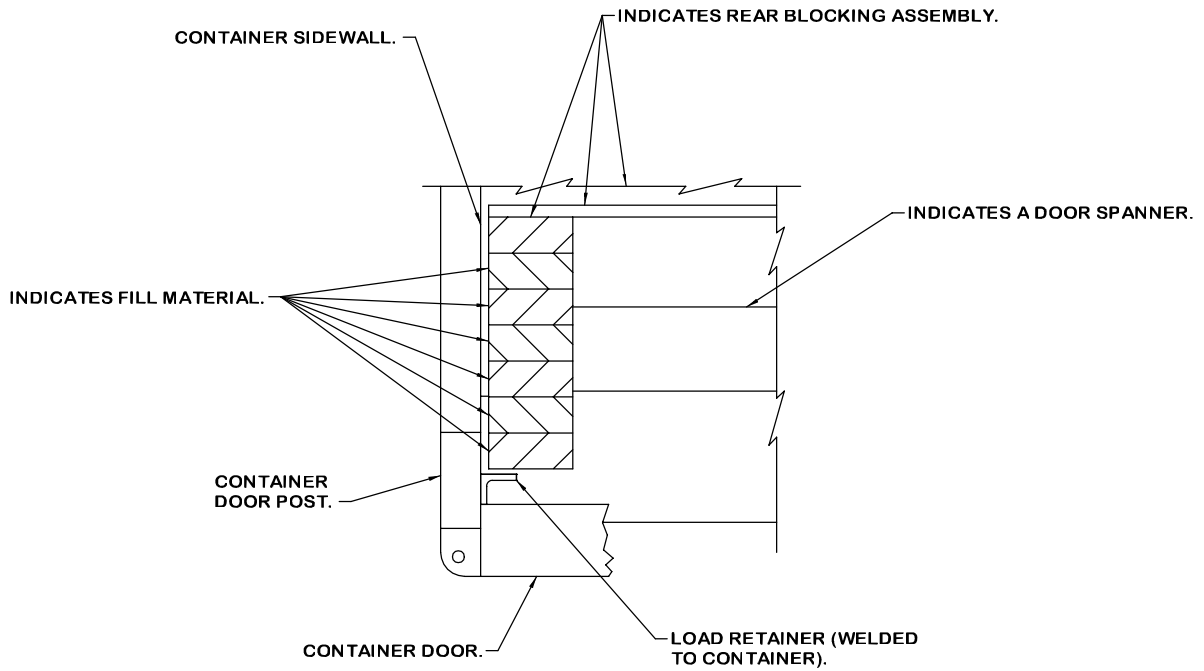
HEIGHT OF THE BOTTOM OF THE LOWEST BOX BEAM ASSEMBLY.

DOOR POST VERTICAL



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.

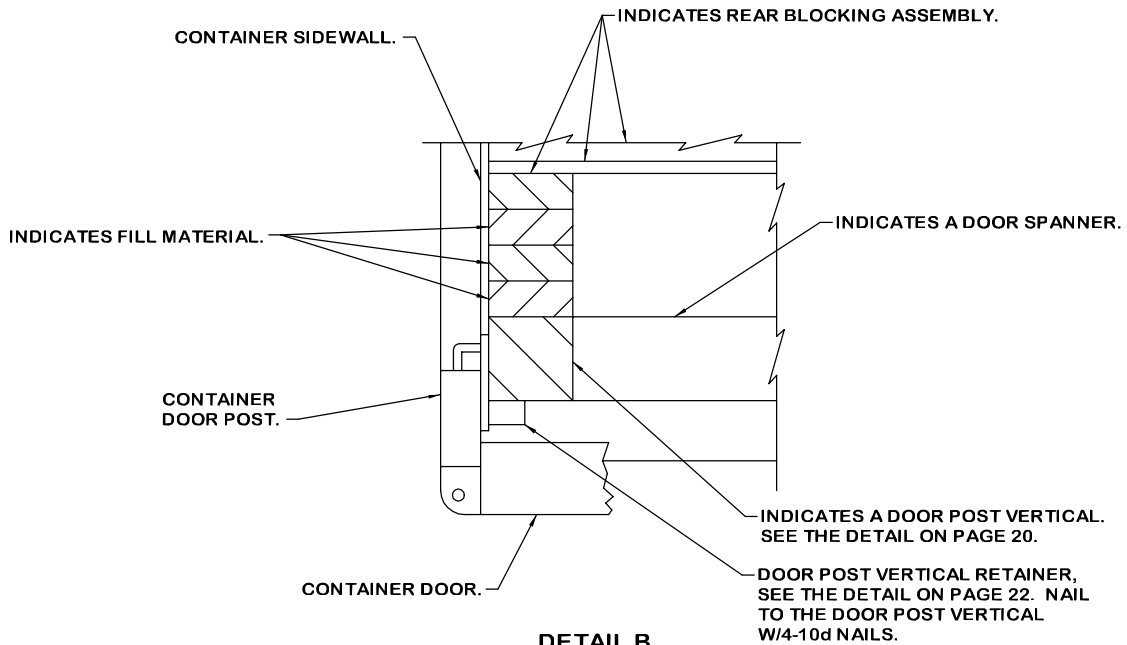


DETAIL A

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 22 FOR DETAILS OF THE METAL DOOR POST VERTICAL RETAINER AND PAGE 20 FOR DETAILS OF THE DOOR POST VERTICAL.

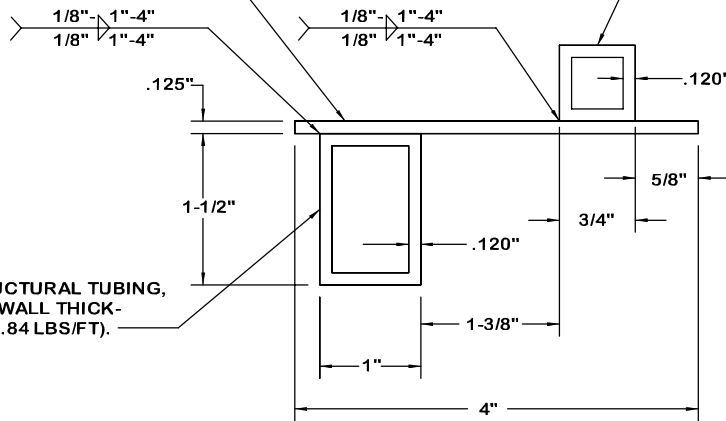


DETAIL B

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.

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.