

# LOADING AND BRACING (TL AND LTL) IN VAN TRAILERS<sup>⊕</sup> OF PALLETIZED PROPELLING CHARGES PACKED IN CYLINDRICAL METAL CONTAINERS

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## PA103 SERIES CONTAINERS

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⊕ **CAUTION: THE LOADING PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE TO HIGHWAY MOVEMENTS, NOT TRAILER-ON FLATCAR (TOFC) MOVEMENTS.**

## U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND  	ENGINEER	BASIC		<b>DO NOT SCALE</b>				
		REV.	<b>MICHAEL SARDONE</b>		WEBSITE: <a href="http://www.dac.army.mil">HTTP://WWW.DAC.ARMY.MIL</a>			
	TECHNICIAN	BASIC	<b>PATTY BRIGHT</b>		<b>JUNE 1987</b>			
		REV.			REVISION NO. 1	DECEMBER 1997		
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  	TRANSPORTATION ENGINEERING DIVISION			SEE THE REVISION LISTING ON PAGE 3				
	VALIDATION ENGINEERING DIVISION			CLASS	DIVISION	DRAWING	FILE	
	LOGISTICS ENGINEERING OFFICE			19	48	4042C/21	11PM1000	
	TESTED							

**GENERAL NOTES**

**(GENERAL NOTES CONTINUED)**

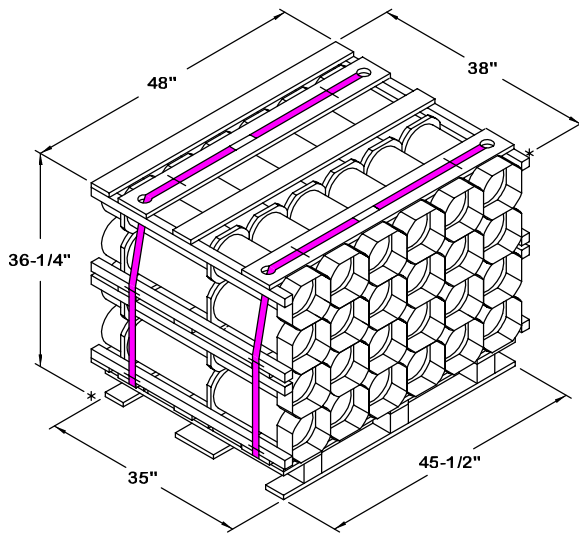
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE PA103 SERIES PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 35" X 45-1/2" 4-WAY ENTRY PALLET. THE STANDARD PALLETIZATION PATTERN IS 24 CONTAINERS IN FOUR LAYERS, BUT FIVE AND SIX LAYERS ARE ALSO ACCEPTABLE. SEE THE PICTORAL VIEWS ON PAGE 3 FOR SIZES AND WEIGHTS. SEE U.S. ARMY MATERIEL COMMAND DRAWING 19-48-4042A/22-20PM1001 FOR UNITIZATION PROCEDURES FOR THE PA103 SERIES CONTAINERS.
- C. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE VAN TRAILERS AND APPLY TO TRAILERS HAVING WOOD, OR WOOD AND METAL, OR ALL METAL FLOORS. REGARDLESS OF THE DIMENSIONS OF THE VAN TRAILERS SHOWN, THE PROCEDURES ARE ALSO APPLICABLE FOR TRAILERS WHICH ARE 89" THRU 99" IN WIDTH AND FOR TRAILERS OF OTHER LENGTHS FROM THE SHORTEST TO THE LONGEST AVAILABLE (REF: 24' TO 53'), AND FOR STRAIGHT TRUCK VANS. THE SPECIFIED BRACING IS ADEQUATE FOR LOADS WEIGHING UP TO AND INCLUDING THE MAXIMUM WEIGHTS PERMITTED BY LAW.
- D. SELECTION OF A VEHICLE TO BE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- E. THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY. THE TOTAL WEIGHT OF THE LADING, OF THE DUNNAGE, OF THE TRACTOR, AND OF THE SEMITRAILER CARRYING THE LADING MUST NOT EXCEED THE MAXIMUM GROSS WEIGHT ALLOWED FOR THE STATE OR STATES THRU WHICH THE LOAD IS TO BE TRANSPORTED BY MOTOR CARRIER. LIKEWISE, THE GROSS WEIGHT ON A SINGLE OR TANDEM AXLE MUST NOT EXCEED THE MAXIMUM ALLOWABLE WEIGHT. IF THERE IS ANY DOUBT AS TO WHETHER THE TOTAL GROSS WEIGHT OR AXLE WEIGHT EXCEEDS THE MAXIMUM ALLOWED, WEIGHT SHOULD BE VERIFIED BY ACTUALLY WEIGHING THE LOADED VEHICLE.
- F. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH STATE WEIGHT LAWS. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED, HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.
- G. THE "LOAD AS SHOWN" FOR MOST OF THE FULL LOADS DEPICTED HEREIN IS BASED ON AN APPROXIMATE LADING WEIGHT OF 43,000 POUNDS. THE SPECIFIED BLOCKING AND BRACING FOR THE FULL LOADS IS ADEQUATE FOR THE RETENTION OF LOADS, UP TO 45,000 POUNDS, IF IT IS DESIRED TO INCREASE THE LADING WEIGHT.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH PALLET UNITS OF PROPELLING CHARGES, 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.

- J. ALL LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, AND POSITION THE PALLET UNITS DIRECTLY AGAINST THE FORWARD PORTION OF THE TRAILER.
- K. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED.
- L. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- M. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. 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 THE PIECE ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- N. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH ASTM F1667 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- O. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- P. CAUTION: WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, PALLET UNITS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.
- Q. PALLET UNITS WHICH DO NOT CONTAIN A FULL QUANTITY OF ITEMS CAN BE TRANSPORTED. SEE THE "SHIPMENT OF A PARTIAL PALLET UNIT" DETAILS ON PAGE 17. FOR "SHIPMENT OF LEFT-OVER CONTAINERS" SEE THE DETAILS ON PAGE 18.
- R. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF PALLET UNITS OF PA103 SERIES CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED PROPELLING CHARGES, OR WHEN THEY ARE EMPTY.
- S. 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.
- T. ANY OF THE PALLET UNITS DEPICTED ON PAGE 3 MAY BE LOADED AS A MIXED LOAD IN THE SAME TRAILER. FOR MIXED-HEIGHT LOADS, POSITION ALL PALLET UNITS OF ONE HEIGHT IN ONE LAYER, WITH THE TALLER UNITS IN THE BOTTOM LAYER. IF FULL LAYERS OF ONE HEIGHT UNIT ARE NOT POSSIBLE FOR THE QUANTITY OF EACH SIZE TO BE SHIPPED, THE TALLER UNITS WILL BE LOADED IN THE FORWARD PORTION OF THE BOTTOM LAYER, AND THE SHORTER UNITS IN THE REAR PORTION.

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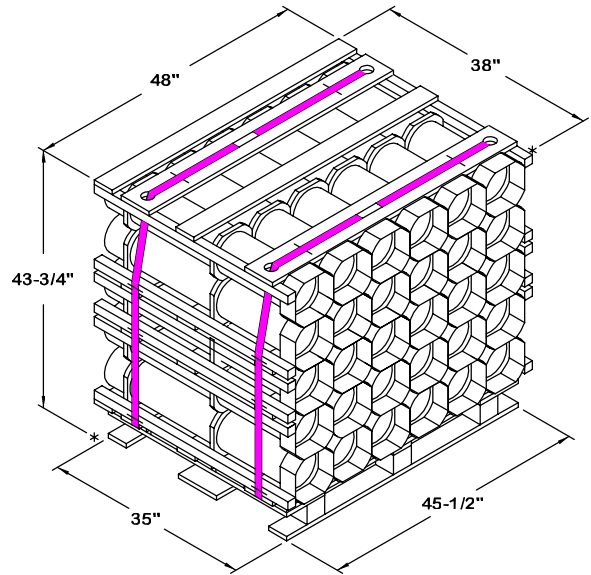
**MATERIAL SPECIFICATIONS**

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS).
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP - - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.



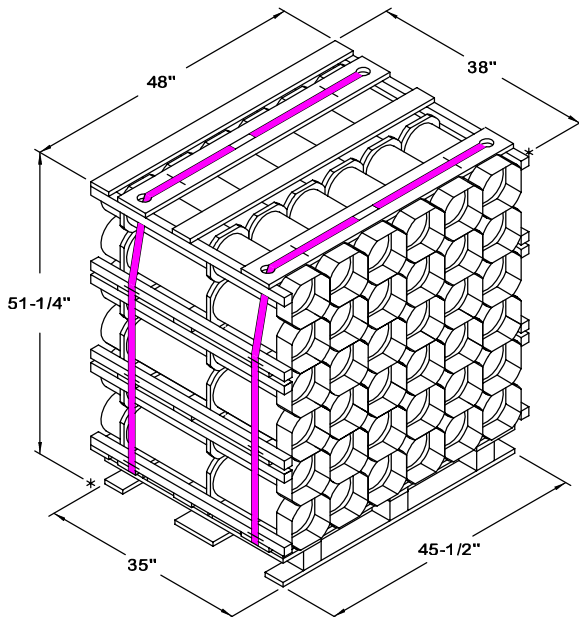
**4-LAYER PALLET UNIT**

CONTAINER - - - - - 24 EACH @ 52 LBS (APPROX)  
 CUBE - - - - - 38.3 CUBIC FEET (APPROX)  
 GROSS WEIGHT - - - - - 1,370 LBS (APPROX)



**5-LAYER PALLET UNIT**

CONTAINER - - - - - 30 EACH @ 52 LBS (APPROX)  
 CUBE - - - - - 45.9 CUBIC FEET (APPROX)  
 GROSS WEIGHT - - - - - 1,699 LBS (APPROX)



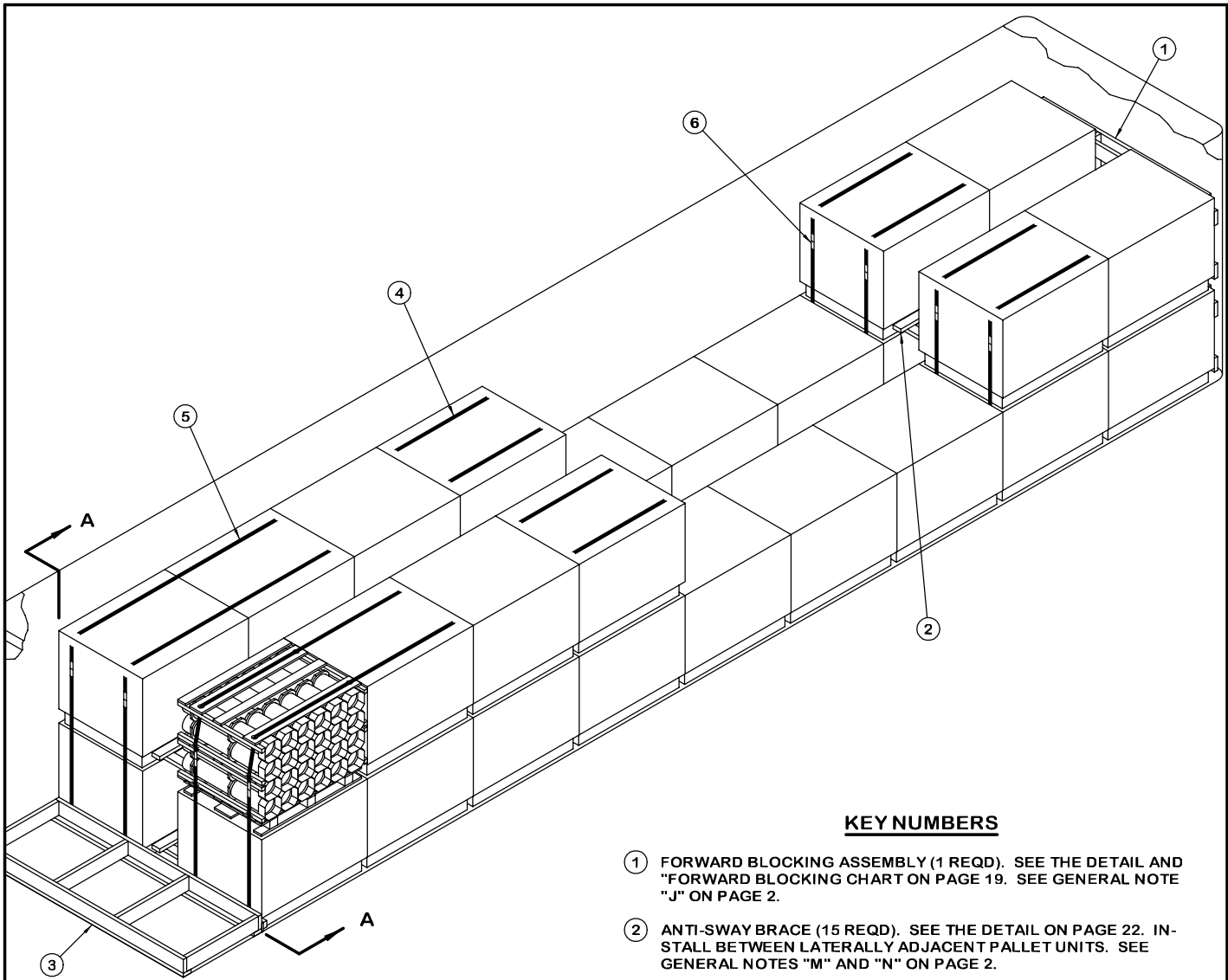
**6-LAYER PALLET UNIT**

CONTAINER - - - - - 36 EACH @ 52 LBS (APPROX)  
 CUBE - - - - - 54.1 CUBIC FEET (APPROX)  
 GROSS WEIGHT - - - - - 2,011 LBS (APPROX)

**REVISION**

REVISION NO. 1, DATED DECEMBER 1997, CONSISTS OF:

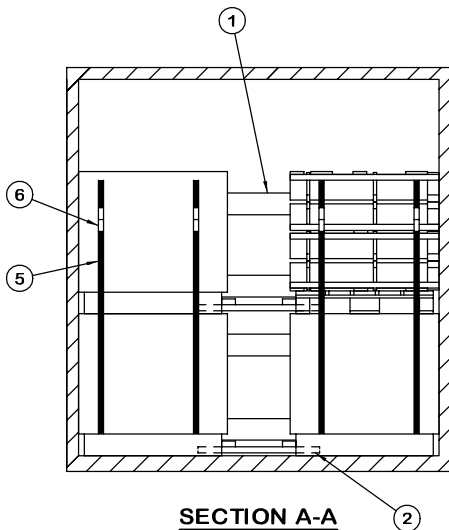
1. INCREASING PALLET WIDTH TO 48".
2. INCLUDING LOAD SHOWING LONGER TRAILER.
3. INCORPORATING NAILED-HEADER METHOD INTO LOAD DRAWINGS.
4. REMOVING LOADS IN TRAILERS EQUIPPED WITH MECHANICAL BRACING DEVICES.
5. REMOVING TOP-OF-LOAD ANTI-SWAY BRACES FROM LOAD DRAWINGS, WHERE APPLICABLE.
6. REMOVING TYGARD METHOD OF LOAD RESTRAINT.
7. UPDATING GENERAL NOTES AND DRAWING FORMAT.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND "FORWARD BLOCKING CHART ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (15 REQD). SEE THE DETAIL ON PAGE 22. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 19. SEE SPECIAL NOTE 3 ON PAGE 5.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIROLE TWO PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 29'-0" LONG STEEL STRAPPING (4 REQD). INSTALL AS SHOWN TO SECURE TWO PALLET UNITS IN THE SECOND LAYER TO TWO PALLET UNITS IN THE FIRST LAYER. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑥ SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.



**SECTION A-A**

**SPECIAL NOTES:**

1. A 30-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. WIDER OR NARROWER TRAILERS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 4 IS THE 4-LAYER UNIT HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 36-1/4" HIGH AND WEIGHING APPROXIMATELY 1,370 POUNDS.
3. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES 1-1/2" OR LESS REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 20. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY A" AS SHOWN. SEE SPECIAL NOTE 10.
4. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECES MARKED (4), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
5. IF A STACK IN THE LOAD UNIT AT THE REAR END OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, PIECE MARKED (5), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO STACKS IN EACH APPLICABLE ROW.
6. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING UNITIZING STRAPS, PIECE MARKED (4). PROVIDE LATERAL BRACING BY INSTALLING A "TOP-OF-LOAD ANTI-SWAY BRACE", PIECE MARKED (3) ON PAGE 8 AND DETAILED ON PAGE 22.
7. REFER TO PAGE 17 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 18 FOR GUIDANCE.
9. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 14 THROUGH 16.
10. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

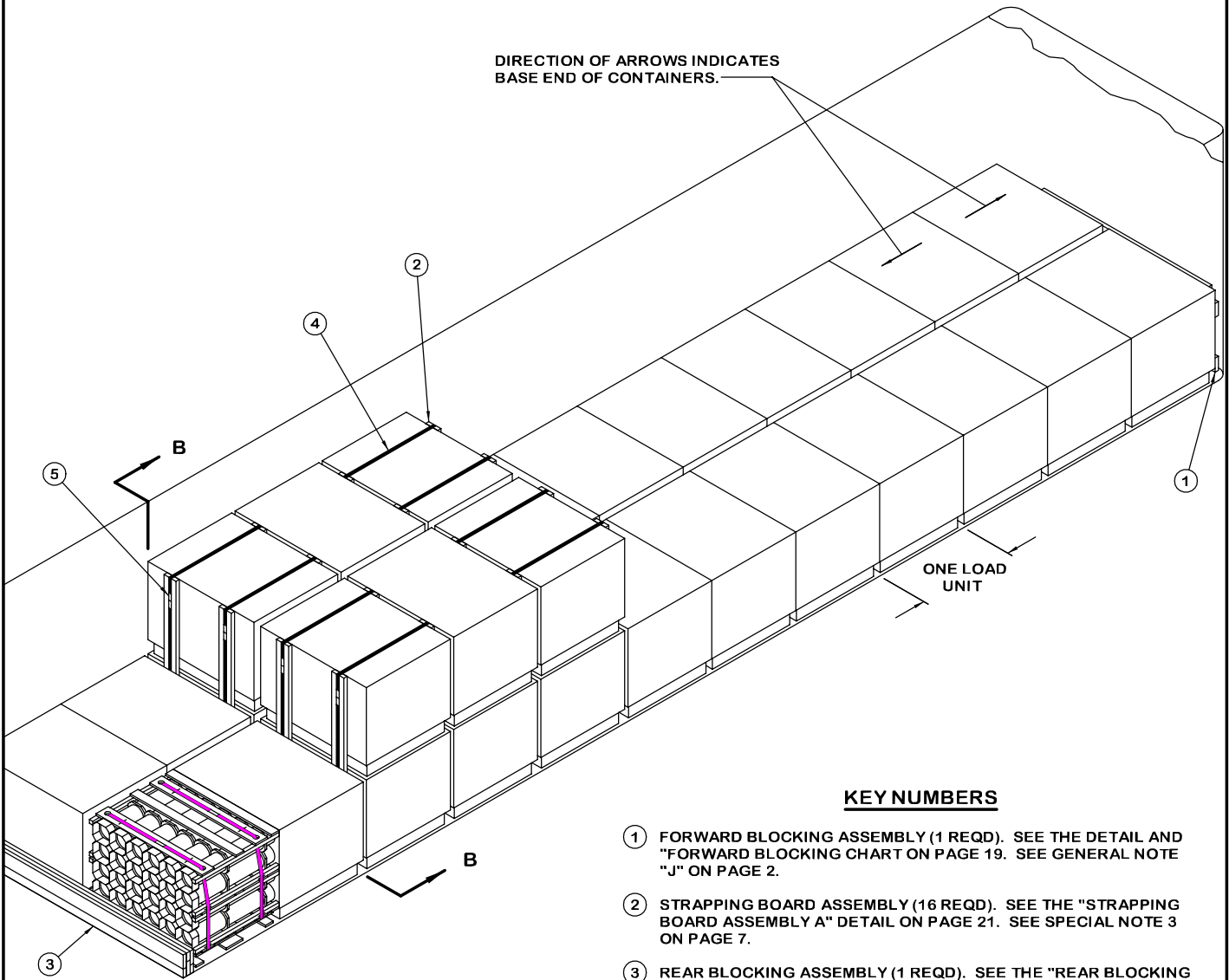
**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	2	1
2" X 3"	2	1
2" X 4"	201	134
2" X 6"	81	81
NAILS	NO. REQD	POUNDS
6d(2")	8	NIL
10d (3")	290	4-1/2
1-1/4" STEEL STRAPPING - - 292' REQD - - - 41-3/4 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - - - 1-1/4 LBS		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	30 - - - - -	41,100 LBS
DUNNAGE - - - - -	- - - - -	482 LBS
TOTAL WEIGHT - - - - -		41,582 LBS (APPROX)

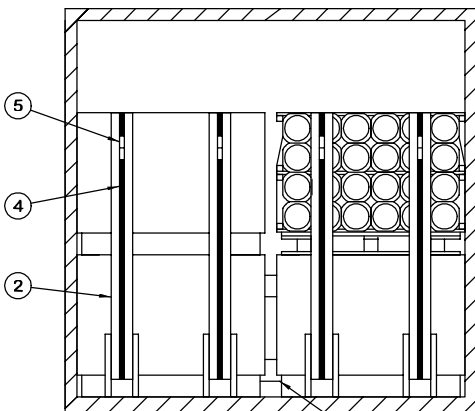
DIRECTION OF ARROWS INDICATES  
BASE END OF CONTAINERS.



**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND "FORWARD BLOCKING CHART ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 3 ON PAGE 7.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY C" DETAIL ON PAGE 20. SEE SPECIAL NOTE 4 ON PAGE 7.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ②, AS SHOWN. STAPLE TO UPPER PORTION OF STRAPPING BOARD ASSEMBLY W/1 STAPLE. SEE SPECIAL NOTE 5 ON PAGE 7.
- ⑤ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 26'-0" LONG STEEL STRAPPING (NOT SHOWN) (AS REQD). INSTALL TO SECURE TWO PALLET UNITS IN THE SECOND LAYER TO TWO PALLET UNITS IN THE FIRST LAYER. STAPLE TO A STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, W/1 STAPLE. SEE "DETAIL A" AND SPECIAL NOTE 6 ON PAGE 7.

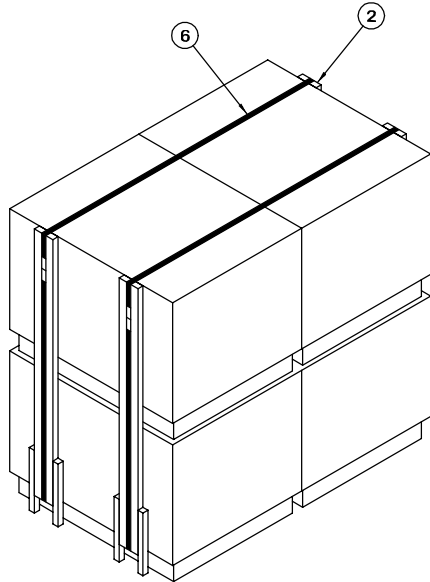
**ISOMETRIC VIEW**



**SECTION B-B**

**SPECIAL NOTES:**

1. A 30-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-3" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. LONGER TRAILERS AND TRAILERS AS NARROW AS 8'-1" MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 6 IS THE 4-LAYER UNIT HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 36-1/4" HIGH AND WEIGHING APPROXIMATELY 1,370 POUNDS. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS SHOWN ON PAGE 3.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (2). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 21.
4. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES 1-1/2" OR LESS REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 20. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY B" AS SHOWN. SEE SPECIAL NOTE 11.
5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECES MARKED (3), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (2), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR END OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS MORE THAN ONE UNIT HIGH, STRAPPING BOARD ASSEMBLIES MARKED (2) WILL BE REQUIRED, AND BUNDLING STRAPS, PIECE MARKED (6) IN DETAIL "A", MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO STACKS IN EACH APPLICABLE ROW. NOTE THAT PIECE MARKED (6) MAY OR MAY NOT BE REQUIRED.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARDS AND UNITIZING STRAPS, PIECES MARKED (2) AND (3).
8. REFER TO PAGE 17 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 18 FOR GUIDANCE.
10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 14 THROUGH 16.
11. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.



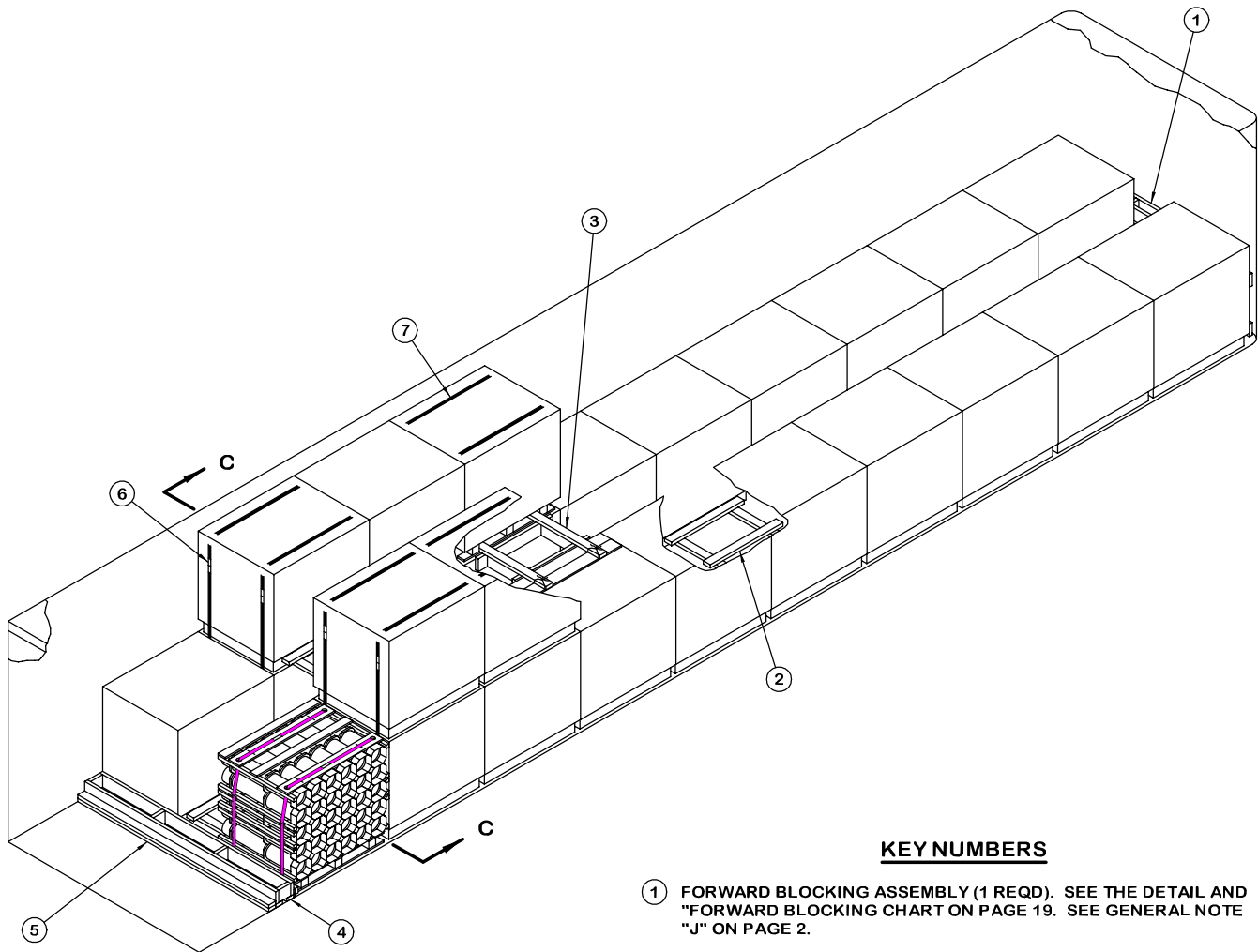
**DETAIL A**

**BILL OF MATERIAL**

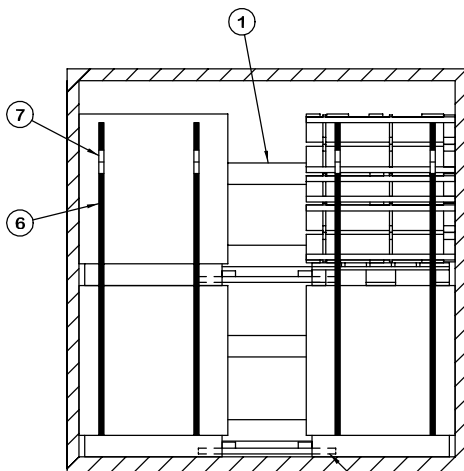
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	43	15
2" X 3"	4	2
2" X 4"	61	41
2" X 6"	172	172
NAILS	NO. REQD	POUNDS
10d (3")	164	2-3/4
1-1/4" STEEL STRAPPING - - - 160' REQD - - - - 23 LBS		
SEAL FOR 1-1/4" STRAPPING - - 16 REQD - - - 3/4 LB		
STAPLE FOR 1-1/4" STRAPPING - 16 REQD - - - - - NIL		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	30 - - - - -	41,100 LBS
DUNNAGE - - - - -	- - - - -	487 LBS
TOTAL WEIGHT - - - - -		41,587 LBS (APPROX)



**ISOMETRIC VIEW**



**SECTION C-C**

PIECE MARKED ③ OMITTED FOR CLARITY PURPOSES.

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND "FORWARD BLOCKING CHART ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (12 REQD). SEE THE DETAIL ON PAGE 22. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (1 REQD). SEE THE DETAIL ON PAGE 22. POSITION WITH ONE END OF THE SUPPORT PIECES AGAINST THE PALLET POSTS AND WIRE TIE THE OTHER ENDS OF THE SUPPORT PIECES TO THE PALLET UNIT LOAD STRAPS. SEE THE "TIE WIRE APPLICATION" DETAIL ON PAGE 22. SEE SPECIAL NOTE 3 ON PAGE 9.
- ④ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 19. SEE SPECIAL NOTE 4 ON PAGE 9.
- ⑤ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (DOUBLED) (1 REQD). POSITION AGAINST THE REAR BLOCKING ASSEMBLY, PIECE MARKED ④. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/18-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL TO THE REAR BLOCKING ASSEMBLY W/4-10d NAILS.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNITS AS SHOWN. SEE SPECIAL NOTE 5 ON PAGE 9.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.



FORWARD HEADER NAILING CHART •	
# NAILS	MAX. LOAD WEIGHT (LBS)
3	15,000
4	20,000
5	25,000
6	30,000
7	35,000
8	40,000
9	45,000

• HEADERS AT THE FRONT END OF A LOAD OR AT THE FRONT END OF A DIVIDED LOAD WILL BE DOUBLED 2" X 6" MATERIAL. THE NUMBER OF NAILS INDICATED ABOVE REFERS TO THE NUMBER OF NAILS USED IN EACH LAMINATION OF A HEADER, FOR EXAMPLE 8 NAILS MEANS THE FIRST BOARD IS NAILED TO THE TRAILER FLOOR W/8-10d NAILS, AND THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-20d NAILS, FOR A TOTAL OF 8-10d AND 8-20d NAILS PER HEADER.

REAR HEADER NAILING CHART *	
# NAILS	MAX. LOAD WEIGHT (LBS)
6	15,000
7	17,500
8	20,000
9	22,500
10	25,000
11	27,500
12	30,000
13	32,500
14	35,000
15	37,500
16	40,000
17	42,500
18	45,000

\* HEADERS AT THE REAR OF A FULL LOAD OR AT THE REAR END OF A DIVIDED LOAD WILL BE DOUBLED 2" X 4" MATERIAL. THE NUMBER OF NAILS INDICATED ABOVE REFERS TO THE NUMBER OF NAILS USED IN EACH LAMINATION OF A HEADER, FOR EXAMPLE 8 NAILS MEANS THE FIRST BOARD IS NAILED TO THE TRAILER FLOOR W/8-10d NAILS, AND THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-10d NAILS, FOR A TOTAL OF 16-10d NAILS. NOTE: REAR HEADERS MAY BE HANDLED IN THE SAME MANNER AS FORWARD HEADERS, USING 2" X 6" MATERIAL WITH 10d AND 20d NAILS, IF DESIRED.

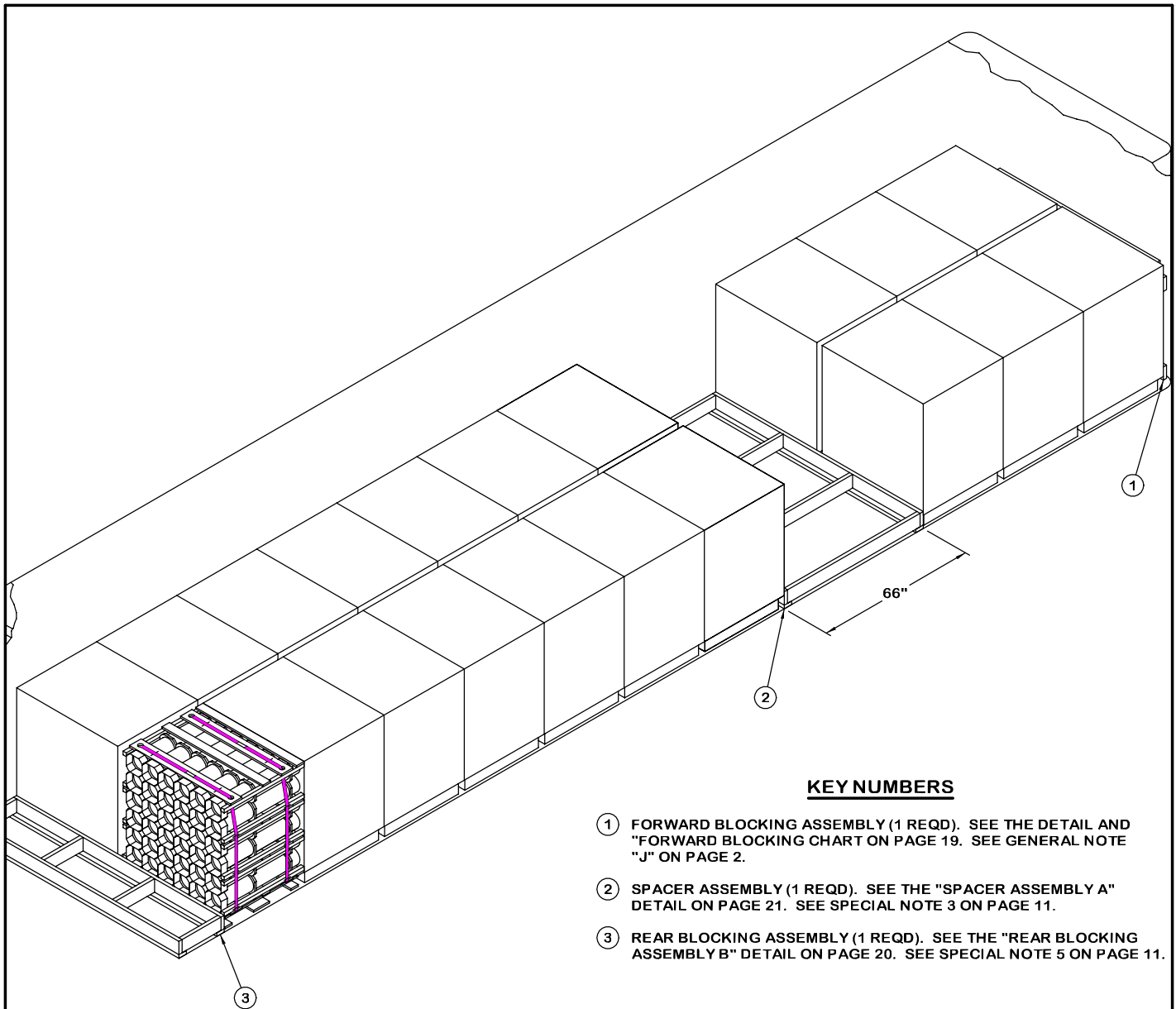
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	2	1
2" X 3"	2	1
2" X 4"	192	128
2" X 6"	58	58
NAILS	NO. REQD	POUNDS
6d(2")	8	NIL
10d (3")	290	4-1/2
1-1/4" STEEL STRAPPING - - 188' REQD - - - - - 27 LBS		
SEAL FOR 1-1/4" STRAPPING - 16 REQD - - - - - 3/4 LB		

**SPECIAL NOTES:**

1. A 25-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-0" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE 5-LAYER UNIT HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 43-3/4" HIGH AND WEIGHING APPROXIMATELY 1,699 POUNDS.
3. IN LIEU OF USING THE "TOP-OF-LOAD ANTI-SWAY BRACE" SHOWN IN THE LOAD AS PIECE MARKED (3), FOR THE BRACING OF A PALLET UNIT IN THE SECOND LAYER THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE, THE ODD PALLET MAY BE SECURED BY ENCIRCLING THAT STACK AND AN IMMEDIATELY ADJACENT STACK WITH BUNDLING STRAPS, PIECES MARKED (5) IN THE LOAD ON PAGE 4, THAT ARE 31'-6" LONG.
4. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES 1-1/2" OR LESS REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 20. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY A" AS SHOWN. SEE SPECIAL NOTE 12.
5. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET UNIT IN THE FIRST LAYER, UNLESS THE STACKED UNITS ARE AGAINST THE FRONT WALL OF A SQUARE-FRONT TRAILER, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECES MARKED (6), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
6. IF A STACK IN THE LOAD UNIT AT THE REAR END OF THE LOAD IN A CONVENTIONAL VAN TRAILER IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, PIECE MARKED (5) IN THE LOAD ON PAGE 4, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO STACKS IN EACH APPLICABLE ROW.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON TOP OF THE REARMOST PALLET UNIT IN THE FIRST LAYER.
8. REFER TO PAGE 17 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 18 FOR GUIDANCE.
10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 14 THROUGH 16.
11. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 7'-6" IT WILL BE NECESSARY TO LIMIT THE REARMOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT.
12. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	25	42,475 LBS
DUNNAGE		409 LBS
TOTAL WEIGHT		42,884 LBS (APPROX)



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND "FORWARD BLOCKING CHART ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 21. SEE SPECIAL NOTE 3 ON PAGE 11.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 20. SEE SPECIAL NOTE 5 ON PAGE 11.

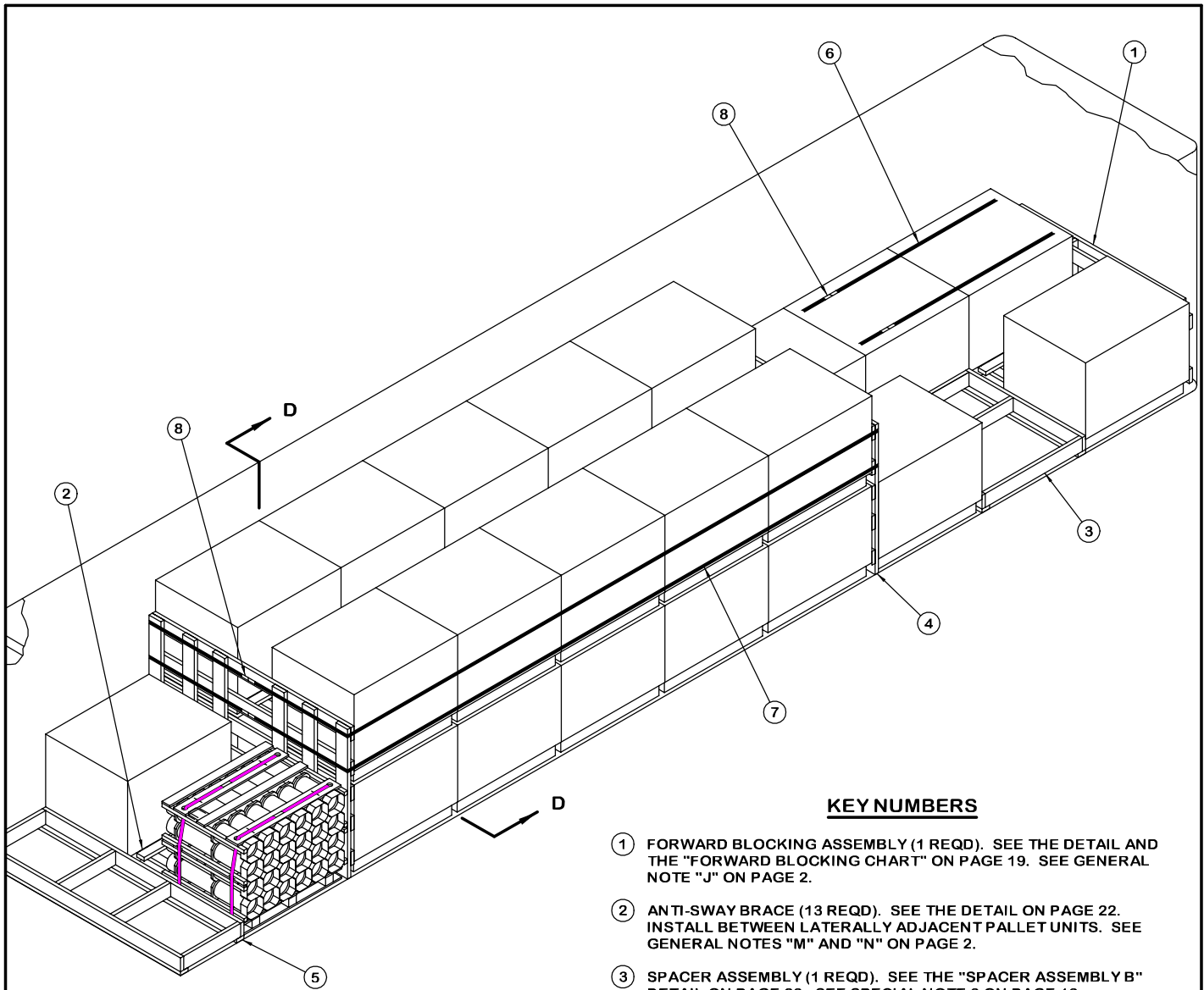
**SPECIAL NOTES:**

1. A 20-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 8'-2-1/2" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. LONGER TRAILERS AND TRAILERS AS NARROW AS 8'-0-1/2" WIDE MAY BE USED FOR THIS TYPE OF LOAD CONFIGURATION.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE 6-LAYER UNIT, HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 51-1/4" HIGH AND WEIGHING APPROXIMATELY 2,011 POUNDS. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR THE 5-LAYER UNIT SHOWN ON PAGE 3 OF THIS DRAWING.
3. SPACER ASSEMBLY "A", SHOWN AS PIECE MARKED ② IN THE LOAD ON PAGE 10, IS USED FOR THE PURPOSE OF PROVIDING FOR PROPER WEIGHT DISTRIBUTION AND IS SHOWN AS TYPICAL ONLY. IF THE TRAILER TO BE LOADED IS LONGER THAN 40', THE LOCATION OF THE ASSEMBLY AND/OR THE STRUT LENGTHS MAY BE DIFFERENT FROM WHAT IS SHOWN. IF A SHORTER TRAILER IS USED FOR THE DEPICTED LOAD, THIS ASSEMBLY MAY NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①.
4. DOUBLED 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH HEADERS MAY BE USED IN LIEU OF SPACER ASSEMBLY "A" IF DESIRED AND IF THE TRAILER BEING LOADED HAS NAILABLE FLOORS. SEE THE NAILING CHARTS ON PAGE 9 FOR GUIDANCE.
5. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2", BUT LESS THAN 9", USE REAR BLOCKING ASSEMBLY "C", DETAILED ON PAGE 20. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, REAR BLOCKING ASSEMBLY "B" WILL BE USED AS SHOWN.
6. IF PALLET UNITS ARE TO BE LOADED ON THE TOP LAYER OF THE DEPICTED LOAD, REFER TO KEY NUMBERS ② THRU ⑤ ON PAGE 6 AND SPECIAL NOTES 3 THRU 5 ON PAGE 7 FOR DUNNAGE REQUIREMENTS NOT SHOWN HEREIN. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 8'-9", IT WILL BE NECESSARY TO LIMIT THE REAR MOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT.
7. IF AN ODD NUMBER OF UNITS ARE TO BE LOADED, SPACER ASSEMBLY "B", DETAILED ON PAGE 23, MAY BE INSTALLED IN LIEU OF ONE PALLET UNIT. NOTE THAT A SPACER ASSEMBLY MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END. A SPACER ASSEMBLY MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ①, OR ADJACENT TO SPACER ASSEMBLY "A", PIECE MARKED ②.
8. REFER TO PAGE 17 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
9. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE, MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 18 FOR GUIDANCE.
10. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 14 THROUGH 16.
11. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

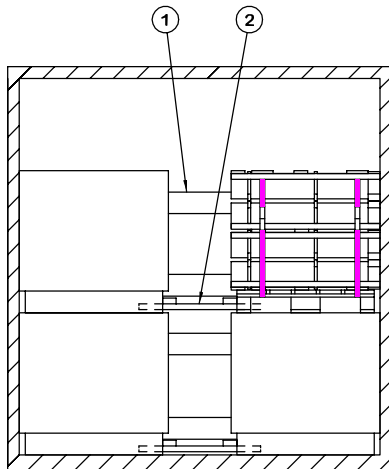
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	4	2
2" X 4"	50	34
2" X 6"	92	92
NAILS	NO. REQD	POUNDS
10d (3")	128	2

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	20 - - - - -	40, 220 LBS
DUNNAGE - - - - -	- - - - -	258 LBS
TOTAL WEIGHT - - - - -		40, 478 LBS (APPROX)



**ISOMETRIC VIEW**



**SECTION D-D**

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (13 REQD). SEE THE DETAIL ON PAGE 22. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY B" DETAIL ON PAGE 23. SEE SPECIAL NOTE 3 ON PAGE 13.
- ④ BULKHEAD GATE (2 REQD). SEE THE DETAIL AND "BULKHEAD GATE CHART" ON PAGE 23.
- ⑤ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 19. SEE SPECIAL NOTE 4 ON PAGE 13.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN TO SECURE TWO PALLET UNITS. SEE SPECIAL NOTE 5 ON PAGE 13.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 58'-0" LONG STEEL STRAPPING (2 REQD). INSTALL AS SHOWN. STAPLE TO EACH BULKHEAD GATE, PIECE MARKED ④, W/4 STAPLES PER STRAP. SEE SPECIAL NOTE 6 ON PAGE 13.
- ⑧ SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

**SPECIAL NOTES:**

1. A 27-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS ROUNDED FRONT CORNERS. TRAILERS OF OTHER LENGTHS AND WIDTHS CAN BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 12 IS THE 4-LAYER UNIT HAVING OVERALL DIMENSIONS OR 38" LONG BY 48" WIDE BY 36-1/2" HIGH AND WEIGHING APPROXIMATELY 1,370 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. THE SPACER ASSEMBLY SHOWN IN THE LOAD ON PAGE 12 AS PIECE MARKED ③ IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF A PALLET UNIT IS LOADED IN PLACE OF THE SPACER ASSEMBLY, THE BUNDLING STRAPS, PIECE MARKED ⑥, WILL NOT BE REQUIRED. NOTE THAT A SPACER ASSEMBLY MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END; A SPACER ASSEMBLY MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY, PIECE MARKED ① OR ADJACENT TO A BULKHEAD GATE, PIECE MARKED ④.
4. IF THE VOID AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOORS MEASURES 1-1/2" OR LESS REAR BLOCKING IS NOT REQUIRED. IF THE VOID AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE "REAR BLOCKING ASSEMBLY C" AS DETAILED ON PAGE 20. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE "REAR BLOCKING ASSEMBLY A" AS SHOWN. SEE SPECIAL NOTE 9.
5. A PALLET UNIT THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING BUNDLING STRAPS, PIECE MARKED ⑥ IN THE LOAD ON PAGE 12, AROUND THAT PALLET AND THE PALLET UNIT IMMEDIATELY ADJACENT. NOTE THAT A PALLET UNIT WILL NOT BE OMITTED FROM THE SECOND LAYER PORTION OF THE LOAD.
6. WHEN ONLY ONE BUNDLING STRAP, PIECE MARKED ⑦, IS APPLIED, THE SECOND LAYER PORTION OF THE LOAD IS LIMITED TO NOT MORE THAN SIX 4-LAYER UNITS, FOUR 5-LAYER UNITS, OR FOUR 6-LAYER UNITS. IF AN ADDITIONAL BUNDLING STRAP IS APPLIED AROUND THE SECOND LAYER PORTION OF THE LOAD, NOT MORE THAN 14 4-LAYER UNITS, TEN 5-LAYER UNITS, OR EIGHT 6-LAYER UNITS MAY BE LOADED IN THE SECOND LAYER.
7. REFER TO PAGE 17 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED FIVE MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 18 FOR GUIDANCE.
9. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	2	1
2" X 3"	2	1
2" X 4"	182	122
2" X 6"	212	212
NAILS	NO. REQD	POUNDS
6d(2")	8	NIL
10d (3")	442	7
1-1/4" STEEL STRAPPING - - 162' REQD - - - 23-1/4 LBS		
SEAL FOR 1-1/4" STRAPPING - 8 REQD - - - 1/2 LB		
STAPLE FOR 1-1/4" STRAPPING - 8 REQD - - - - - NIL		

LOAD AS SHOWN

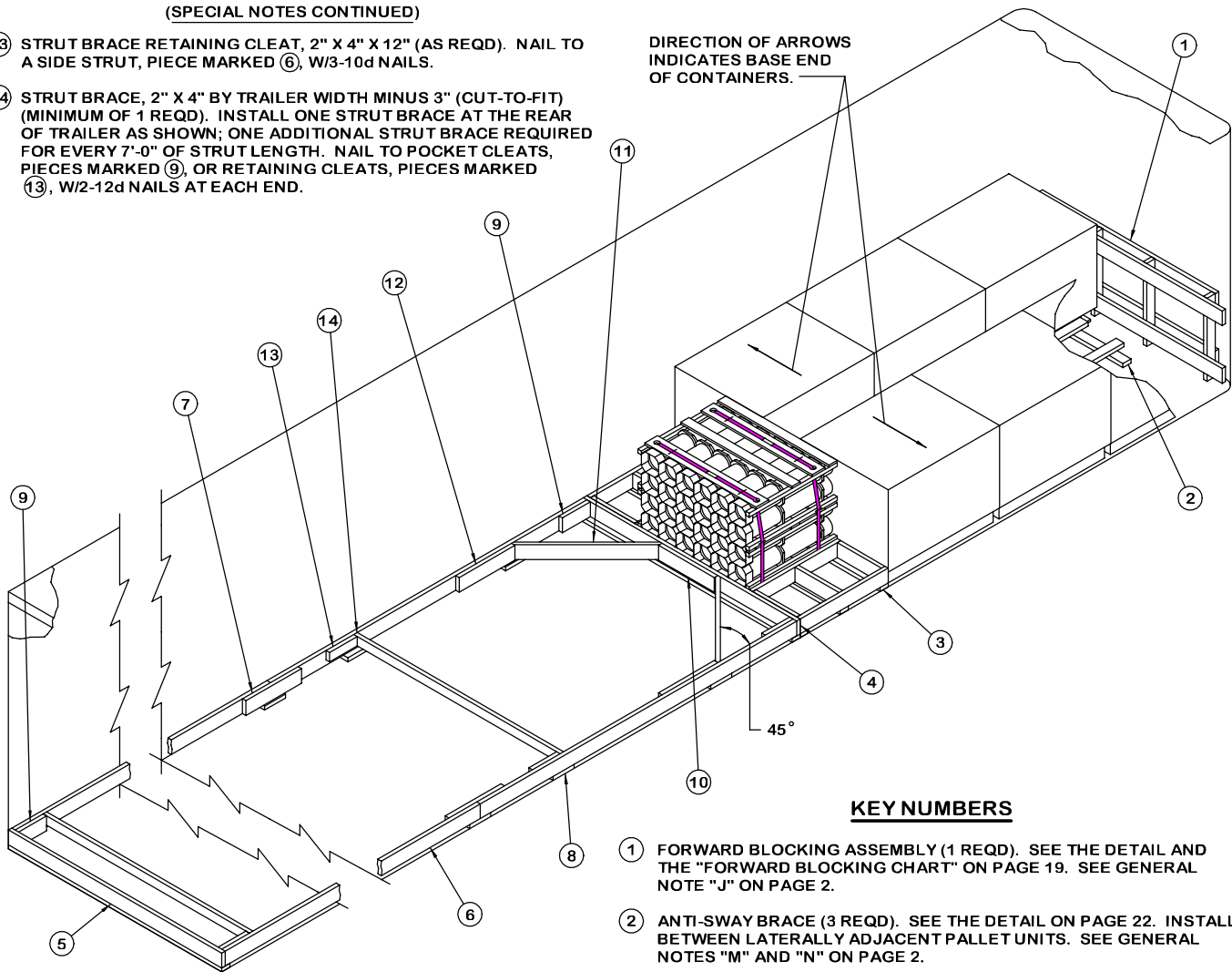
<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
PALLET UNIT - - - - -	27 - - - - -	36,990 LBS
DUNNAGE - - - - -	- - - - -	703 LBS
TOTAL WEIGHT - - - - -		37,693 LBS (APPROX)

**ALTERNATIVE LOADING PROCEDURE FOR ALL UNITS  
27-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**

(SPECIAL NOTES CONTINUED)

- ⑬ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥, W/3-10d NAILS.
- ⑭ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT-TO-FIT) (MINIMUM OF 1 REQD). INSTALL ONE STRUT BRACE AT THE REAR OF TRAILER AS SHOWN; ONE ADDITIONAL STRUT BRACE REQUIRED FOR EVERY 7'-0" OF STRUT LENGTH. NAIL TO POCKET CLEATS, PIECES MARKED ⑨, OR RETAINING CLEATS, PIECES MARKED ⑬, W/2-12d NAILS AT EACH END.

DIRECTION OF ARROWS INDICATES BASE END OF CONTAINERS.



**ISOMETRIC VIEW**

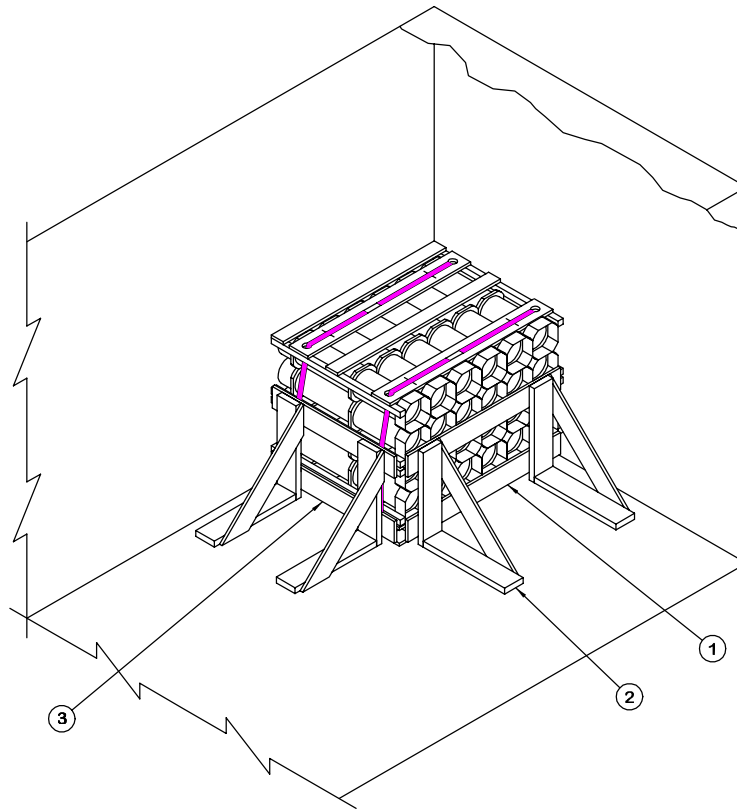
**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 19. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (3 REQD). SEE THE DETAIL ON PAGE 22. INSTALL BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ SIDE BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 22. NAIL TO A HEADER, PIECE MARKED ④, W/2-10d NAILS. SEE SPECIAL NOTE 5 AT LEFT.
- ④ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). POSITION ON EDGE. SEE SPECIAL NOTE 4 AT LEFT.
- ⑤ HEADER AND SIDE STRUT SUPPORT, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF A HEADER MARKED ④ W/1-10d NAIL EVERY 12".
- ⑥ SIDE STRUT, 2" X 6" BY CUT-TO-FIT BETWEEN HEADERS MARKED ④ (2 REQD).
- ⑦ SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON A JOINT OF PIECES MARKED ⑥ AND NAIL W/4-10d NAILS AT EACH END.
- ⑧ RISER PIECE, 2" X 4" X 9" (AS REQD). CENTER ON A JOINT OF PIECES MARKED ⑪ AND ⑫, ⑬ AND ⑭, AND UNDER THE SPLICE OF PIECES MARKED ⑥ IF APPLICABLE. NAIL TO SIDE STRUT MARKED ⑥ W/2-10d NAILS.
- ⑨ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED ⑥, W/5-10d NAILS. TOENAIL TO THE ADJACENT HEADER MARKED ④ W/3-12d NAILS.
- ⑩ CENTER CLEAT, 2" X 6" X 24" (1 REQD). NAIL TO HEADER MARKED ④ W/6-10d NAILS.
- ⑪ DIAGONAL BRACE, 2" X 6" BY CUT-TO-FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45° CUTS. INSTALL AT A 45° ANGLE AS SHOWN AND TOENAIL TO THE ADJACENT HEADER MARKED ④ AND SIDE STRUT MARKED ⑥ W/2-16d NAILS AT EACH END.
- ⑫ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). POSITION AGAINST END OF DIAGONAL BRACE, PIECE MARKED ⑪, AND NAIL TO A SIDE STRUT MARKED ⑥ W/8-10d NAILS.

**SPECIAL NOTES:**

- 1. A 7-UNIT LOAD IS SHOWN IN A 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER WIDTHS CAN BE USED.
- 2. THE PALLET UNIT SHOWN IS THE 4-LAYER UNIT HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 36-1/4" HIGH AND WEIGHING APPROXIMATELY 1,370 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
- 3. THE "K-BRACE BLOCKING", SHOWN AS PIECES MARKED ④ THRU ⑭, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
- 4. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED. HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE BLOCKING". SEE THE NAILED-HEADER METHOD AS DEPICTED IN THE LOAD ON PAGES 8 AND 9. NOTE THAT THE SPECIAL REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN CONVENTIONAL VAN TRAILERS EQUIPPED WITH HINGED DOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ④ THRU ⑭ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.
- 5. WHEN THE NAILED-HEADER METHOD OF BRACING SHOWN ON PAGE 8 IS APPLIED FOR THE BRACING OF THE DEPICTED 7-UNIT LOAD OR ANY ODD NUMBERED QUANTITY, OMIT THE REAR BLOCKING ASSEMBLY AND SUBSTITUTE 2" X 6" MATERIAL FOR THE 2" X 4" HEADER MATERIAL TO FACILITATE NAILING; NOTE THAT THE LENGTH OF THE SIDE BLOCKING, PIECE MARKED ③, WILL HAVE TO BE ADJUSTED TO ACCOMMODATE THE HEADER. WHEN SHIPPING AN EVEN NUMBERED QUANTITY, THE NAILED-HEADER METHOD WILL APPLY AS SHOWN.

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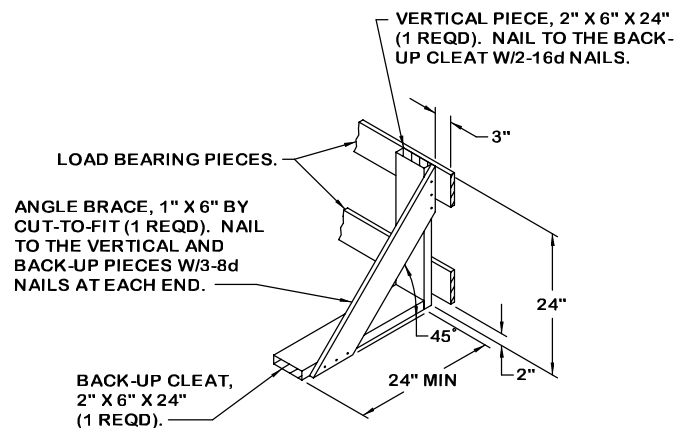
**ISOMETRIC VIEW**

**SPECIAL NOTES:**

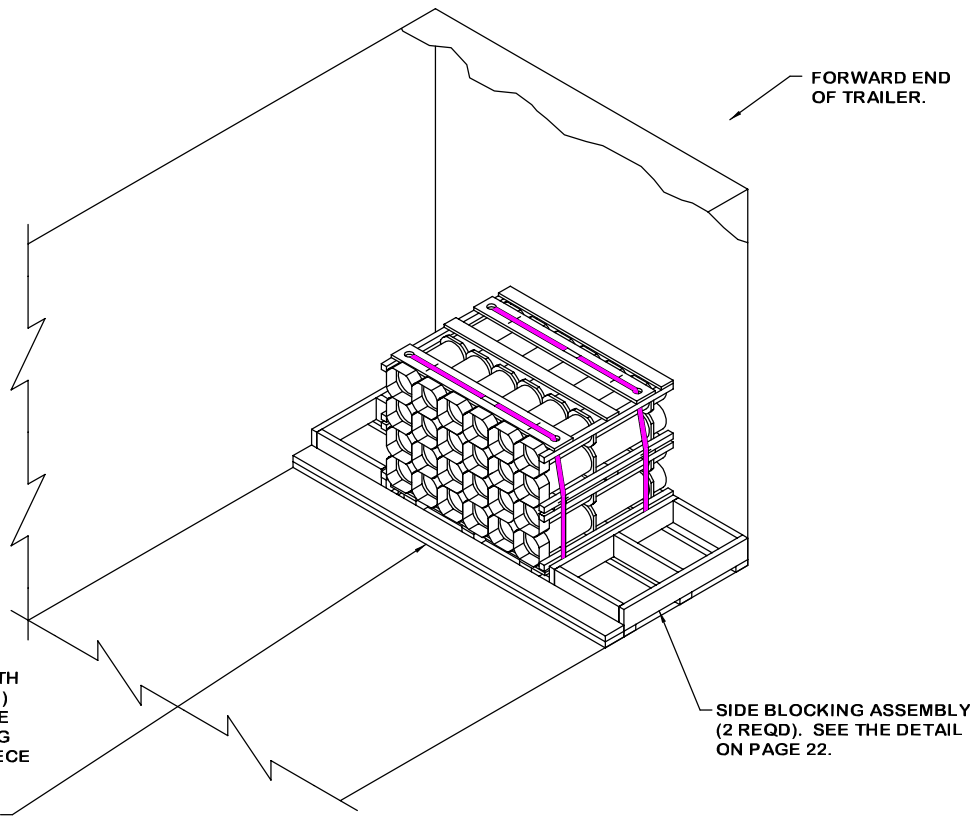
1. A ONE-PALLET UNIT LOAD IS SHOWN DEPICTING THE USE OF LTL BRACES IN A CONVENTIONAL VAN TRAILER EQUIPPED WITH NAILABLE FLOORS. TRAILERS WITH ALL METAL FLOORS CANNOT BE USED.
2. THE PALLET UNIT SHOWN IS THE 4-LAYER UNIT HAVING OVER-ALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 36-1/4" AND WEIGHING APPROXIMATELY 1,370 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.
3. IF THE TRAILER BEING LOADED HAS ROUNDED FRONT CORNERS, TWO ADDITIONAL LTL BRACES AND TWO ADDITIONAL LOAD BEARING PIECES MAY BE POSITIONED AT THE FORWARD END OF THE LADING OR A FORWARD BLOCKING ASSEMBLY, SHOWN AS KEY NUMBER ① ON PAGE 4 MAY BE USED.
4. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING. HOWEVER, NOT LESS THAN TWO BRACES WILL BE USED AGAINST EACH PALLET UNIT ACROSS THE WIDTH OF THE TRAILER.
5. MORE THAN ONE PALLET UNIT CAN BE SHIPPED PROVIDING THE CAPACITY OF THE LTL BRACES IS NOT EXCEEDED. THE LOAD SHOULD BE FORMED IN TWO ROWS, WITH THE UNITS POSITIONED AGAINST THE FRONT WALL OF THE TRAILER OR A FORWARD BLOCKING ASSEMBLY, AS APPLICABLE.

**KEY NUMBERS**

- ① LOAD BEARING PIECE, 1" X 6" X 45" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN "LTL BRACE" DETAIL BELOW. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.
- ② LTL BRACE (4 REQD). SEE THE DETAIL BELOW. NAIL EACH LTL BRACE TO TRAILER FLOOR W/7-10d NAILS. SEE SPECIAL NOTE 4 AT LEFT.
- ③ LOAD BEARING PIECE, 1" X 6" X 36" (2 REQD). LOCATE AT HEIGHTS SPECIFIED IN "LTL BRACE" DETAIL BELOW. NAIL TO THE VERTICAL PIECES OF THE LTL BRACE W/4-6d NAILS AT EACH JOINT.



**LTL BRACE**

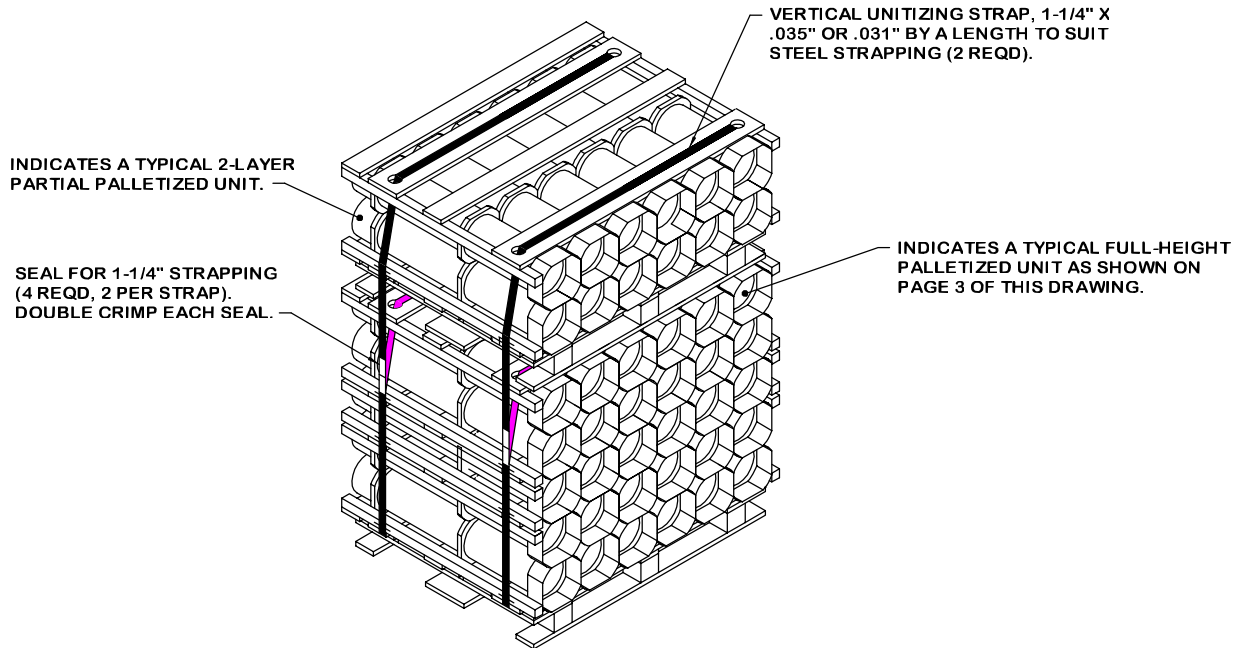


### ISOMETRIC VIEW

#### SPECIAL NOTES:

1. A 1-UNIT LOAD IS SHOWN DEPICTING THE USE OF A NAILED HEADER IN A CONVENTIONAL TYPE VAN TRAILER EQUIPPED WITH NAILABLE FLOORS. TRAILERS WITH ALL METAL TYPE FLOORS CANNOT BE USED.
2. THE PALLET UNIT SHOWN IS THE 4-LAYER PALLET UNIT HAVING OVERALL DIMENSIONS OF 38" LONG BY 48" WIDE BY 36-1/4" HIGH AND WEIGHING APPROXIMATELY 1,370 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS ON PAGE 3.
3. IF THE TRAILER BEING LOADED IS EQUIPPED WITH ROUNDED CORNERS, A FORWARD BLOCKING ASSEMBLY AS DETAILED ON PAGE 19 IS REQUIRED.
4. FOR AN EVEN NUMBER OF PALLET UNITS TO BE LOADED, THE LOAD SHOULD BE FORMED IN TWO ROWS WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. ANTI-SWAY BRACES WILL BE INSTALLED BETWEEN LATERALLY ADJACENT PALLET UNITS AS IN THE LOAD ON PAGE 4, AND A REAR BLOCKING ASSEMBLY, PIECE MARKED ④ ON PAGE 8, WILL ALSO BE INSTALLED. 2" X 4" HEADERS WILL BE USED INSTEAD OF 2" X 6" HEADERS AS SHOWN ABOVE. FOR OTHER QUANTITY LTL LOADS USING THE NAILED HEADER METHOD, REFER TO THE NAILING CHART ON PAGE 9 FOR GUIDANCE.





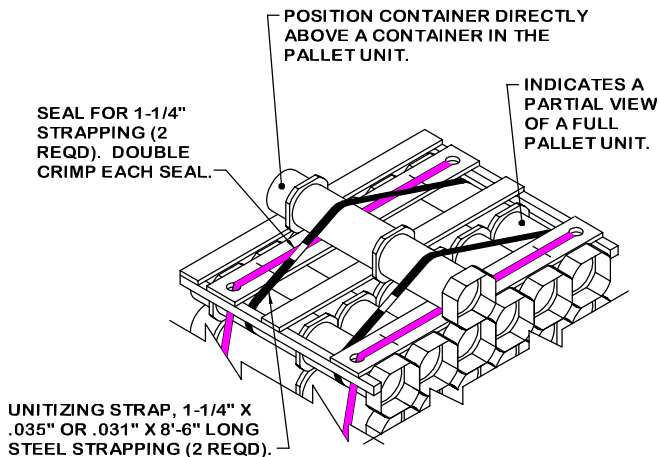
**SECUREMENT OF A PARTIAL PALLET UNIT  
ON TOP OF A FULL PALLET UNIT**

**SPECIAL NOTES:**

1. THE VIEW SHOWN ABOVE DEPICTS A PARTIAL 2-LAYER PALLET UNIT POSITIONED ON TOP OF A 5-LAYER PALLET UNIT AND UNITIZED WITH TWO VERTICAL UNITIZING STRAPS. PLACEMENT WITHIN THE LOAD IS OPTIONAL, EXCEPT THAT IT WILL NOT BE POSITIONED WITHIN A GROUP WHICH IS BUNDLED TOGETHER OR WITHIN A STACK WHICH IS UNITIZED (AT THE END OF A ROW). THE PREFERRED LOCATION WOULD BE WITHIN A ONE-HIGH PORTION OF A LOAD (NOT IN THE REAR LOAD UNIT) IF AVAILABLE, OR WITHIN THE TOP LAYER OF A LOAD IF THE TRAILER HEIGHT PERMITS.
2. SHIPMENTS OF PALLET UNITS SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LESS-THAN-FULL PALLET UNITS WITHIN A LOAD.
3. FOR SHIPMENT OF ONE THROUGH FIVE CONTAINERS, SEE THE PROCEDURES ON PAGE 18 OF THIS DRAWING.

**SPECIAL NOTES:**

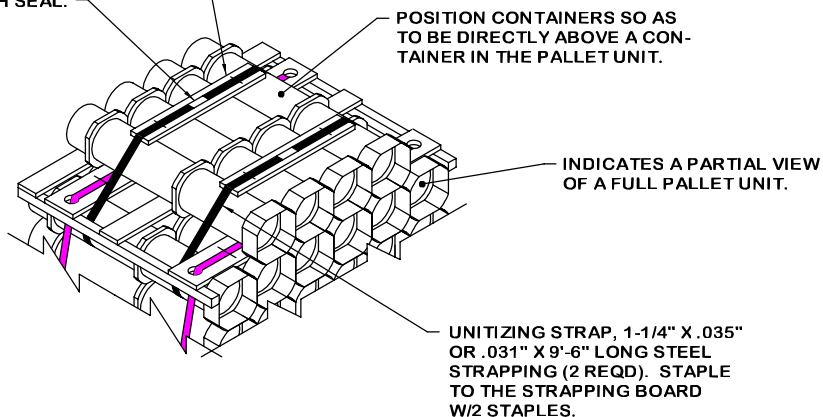
1. SHIPMENTS OF PROPELLING CHARGES SHOULD CONSIST OF FULL-HEIGHT AND FULL-LAYER UNITS TO THE MAXIMUM EXTENT POSSIBLE. THE END OF A LOT, OR THE QUANTITY OF ITEMS NEEDED TO FILL A REQUISITION MAY NECESSITATE THE SHIPMENT OF ONE OR MORE LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS A QUANTITY OF CONTAINERS WHICH IS INSUFFICIENT TO FORM A FULL-LAYERED PARTIAL UNIT FOR SECUREMENT ON TOP OF A FULL PALLET UNIT AS SHOWN ON PAGE 17.
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OR FROM DEPOTS TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENTS FROM LOAD, ASSEMBLE, AND PACK PLANTS TO DEPOTS. CAUTION: A LOAD CONTAINING LEFTOVER CONTAINERS IN AN AMOUNT WHICH IS LESS THAN A FULL LAYER, AND SECURED TO THE TOP OF A FULL OR PARTIAL UNIT, MUST NOT BE DESTINED FOR SHIPMENT OVERSEAS BY WATER CARRIER.
3. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SECUREMENT OF LEFTOVER CONTAINERS FOR SHIPMENT. THE VIEW AT TOP LEFT DEPICTS ONE LEFTOVER CONTAINER SECURED TO A FULL-HEIGHT PALLET UNIT. THE VIEW BELOW DEPICTS FOUR LEFTOVER CONTAINERS SECURED TO A FULL-HEIGHT PALLET UNIT. WHEN THREE OR FOUR LEFTOVER CONTAINERS ARE BEING SHIPPED, A STRAPPING BOARD WILL BE NEEDED. LEFTOVER CONTAINERS MUST BE SECURED WITH A MINIMUM OF TWO PIECES OF STEEL STRAPPING. NOTE THAT THE STRAPPING MUST NOT GO AROUND THE TOP DUNNAGE ASSEMBLY. THE STRAP MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE ASSEMBLY.
4. THE PREFERRED LOCATION FOR THE POSITIONING OF A PALLET UNIT HAVING ONE OR MORE CONTAINERS STRAPPED TO THE TOP WOULD BE WITHIN THE ONE-HIGH PORTION OF THE LOAD; IT MUST NOT HAVE A PALLET UNIT STACKED ON TOP.
5. THE PROCEDURES ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.



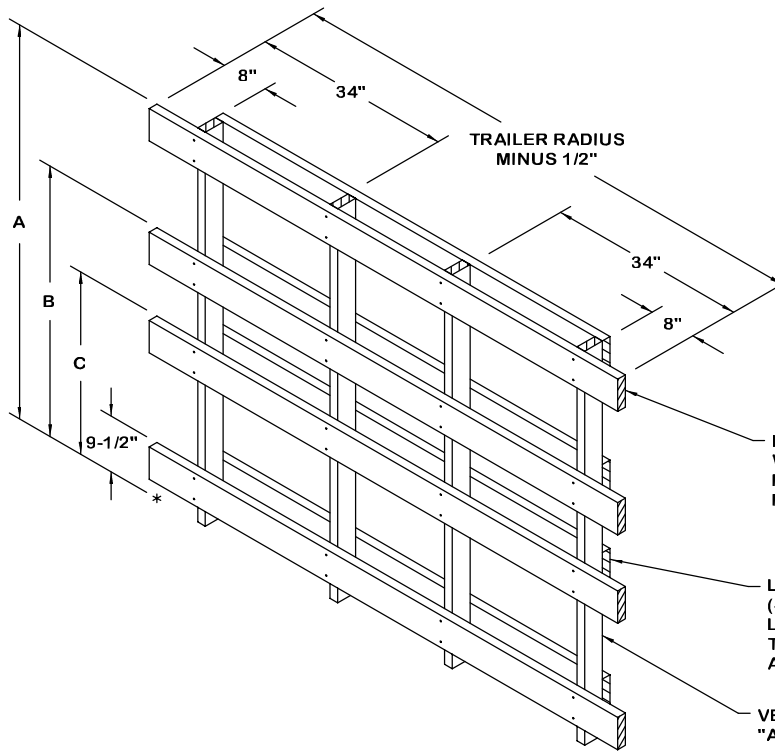
**SECUREMENT OF ONE CONTAINER**

STRAPPING BOARD, 1" X 4" X 23" (2 REQD). LENGTH OF STRAPPING BOARD WILL BE 16" WHEN SECURING THREE CONTAINERS, AND 31" WHEN SECURING FIVE CONTAINERS. SPECIAL NOTE 3.

SEAL FOR 1-1/4" STRAP (2 REQD). DOUBLE CRIMP EACH SEAL.



**SECUREMENT OF FOUR CONTAINERS**



FORWARD BLOCKING CHART			
PALLET UNIT TYPE	DIMENSION		
	A	B	C
4-LAYER UNIT	67"	46"	31"
5-LAYER UNIT	6'-3"	54"	31"
6-LAYER UNIT	8'-0"	62"	46"
5-L W/4-L ON TOP	6'-3"	54"	31"
6-L W/4-L ON TOP	6'-10"	62"	31"
6-L W/5-L ON TOP	6'-10"	62"	46"

LOAD BEARING PIECE, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (4 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

LATERAL PIECE, 2" X 6" BY CUT-TO-FIT (4 REQD). ALIGN VERTICALLY WITH THE LOAD BEARING PIECES AND NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 4" BY DIMENSION "A" OR "C" (4 REQD).

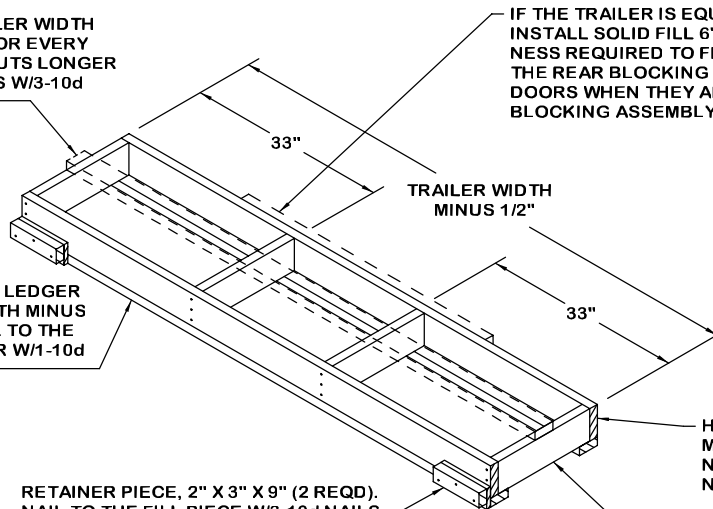
### FORWARD BLOCKING ASSEMBLY

THIS ASSEMBLY IS DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED FRONT CORNERS AND IS APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN 6-1/2". IF THE RADIUS IS FROM 6-1/2" TO 8", 2" X 6" VERTICAL PIECES WILL BE USED IN LIEU OF THE 2" X 4" PIECES SHOWN.

STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD FOR EVERY 7'-0" OF STRUT LENGTH FOR STRUTS LONGER THAN 7'-0"). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

IF THE TRAILER IS EQUIPPED WITH REAR CORNER POSTS, INSTALL SOLID FILL 6" WIDE BY 48" LONG BY THE THICKNESS REQUIRED TO FILL THE EXCESS SPACE BETWEEN THE REAR BLOCKING ASSEMBLY AND THE TRAILER DOORS WHEN THEY ARE CLOSED. NAIL TO THE REAR BLOCKING ASSEMBLY W/4 APPLICABLY SIZED NAILS.

HEADER SUPPORT AND STRUT LEDGER PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF THE HEADER W/1-10d NAIL EVERY 12".



RETAINER PIECE, 2" X 3" X 9" (2 REQD). NAIL TO THE FILL PIECE W/3-10d NAILS.

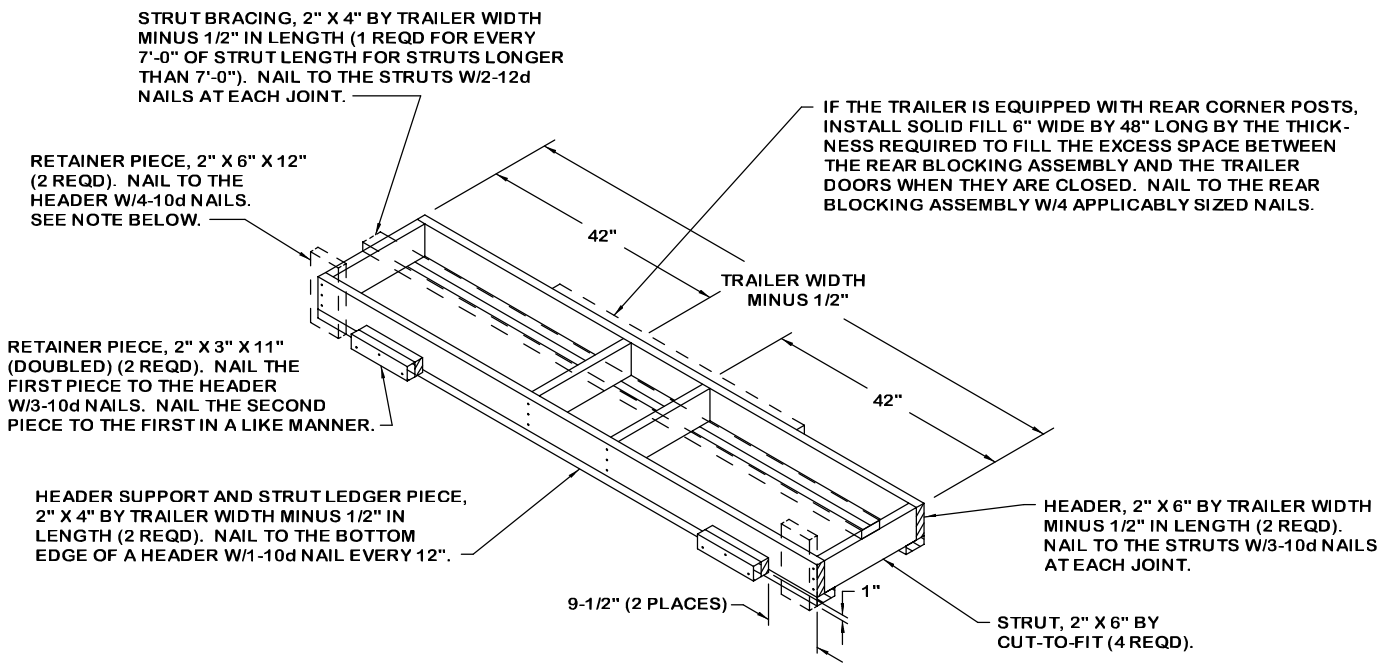
FILL PIECE, 1" X 4" X 9" (2 REQD). NAIL TO THE HEADER AND/OR HEADER SUPPORT AND STRUT LEDGER PIECE W/4-6d NAILS.

HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

STRUT, 2" X 6" BY CUT-TO-FIT (4 REQD).

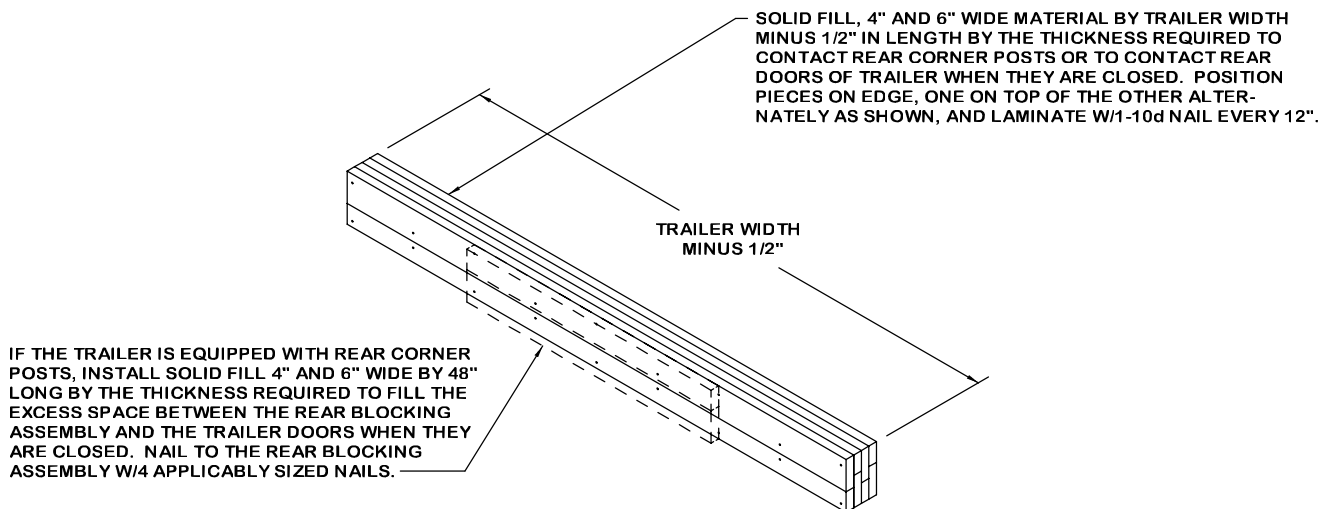
### REAR BLOCKING ASSEMBLY A

THIS ASSEMBLY IS FOR USE AT THE REAR END OF A LOAD IN A CONVENTIONAL VAN TRAILER AS DEPICTED ON PAGES 4, 8, AND 12, WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 9". NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.



### REAR BLOCKING ASSEMBLY B

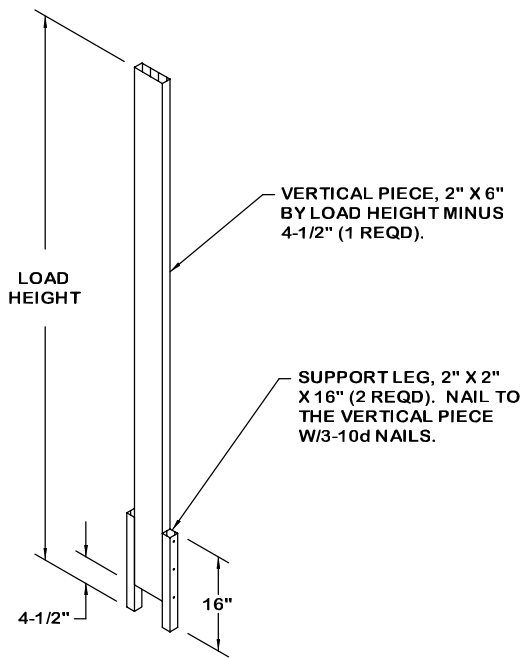
THIS ASSEMBLY IS FOR USE AT THE REAR END OF LENGTHWISE POSITIONED UNITS WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 9" AS SHOWN IN THE LOAD ON PAGE 10. IF THE REARMOST LOAD UNIT IS 2-HIGH AS SHOWN BY "DETAIL A" ON PAGE 7, THE DASHED 2" X 6" X 12" RETAINER PIECES WILL BE USED IN LIEU OF THE DOUBLED 2" X 3" X 11" RETAINER PIECES. NOTE THAT THE ABOVE VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.



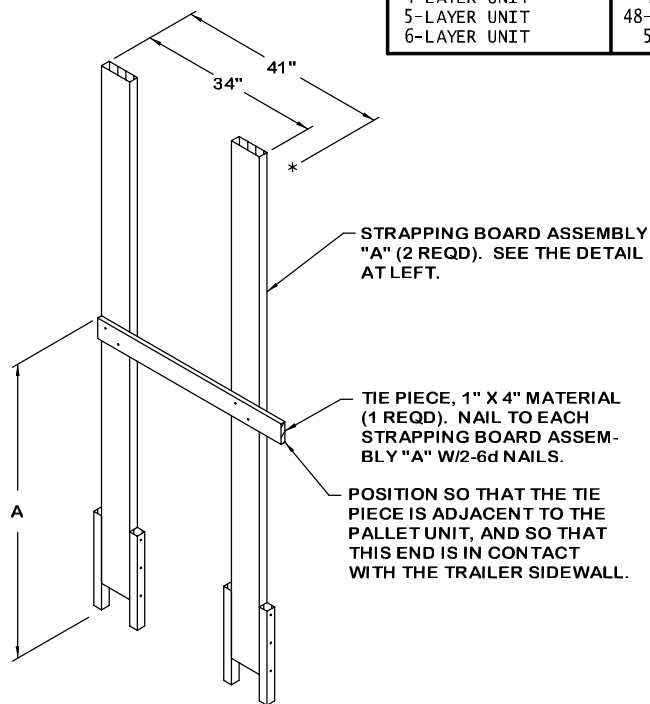
### REAR BLOCKING ASSEMBLY C

THIS REAR BLOCKING IS DESIGNED FOR USE AT THE REAR END OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS LESS THAN 9" AS SHOWN IN THE LOAD ON PAGE 6. RETAINER PIECES WILL BE REQUIRED ON THE LOAD BEARING SIDE. REFER TO REAR BLOCKING "A" ON PAGE 19, OR REAR BLOCKING "B" ABOVE FOR LOCATION AND NAILING GUIDANCE.

STRAPPING BOARD CHART	
PALLET UNIT TYPE	DIM
	A
4-LAYER UNIT	41"
5-LAYER UNIT	48-1/2"
6-LAYER UNIT	56"



**STRAPPING BOARD ASSEMBLY A**

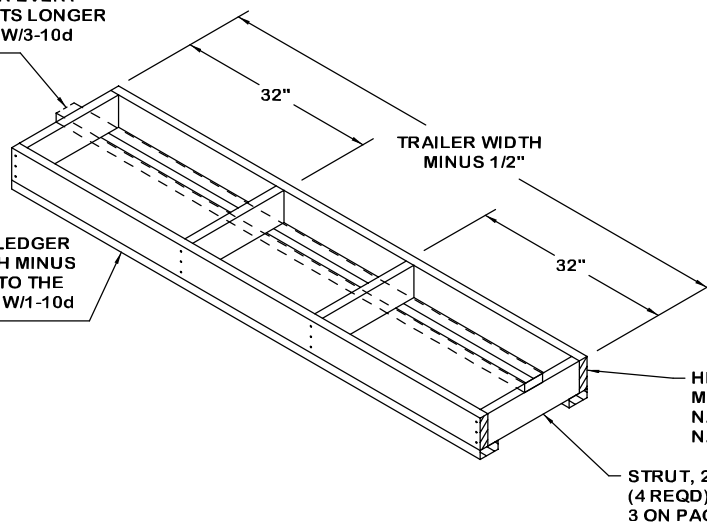


**STRAPPING BOARD ASSEMBLY B**

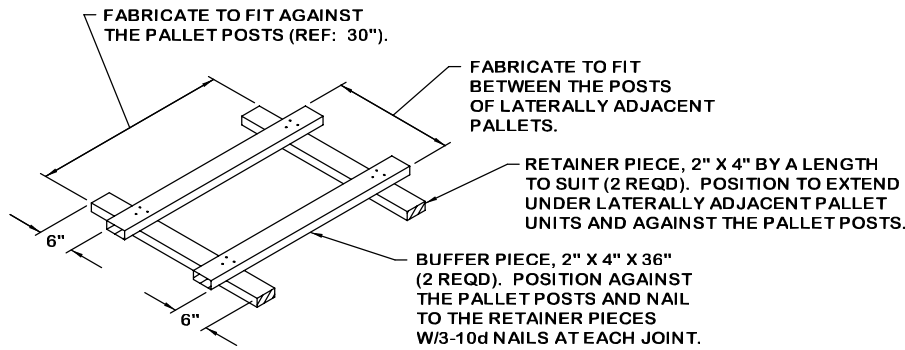
RIGHT HAND AND LEFT HAND ASSEMBLIES ARE REQUIRED. THIS ASSEMBLY IS AN ALTERNATIVE FOR A PAIR OF STRAPPING BOARD ASSEMBLIES "A".

STRUT BRACING, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (1 REQD FOR EVERY 7'-0" OF STRUT LENGTH FOR STRUTS LONGER THAN 7'-0"). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

HEADER SUPPORT AND STRUT LEDGER PIECE, 2" X 4" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO THE BOTTOM EDGE OF THE HEADER W/1-10d NAIL EVERY 12".

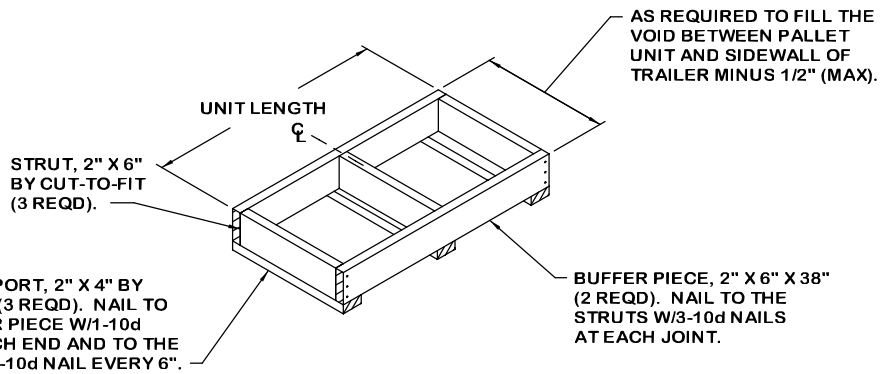


**SPACER ASSEMBLY A**



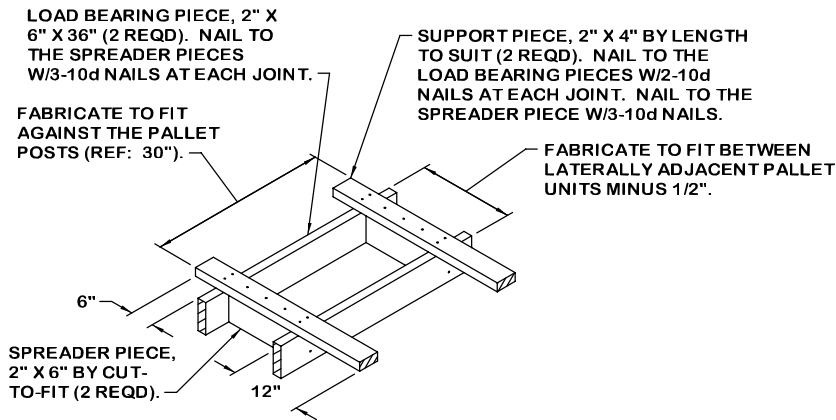
**ANTI-SWAY BRACE**

THIS ANTI-SWAY BRACE MUST BE FABRICATED IN PLACE BETWEEN THE PALLETS.



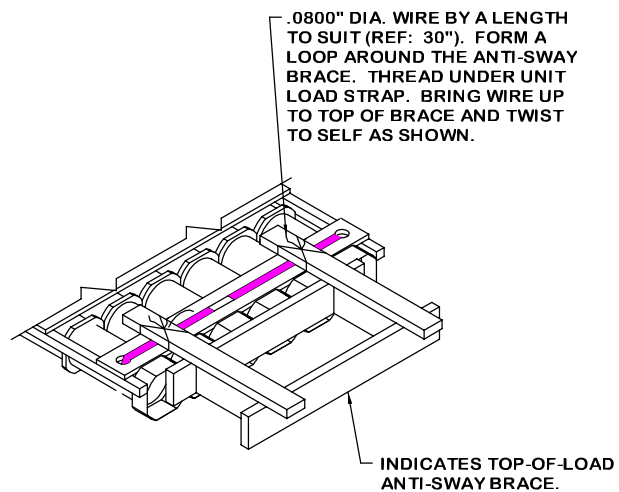
**SIDE BLOCKING ASSEMBLY**

THIS ASSEMBLY IS DESIGNED FOR USE AS LATERAL BRACING AS SHOWN IN THE TYPICAL LTL LOADS ON PAGES 14 AND 16.



**TOP-OF-LOAD ANTI-SWAY BRACE**

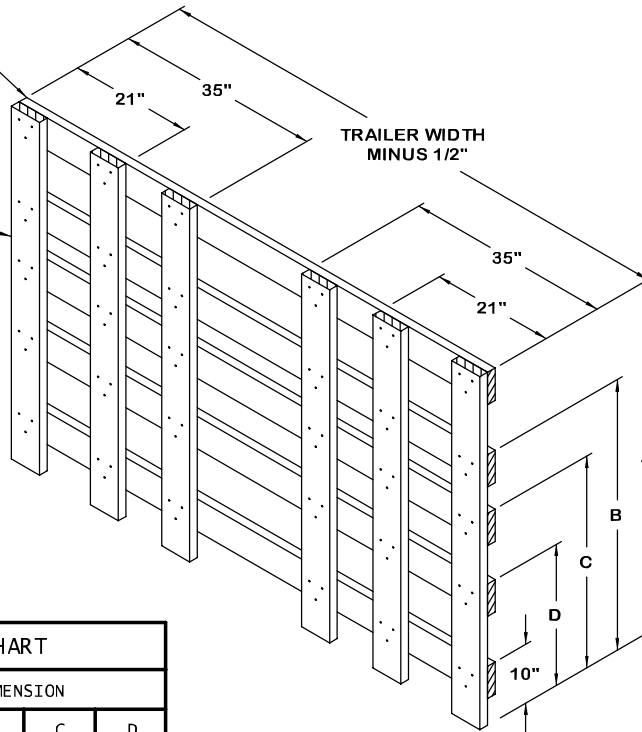
THIS ASSEMBLY IS DESIGNED FOR THE BRACING OF A PALLET UNIT IN THE SECOND LAYER WHEN THERE IS NOT A PALLET UNIT DIRECTLY OPPOSITE IT AND TOP-OF-LOAD ANTI-SWAY BRACING IS REQUIRED.



**TIE WIRE APPLICATION**

HORIZONTAL PIECE, 2" X 6"  
BY TRAILER WIDTH MINUS  
1/2" IN LENGTH (5 REQD).

VERTICAL PIECE, 2" X 6"  
MATERIAL (6 REQD). NAIL  
TO THE HORIZONTAL  
PIECES W/3-10d NAILS  
AT EACH JOINT.

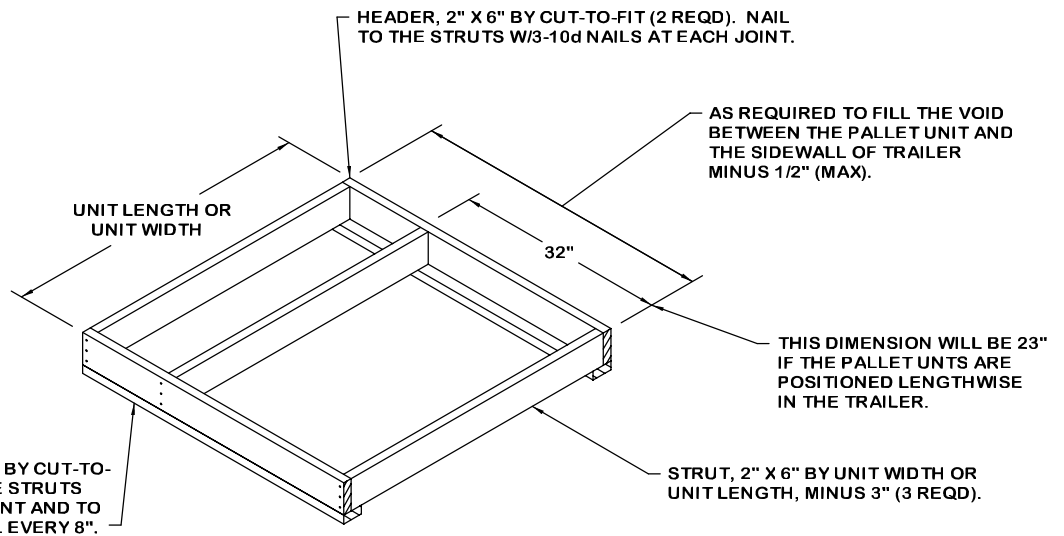


POSITION 2-HIGH PORTION  
OF LOAD AGAINST THIS  
SIDE OF GATE.

BULKHEAD GATE CHART				
PALLET UNIT TYPE	DIMENSION			
	A	B	C	D
4-LAYER UNIT	60"	46"	36"	24"
5-LAYER UNIT	6'-3"	54"	44"	31"
6-LAYER UNIT	6'-10"	62"	46"	31"
5-L W/4-L ON TOP	67"	53"	44"	31"
6-L W/4-L ON TOP	6'-3"	62"	46"	31"
6-L W/5-L ON TOP	6'-10"	62"	46"	31"

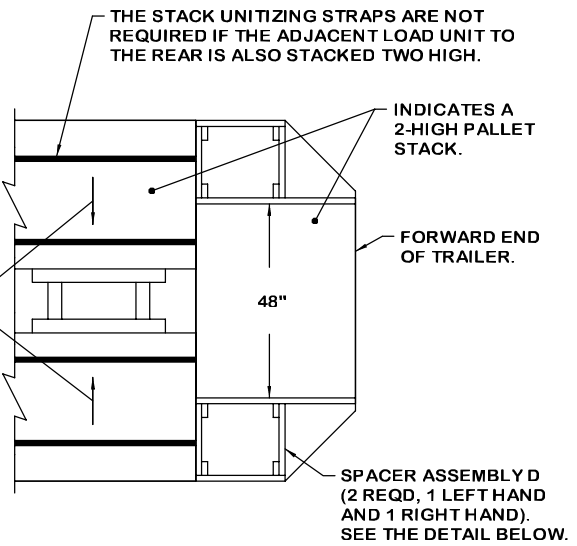
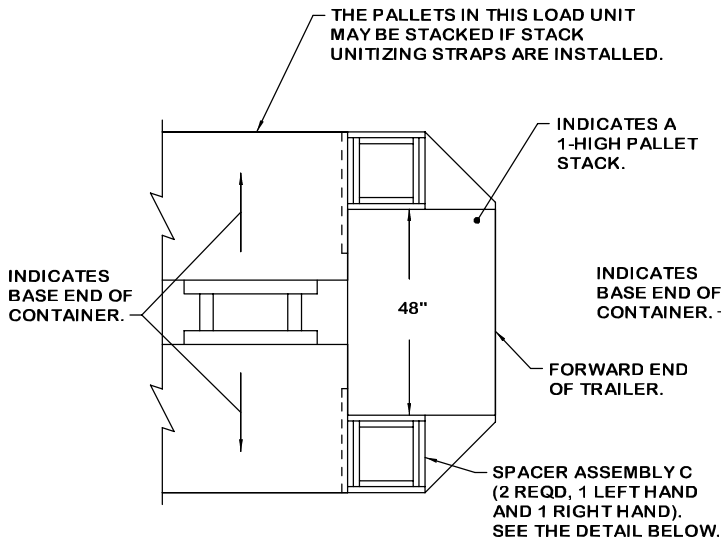
**BULKHEAD GATE**

THIS GATE IS DESIGNED FOR USE IN THE  
ALTERNATIVE LOADING PROCEDURE ON  
PAGE 12.



**SPACER ASSEMBLY B**

THIS ASSEMBLY IS DESIGNED FOR USE  
AS LATERAL BRACING IN AS SHOWN IN  
THE LOAD ON PAGE 12.

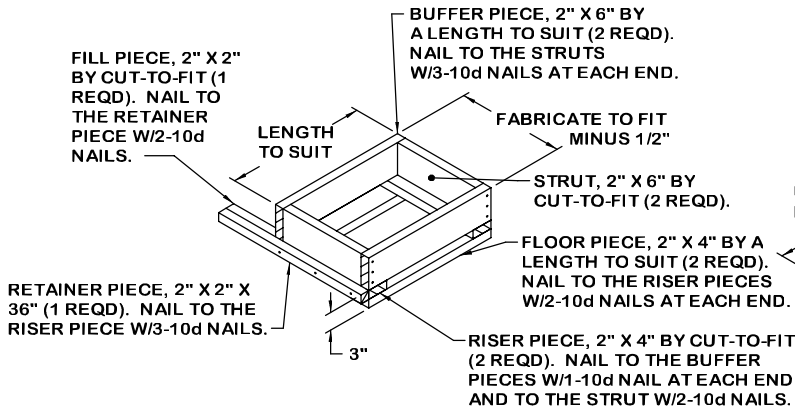


**ALTERNATIVE FORWARD LOADING PATTERN A**

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF ONE PALLET UNIT IN THE FORWARD END OF A CONVENTIONAL VAN TRAILER HAVING LARGE ANGLED FRONT CORNERS (REF: 18"). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUNDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.

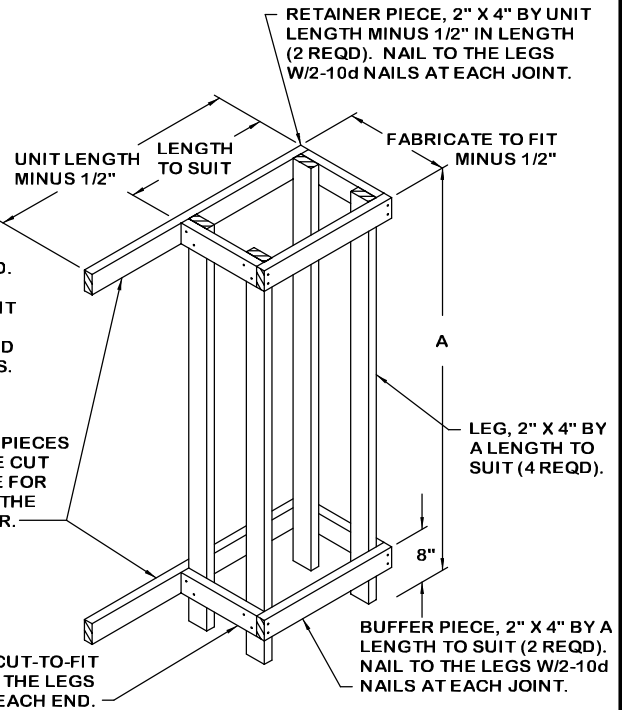
**ALTERNATIVE FORWARD LOADING PATTERN B**

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF A STACK OF TWO PALLET UNITS IN THE FORWARD END OF A CONVENTIONAL VAN TRAILER HAVING LARGE ANGLED FRONT CORNERS (REF: 18"). THE PROCEDURES MAY ALSO BE USED IN TRAILERS HAVING SQUARE CORNERS, OR ROUNDED FRONT CORNERS, OR ANGLED CORNERS OF ANOTHER SIZE. NOTE THAT IF THE LOAD UNIT BEHIND THE STACKED PALLETS IN THE FRONT OF THE TRAILER IS ONLY ONE HIGH, TWO STACK UNITIZING STRAPS MUST BE INSTALLED AROUND THOSE PALLET UNITS IN THE FRONT STACK. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.



**SPACER ASSEMBLY C**

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A SINGLE PALLET UNIT WHICH IS TURNED 90° FROM THE NORMAL LOADING ORIENTATION AND POSITIONED IN THE FRONT OF AN ANGLED-CORNER CONVENTIONAL VAN TRAILER AS SHOWN IN THE "ALTERNATIVE FORWARD LOADING PATTERN A" VIEW ABOVE. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.



**SPACER ASSEMBLY D**

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A TWO-HIGH PALLET STACK WHICH IS TURNED 90° FROM THE NORMAL LOADING ORIENTATION AND POSITIONED IN THE FRONT OF AN ANGLED-CORNER CONVENTIONAL VAN TRAILER AS SHOWN IN THE "ALTERNATIVE FORWARD LOADING PATTERN B" VIEW ABOVE. NOTE THAT THIS VIEW DEPICTS THE ASSEMBLY POSITIONED 90° FROM THE POSITION IN WHICH IT WILL BE INSTALLED IN A LOAD. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.

SPACER ASSEMBLY D CHART	
PALLET UNIT TYPE	DIM A
4-LAYER UNIT	46"
5-LAYER UNIT	53"
6-LAYER UNIT	46"
5-L W/4-L ON TOP	53"
6-L W/4-L ON TOP	62"
6-L W/5-L ON TOP	62"



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