




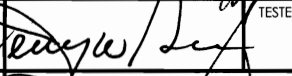

LOADING AND BRACING (TL & LTL) IN VAN TRAILERS* OF 120MM CARTRIDGES PACKED IN PA116 OR PA171 CYLINDRICAL METAL CONTAINERS, PALLETIZED

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*** CAUTION: THE PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE FOR HIGHWAY MOVEMENTS; NOT FOR TRAILER-ON-FLATCAR (TOFC) MOVEMENTS.**

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY FIELD SUPPORT COMMAND 	CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 28.					
	DO NOT SCALE		JULY 2006			
	ENGINEER OR TECHNICIAN	BASIC REV.	ADIN FELICIANO			
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND 	TRANSPORTATION ENGINEERING DIVISION VALIDATION ENGINEERING DIVISION ENGINEERING DIRECTORATE	 TESTED  	CLASS	DIVISION	DRAWING	FILE
U.S. ARMY DEFENSE AMMUNITION CENTER			19	48	4243/48A	11PM1004

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 TO LOADS OF 120MM CARTRIDGES PACKED IN PA116 OR PA171 CYLINDRICAL METAL CONTAINERS, PALLETIZED. FOR DETAILS OF THE PALLET UNIT, SEE U.S. ARMY MATERIEL COMMAND DRAWING 19-48-4231/48A-20PM1006 AND PAGE 3.
- 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 120MM CARTRIDGES, 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.

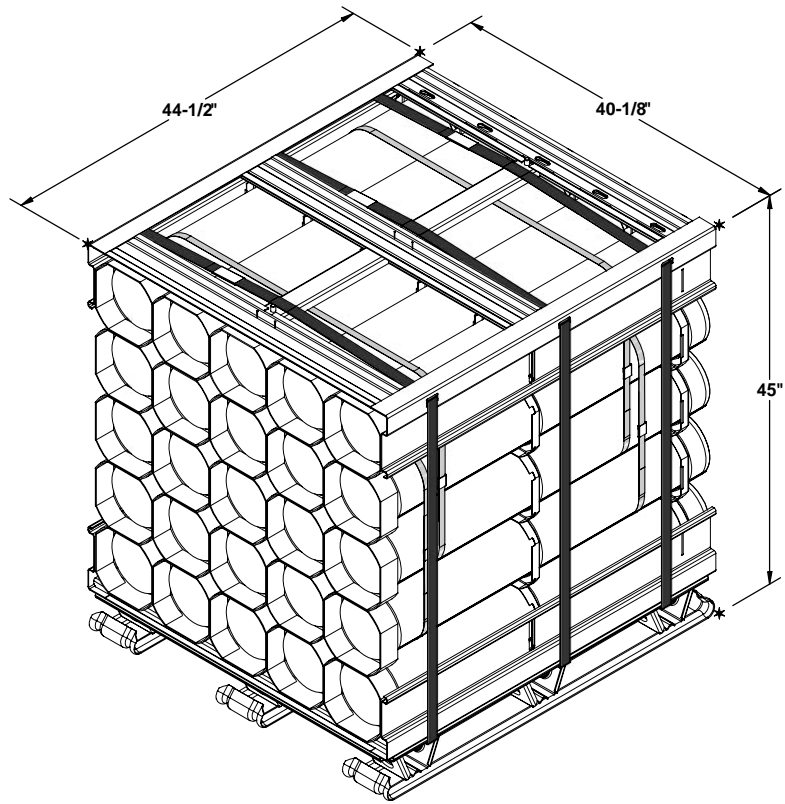
(CONTINUED AT RIGHT)

- J. SOME 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 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. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 24 FOR GUIDANCE.
- 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. THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 6". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE ANTI-SWAY BRACES. NAIL EACH ADDITIONAL PIECE TO THE BUFFER PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS, LENGTH AND QUANTITY OF THE LUMBER USED IN THESE ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.
- Q. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR 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 THE 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DEPICTED ON PAGE 21. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B", AS SHOWN ON PAGE 21. **NOTE:** REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE. **CAUTION:** THE NAILED HEADER METHOD IS REQUIRED WHEN LOADING VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS.
- R. **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.

- S. 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 26. FOR SHIPMENT OF LEFTOVER CONTAINERS" SEE THE DETAILS ON PAGE 25.
- T. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF PALLET UNITS OF PA116 OR PA171 CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED MUNITION, OR WHEN THEY ARE EMPTY.
- U. 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.

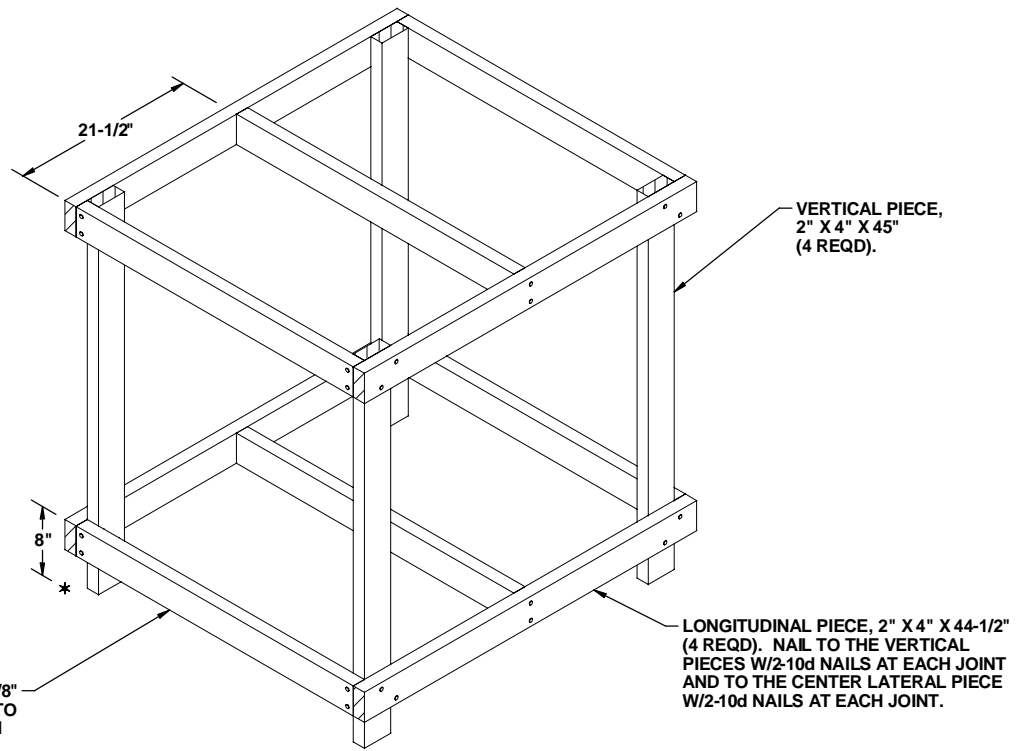
MATERIAL SPECIFICATIONS

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, 0.0800" DIA, GRADE 1006 OR BETTER.



PALLET UNIT DETAIL

GROSS WEIGHT - - - - - 2,086 LBS (APPROX)
 CUBE - - - - - 46.5 CU FT (APPROX)

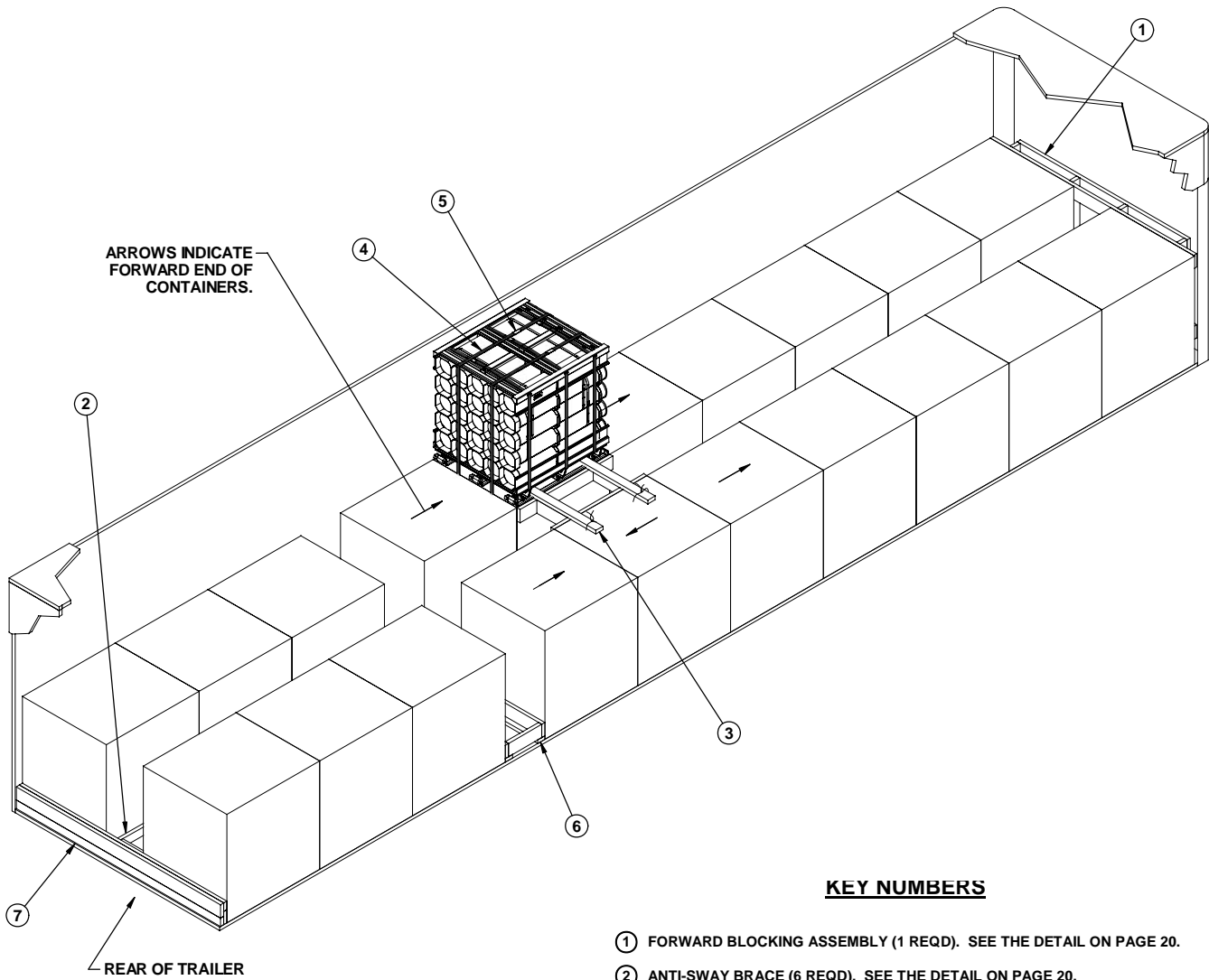


LATERAL PIECE, 2" X 4" X 37-1/8"
 (6 REQD). NAIL OUTER FOUR TO
 THE VERTICAL PIECES W/2-10d
 NAILS AT EACH END.

VERTICAL PIECE,
 2" X 4" X 45"
 (4 REQD).

LONGITUDINAL PIECE, 2" X 4" X 44-1/2"
 (4 REQD). NAIL TO THE VERTICAL
 PIECES W/2-10d NAILS AT EACH JOINT
 AND TO THE CENTER LATERAL PIECE
 W/2-10d NAILS AT EACH JOINT.

**FILLER ASSEMBLY
 FOR MINUS ONE PALLET UNIT.**



ARROWS INDICATE FORWARD END OF CONTAINERS.

REAR OF TRAILER

ISOMETRIC VIEW

KEY NUMBERS

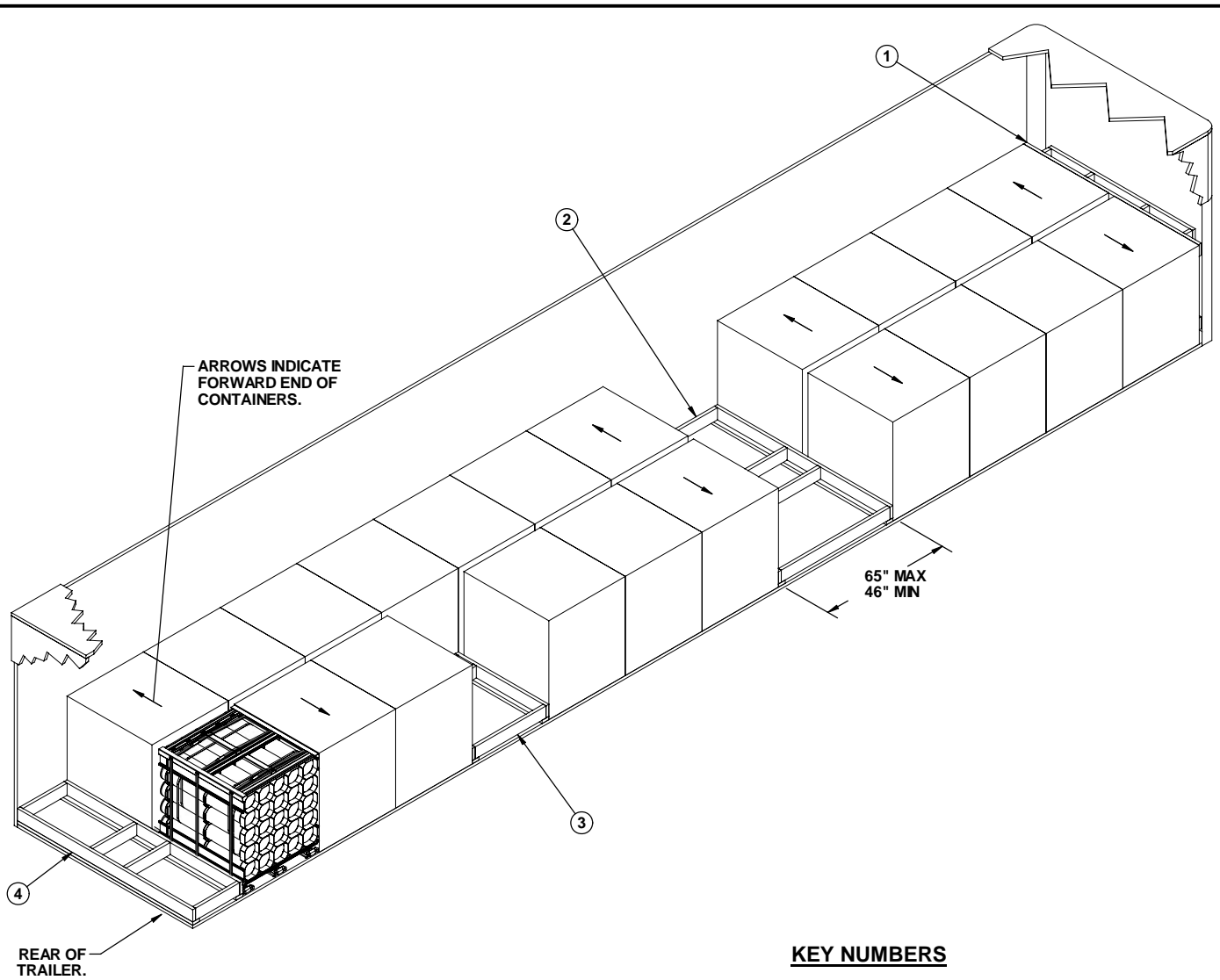
- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 20.
- ② ANTI-SWAY BRACE (6 REQD). SEE THE DETAIL ON PAGE 20.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE, (1 REQD). SEE DETAIL ON PAGE 28. WIRE TIE TO PALLET UNITIZING STRAPS WITH .0800" DIA BY 30" LONG WIRE. FORM A LOOP AROUND ANTI-SWAY BRACE SUPPORT PIECE AND UNITIZING STRAP, BRING ENDS TOGETHER AND TWIST TIGHT.
- ④ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TWO PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 9.
- ⑤ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑥ SPACER ASSEMBLY A (1 REQD). SEE DETAIL ON PAGE 22.
- ⑦ REAR BLOCKING ASSEMBLY A (1 REQD). SEE REAR BLOCKING ASSEMBLY B ON PAGE 21.

SPECIAL NOTES:

1. A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED. THE LOAD ON PAGE 4 IS DEPICTED IN A VAN TRAILER EQUIPPED WITH ROUNDED FRONT CORNERS. IF A TRAILER HAVING SQUARE CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY IS NOT REQUIRED.
2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. **NOTE:** REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE.
4. BUNDLING STRAPS MUST BE APPLIED AROUND THE TWO-HIGH STACKS WHICH ARE IMMEDIATELY ADJACENT EITHER LATERALLY OR LONGITUDINALLY TO THE ONE-HIGH UNITS. THE BUNDLING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK. DO NOT LOAD PALLET UNITS TWO HIGH AT THE REAR OF THE LOAD.
5. TOP-OF-LOAD ANTI-SWAY BRACE, SHOWN IN THE LOAD ON PAGE 4, IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE LOADED AT THE REAR OF THE LOAD. PROVIDE LONGITUDINAL BRACING BY INSTALLING BUNDLING STRAPS. PROVIDE LATERAL BRACING BY INSTALLING A "TOP-OF-LOAD" ANTI-SWAY BRACE AS SHOWN. WIRE TIE TO THE TIEDOWN STRAPS ON THE ADJACENT PALLET UNIT.
6. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A 1-TIER LOAD CAN BE REDUCED BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO OR OMITTED FROM THE TOP TIER.
7. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
8. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	220	147
2" X 6"	86	86
NAI LS	NO. REQD	POUNDS
10d (3")	292	5
STEEL STRAPPING, 1-1/4" - 43' REQD - 6.17 LBS		
SEAL FOR 1-1/4" STRAPPING - 4 REQD - 0.18 LBS		
WIRE, .0800" DIAMETER - - 10' REQD - - - NIL		

LOAD AS SHOWN		
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	21 - - - - -	43,806 LBS
DUNNAGE - - - - -	- - - - -	476 LBS
TOTAL WEIGHT - - - - -		44,282 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

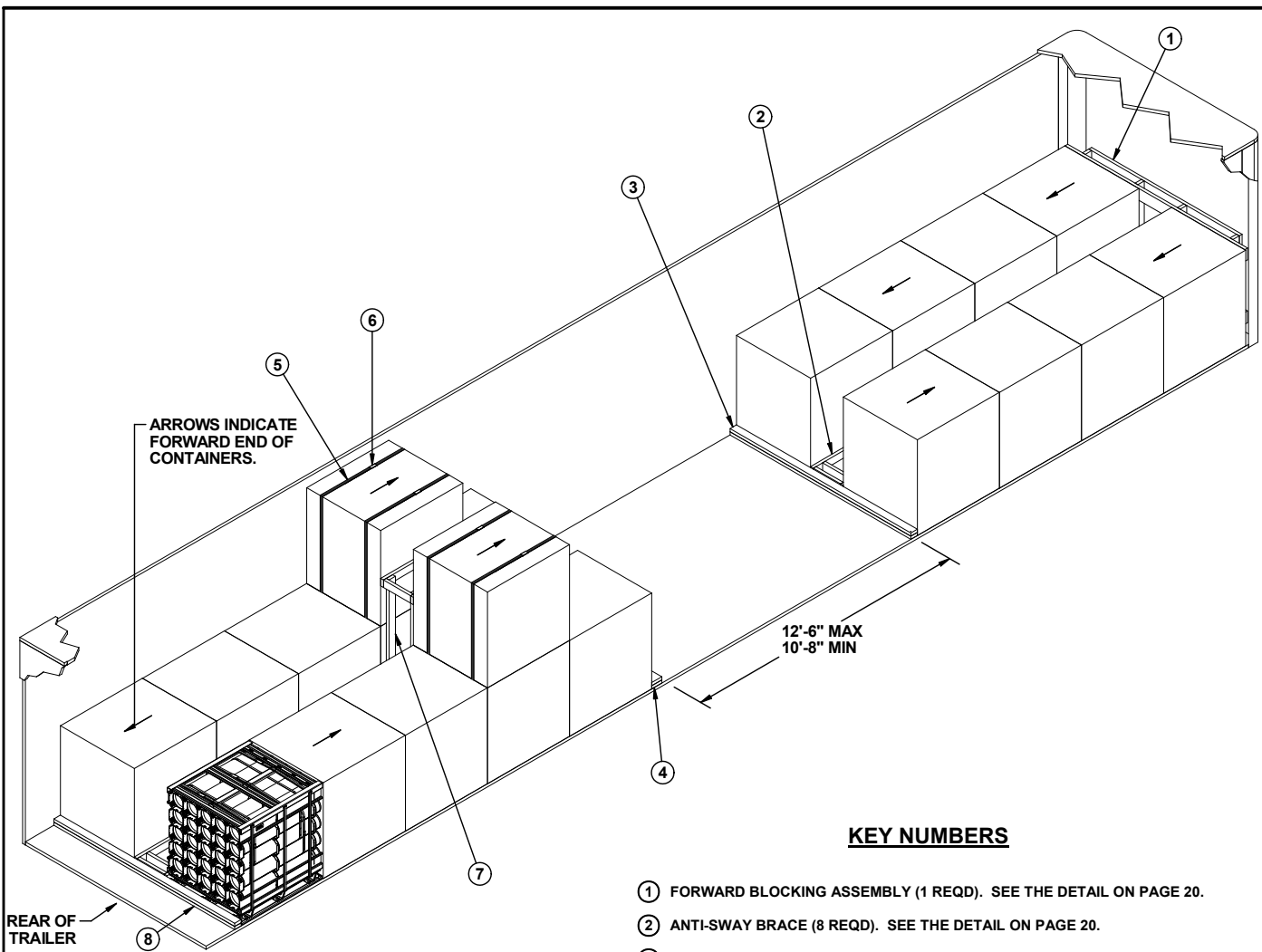
- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 20.
- ② SPACER ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 22 AND SPECIAL NOTE 4 ON PAGE 7.
- ③ SPACER ASSEMBLY B (1 REQD). SEE THE DETAIL ON PAGE 23 AND SPECIAL NOTE 5 ON PAGE 7.
- ④ REAR BLOCKING ASSEMBLY B (1 REQD). SEE THE DETAIL ON PAGE 21 AND SPECIAL NOTE 3 ON PAGE 7.

SPECIAL NOTES:

1. A 45'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER WITH ROUNDED FRONT IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. **NOTE:** REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE.
4. SPACER ASSEMBLY "A", SHOWN IN THE LOAD ON PAGE 6, IS TO BE 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 45', 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 "A" MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY.
5. SPACER ASSEMBLY "B", SHOWN IN THE LOAD ON PAGE 6, IS ONLY SHOWN TO DEPICT A TYPICAL INSTALLATION. IF A PALLET UNIT IS LOADED IN PLACE OF THE SPACER ASSEMBLY "B" WILL NOT BE REQUIRED. **NOTE** THAT A SPACER ASSEMBLY "B" MUST BE POSITIONED WHERE THERE WILL BE A PALLET UNIT AT EACH END. A SPACER ASSEMBLY "A" MUST NOT BE POSITIONED ADJACENT TO THE FORWARD BLOCKING ASSEMBLY.
6. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE REDUCED BY A MULTIPLE OF THREE UNITS BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO OR OMITTED FROM THE LOAD.
7. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
8. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	54	36
2" X 6"	103	103
NAI LS	NO. REQD	POUNDS
10d (3")	130	2

LOAD AS SHOWN		
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	21	43,806 LBS
DUNNAGE		278 LBS
TOTAL WEIGHT		44,084 LBS (APPROX)



ARROWS INDICATE FORWARD END OF CONTAINERS.

12'-6" MAX
10'-8" MIN

REAR OF TRAILER

ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 20.
- ② ANTI-SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 20.
- ③ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/7-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/7-10d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.
- ④ FORWARD HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/6-20d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.
- ⑤ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TWO PALLET UNITS.
- ⑥ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑦ CRIB FILL ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 22.
- ⑧ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/11-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/11-10d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

SPECIAL NOTES:

1. A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER WITH ROUNDED FRONT CORNERS IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. ANTI-SWAY BRACES MAY BE OMITTED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS IS 6" OR LESS, AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 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 THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
4. BUNDLING STRAPS MUST BE APPLIED AROUND THE TWO-HIGH STACKS WHICH ARE IMMEDIATELY ADJACENT EITHER LATERALLY OR LONGITUDINALLY TO THE ONE-HIGH UNITS. THE BUNDLING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK. DO NOT LOAD PALLET UNITS TWO HIGH AT THE REAR OF THE LOAD.
5. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR OR TWO UNITS BY OMITTING ONE OR MORE FULL LOAD UNITS FROM THE LOAD; OR, ONE OR MORE UNITS CAN BE ADDED TO THE TOP TIER.
6. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
7. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

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.

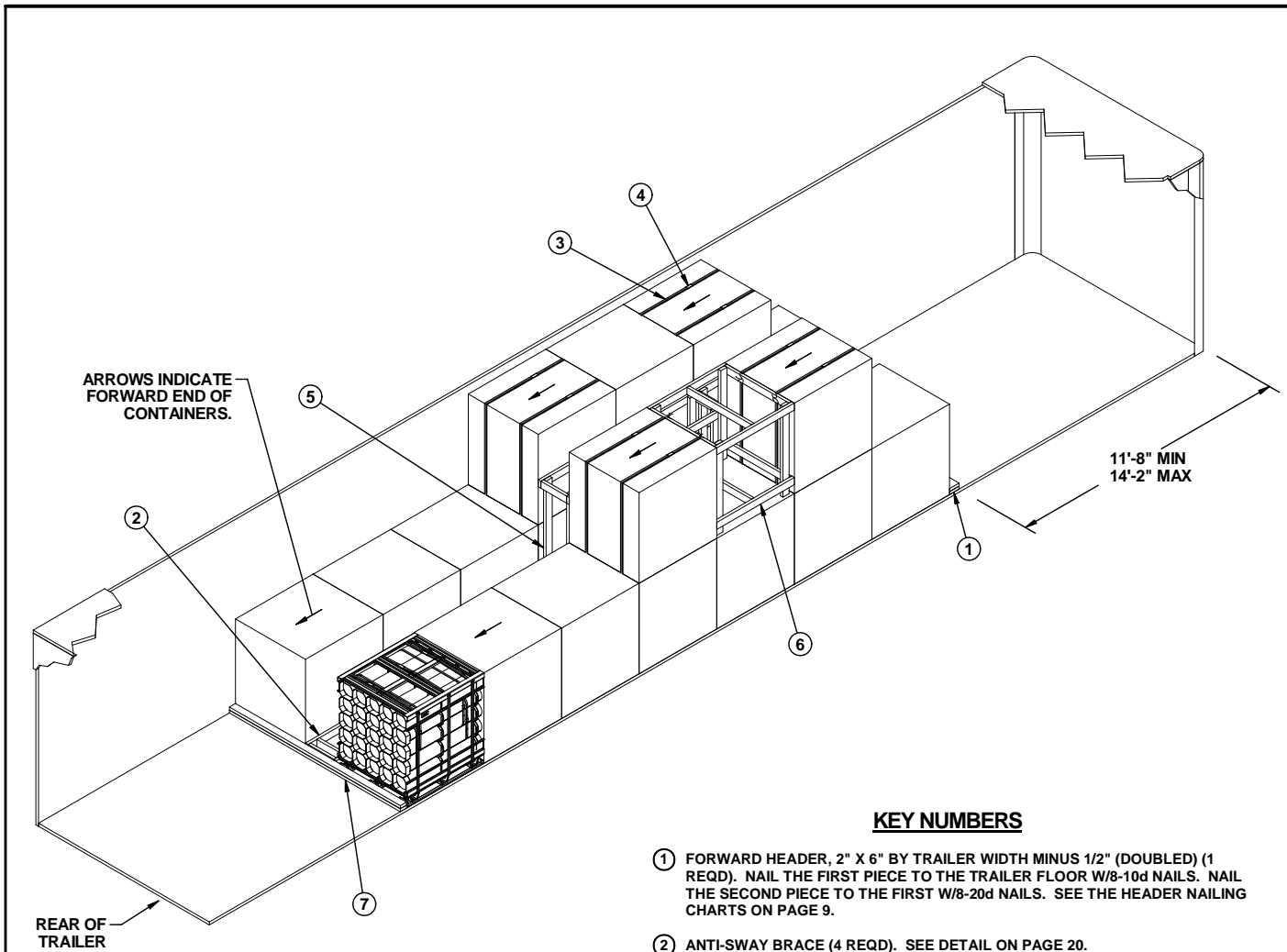
REAR HEADER NAILING CHART*	
#NAILS	MAX. LOAD WEIGHT (LBS)
6	15,000
7	17,500
8	20,000
9	22,500
10	25,000
11	27,500
12	30,000
13	32,500
14	35,000
15	37,500
16	40,000
17	42,500
18	45,000

- * 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
2" X 4"	159	106
2" X 6"	68	68
NAI LS	NO. REQD	POUNDS
10d (3")	199	3-1/4
20d (4")	6	1/4
STEEL STRAPPING, 1-1/4" - 86' REQD - 7.66 LBS		
SEAL FOR 1-1/4" STRAPPING - 8 REQD - 0.36 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	20	41,720 LBS
DUNNAGE		359 LBS
TOTAL WEIGHT		42,079 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/8-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/8-20d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.
- ② ANTI-SWAY BRACE (4 REQD). SEE DETAIL ON PAGE 20.
- ③ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 22'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TWO PALLET UNITS. SEE SPECIAL NOTE 4 ON PAGE 11.
- ④ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL.
- ⑤ CRIB-FILL ASSEMBLY (3 REQD). SEE DETAIL ON PAGE 21.
- ⑥ FILLER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 3. WIRE TIE TO PALLET UNITIZING STRAPS WITH .0800" DIA BY 30" LONG WIRE. FORM A LOOP AROUND FILLER ASSEMBLY LATERAL PIECE AND UNITIZING STRAP, BRING ENDS TOGETHER AND TWIST TIGHT.
- ⑦ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/16-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/16-10d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

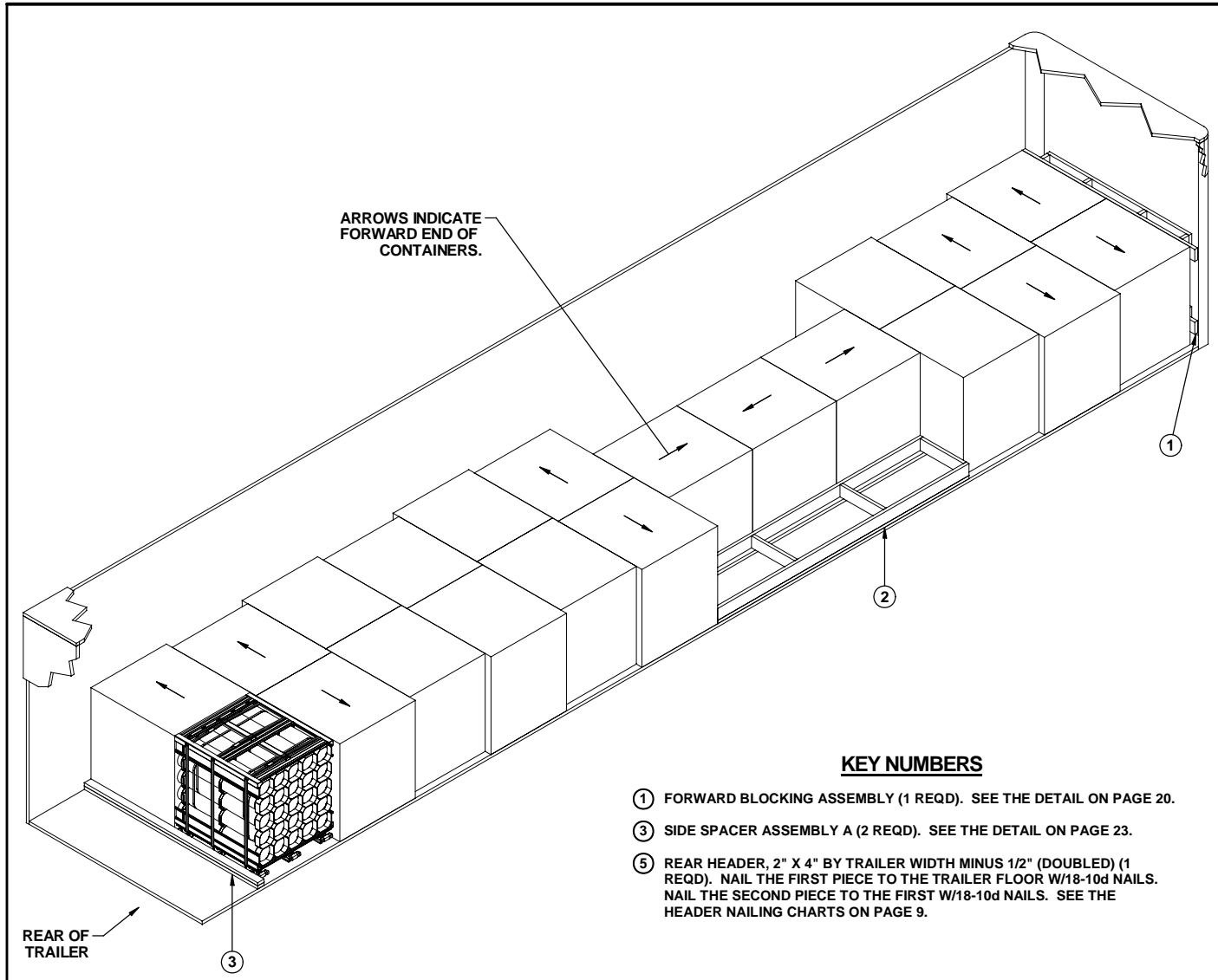
SPECIAL NOTES:

1. A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 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 THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
4. BUNDLING STRAPS MUST BE APPLIED AROUND THE TWO-HIGH STACKS WHICH ARE IMMEDIATELY ADJACENT EITHER LATERALLY OR LONGITUDINALLY TO THE ONE-HIGH UNITS. THE BUNDLING STRAPS MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK. DO NOT LOAD PALLET UNITS TWO HIGH AT THE REAR OF THE LOAD.
5. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
6. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	234	156
2" X 6"	17	17
NAI LS	NO. REQD	POUNDS
10d (3")	241	3-3/4
20d (4")	9	1/2
STEEL STRAPPING, 1-1/4" - 172' REQD - 24.5 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - 1.09 LBS		
WIRE, .0800" DIAMETER - - 10' REQD - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - -	19 - - - - -	39,634 LBS
DUNNAGE - - - - -	- - - - -	374 LBS
TOTAL WEIGHT - - - - -		40,008 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 20.
- ③ SIDE SPACER ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 23.
- ⑤ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/18-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/18-10d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

SPECIAL NOTES:

1. A 45'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER IS SHOWN. IF A TRAILER WITH SQUARE FRONT CORNERS IS TO BE LOADED, THE FORWARD BLOCKING ASSEMBLY PIECE MAY BE OMITTED. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 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 THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" ON PAGE 21. **NOTE:** REAR BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS AS SHOWN AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE REAR HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE.
4. IF THE TRAILER BEING LOADED IS EQUIPPED WITH A WOOD OR WOOD AND METAL FLOOR, AND IF DESIRED, NAILED SIDE BLOCKING MAY BE USED IN LIEU OF THE SIDE SPACER ASSEMBLIES. SIDE BLOCKING SHOULD BE DOUBLED 2" X 6" MATERIAL. SEE THE LOAD ON PAGE 14 FOR DETAILS.
5. ALTERNATE THE POSITION OF THE LATERAL VOID IN TWO-WIDE LOAD UNITS TO ENSURE A UNIFORM LOAD, AS DEPICTED IN THE LOAD ON PAGE 12.
6. THE LOADING PROCEDURES SHOWN ON PAGE 12 ARE LIMITED TO 1-LAYER LOADS; PALLET UNITS WILL NOT BE STACKED.
7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. A LOAD CAN BE INCREASED BY REPLACING SOME OF THE 1-WIDE UNITS WITH 2-WIDE UNITS, OR THE LOAD CAN BE REDUCED BY REPLACING 2-WIDE PORTIONS WITH SINGLE UNITS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

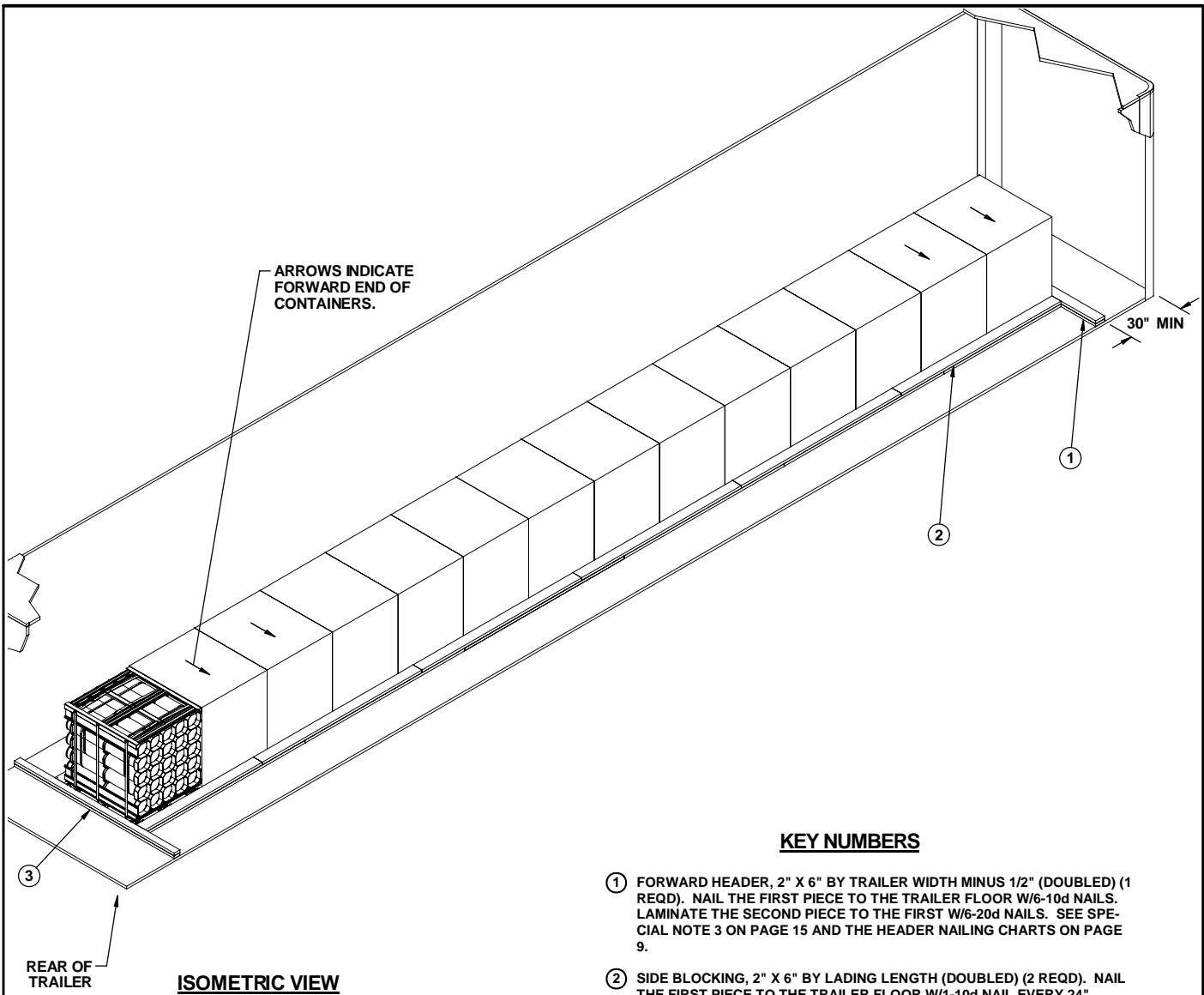
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	76	51
2" X 6"	88	88
NAI LS	NO. REQD	POUNDS
10d (3")	120	2

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	21	43,806 LBS
DUNNAGE		279 LBS
TOTAL WEIGHT		44,085 LBS (APPROX)

**COMBINATION 1-WIDE AND 2-WIDE
21-UNIT LOAD IN A 45'-0" LONG BY 8'-2" WIDE VAN TRAILER**



KEY NUMBERS

- ① FORWARD HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. LAMINATE THE SECOND PIECE TO THE FIRST W/6-20d NAILS. SEE SPECIAL NOTE 3 ON PAGE 15 AND THE HEADER NAILING CHARTS ON PAGE 9.
- ② SIDE BLOCKING, 2" X 6" BY LADING LENGTH (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 24". LAMINATE THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. INSTALLATION MAY BE MADE FROM RANDOM LENGTH PIECES. SEE SPECIAL NOTE 4 ON PAGE 15.
- ③ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (DOUBLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/12-10d NAILS. LAMINATE THE SECOND PIECE TO THE FIRST W/12-10d NAILS. SEE SPECIAL NOTE 2 ON PAGE 15 AND THE HEADER NAILING CHARTS ON PAGE 9.

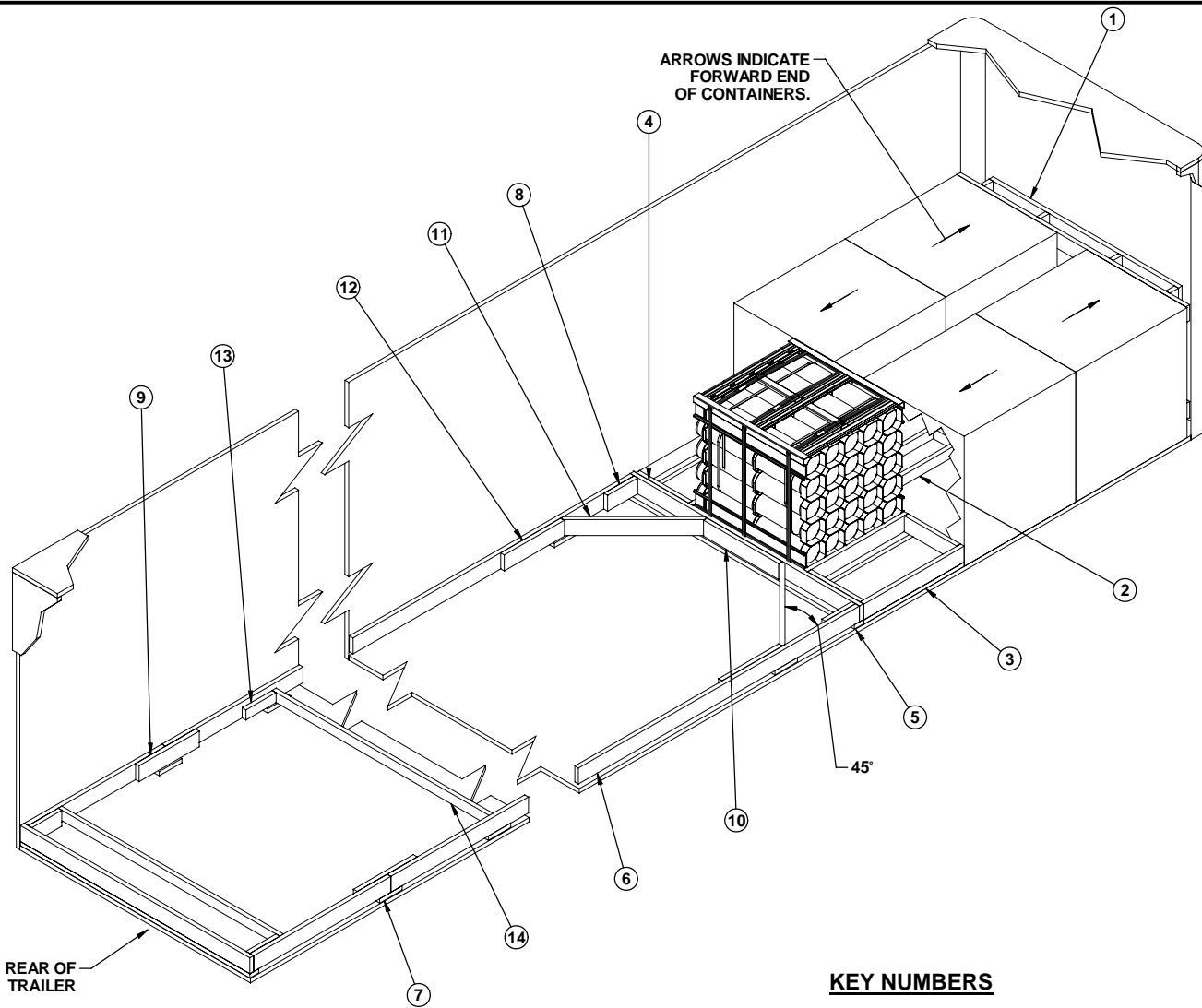
SPECIAL NOTES:

1. A 53'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. IF THE SPACE AT THE REAR OF THE LOAD, BETWEEN THE PALLET UNITS AND THE REAR DOOR IS 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 THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" AS DETAILED ON PAGE 21 OR A NAILED HEADER, AS SHOWN. IF THE TRAILER IS EQUIPPED WITH A METAL THRESHOLD PLATE AND IT INTERFERES WITH THE NAILING OF THE REAR HEADER, ONE OF THE REAR BLOCKING ASSEMBLIES DESCRIBED ABOVE MUST BE INSTALLED.
3. IF DESIRED, SIDE SPACER ASSEMBLIES "A" AND/OR "B", AS DEPICTED ON PAGES 23 AND 24, MAY BE USED IN LIEU OF THE SIDE BLOCKING. SEE THE LOAD ON PAGE 14 FOR DETAILS.
4. THE LOADING PROCEDURES SHOWN ON PAGE 14 ARE LIMITED TO 1-LAYER LOADS; PALLET UNITS WILL NOT BE STACKED.
5. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED.
6. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
7. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	17	11
2" X 6"	204	204
NAILS	NO. REQD	POUNDS
10d (3")	78	1-1/4
20d (4")	6	1/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	14	29,204 LBS
DUNNAGE		431 LBS
TOTAL WEIGHT		29,635 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING (1 REQD). SEE THE DETAIL ON PAGE 20.
- ② ANTI-SWAY BRACE (2 REQD). SEE THE DETAIL ON PAGE 21.
- ③ SIDE SPACER ASSEMBLY B (2 REQD). SEE THE DETAIL ON PAGE 24. SEE SPECIAL NOTE 3 ON PAGE 17.
- ④ HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). SEE SPECIAL NOTE 7 ON PAGE 17.
- 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 W/1-10d NAIL EVERY 8".
- ⑥ SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN THE FORWARD AND REAR HEADERS (2 REQD). SEE SPECIAL NOTE 4 ON PAGE 17.
- ⑦ RISER PIECE, 2" X 4" X 9" (AS REQD). CENTER UNDER THE JOINTS OF THE DIAGONAL BRACE AND BACK-UP CLEAT, AND UNDER THE JOINTS OF THE STRUT BRACE RETAINING CLEAT AND STRUT BRACE, AND UNDER THE SPLICE OF SIDE STRUT IF APPLICABLE. NAIL TO SIDE STRUT W/2-10d NAILS.
- ⑧ POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER W/3-12d NAILS.
- ⑨ SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON JOINT OF PIECE AND NAIL TO SIDE STRUT W/4-10d NAILS AT EACH END. SEE SPECIAL NOTE 4 ON PAGE 17.

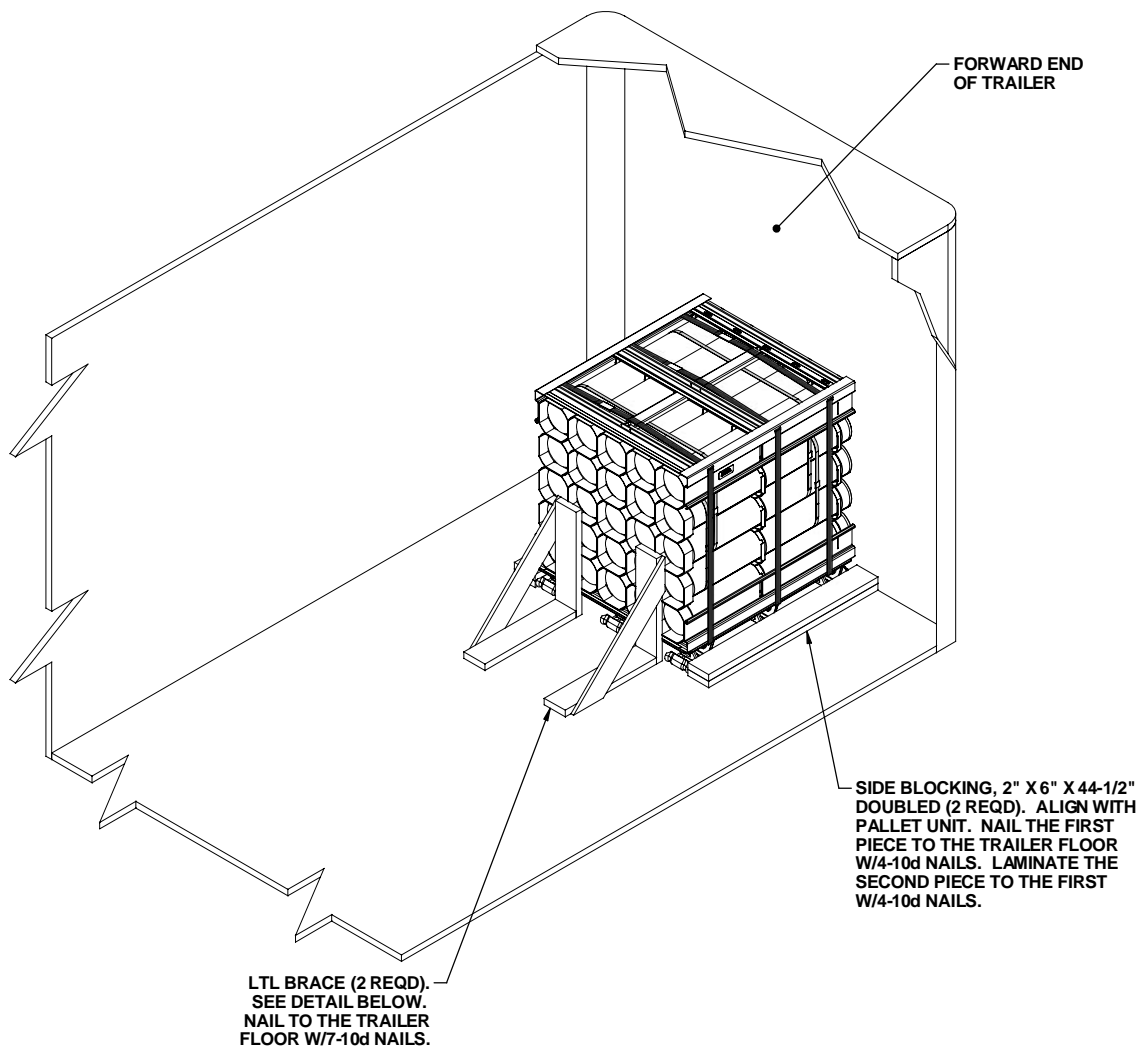
(KEY NUMBERS CONTINUED)

- ⑩ CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO A HEADER 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 AND SIDE STRUT W/2-16d NAILS AT EACH END.
- ⑫ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT W/8-10d NAILS.
- ⑬ STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT W/3-10d NAILS. SEE SPECIAL NOTE 5 ON PAGE 17.
- ⑭ STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). NAIL TO THE POCKET CLEATS AND/OR TO THE STRUT BRACE RETAINING CLEATS, W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 17.

(CONTINUED AT LEFT)

SPECIAL NOTES:

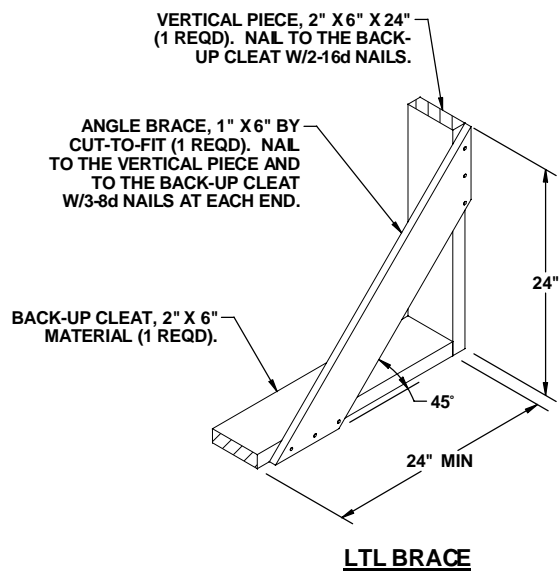
1. A 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. ANTI-SWAY BRACES ARE REQUIRED WHEN THE SPACE BETWEEN LATERALLY ADJACENT UNITS EXCEEDS 6", AS MEASURED FROM PALLET ADAPTER TO PALLET ADAPTER.
3. THE SIDE SPACER ASSEMBLIES ARE SHOWN ONLY TO DEPICT A TYPICAL INSTALLATION. THEY MAY OR MAY NOT BE REQUIRED, DEPENDING ON THE QUANTITY OF PALLET UNITS TO BE SHIPPED.
4. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF SUCH IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10d NAILS AT EACH END. **CAUTION:** A RISER PIECE MUST BE POSITIONED UNDER EACH SPLICE JOINT. IF DESIRED, THE STRUT BRACE PIECE(S) MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE RETAINING CLEATS.
5. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO POCKET CLEAT. IF THE SIDE STRUTS ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE, AND TWO STRUT BRACE RETAINING CLEATS, AND TWO RISER PIECES MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
6. THE "K-BRACE" BLOCKING, SHOWN AS PIECES MARKED ④ THRU ⑭, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
7. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER METHOD OF REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING. REFER TO PIECE MARKED ⑦ ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE. NOTE THAT THE NAILED-HEADER METHOD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS AND NAILABLE FLOORS, AND MAY BE USED IN LIEU OF PIECES MARKED ④ THRU ⑭ WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.
8. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED TWO CONTAINERS MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 25 FOR GUIDANCE.
9. REFER TO PAGE 26 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.

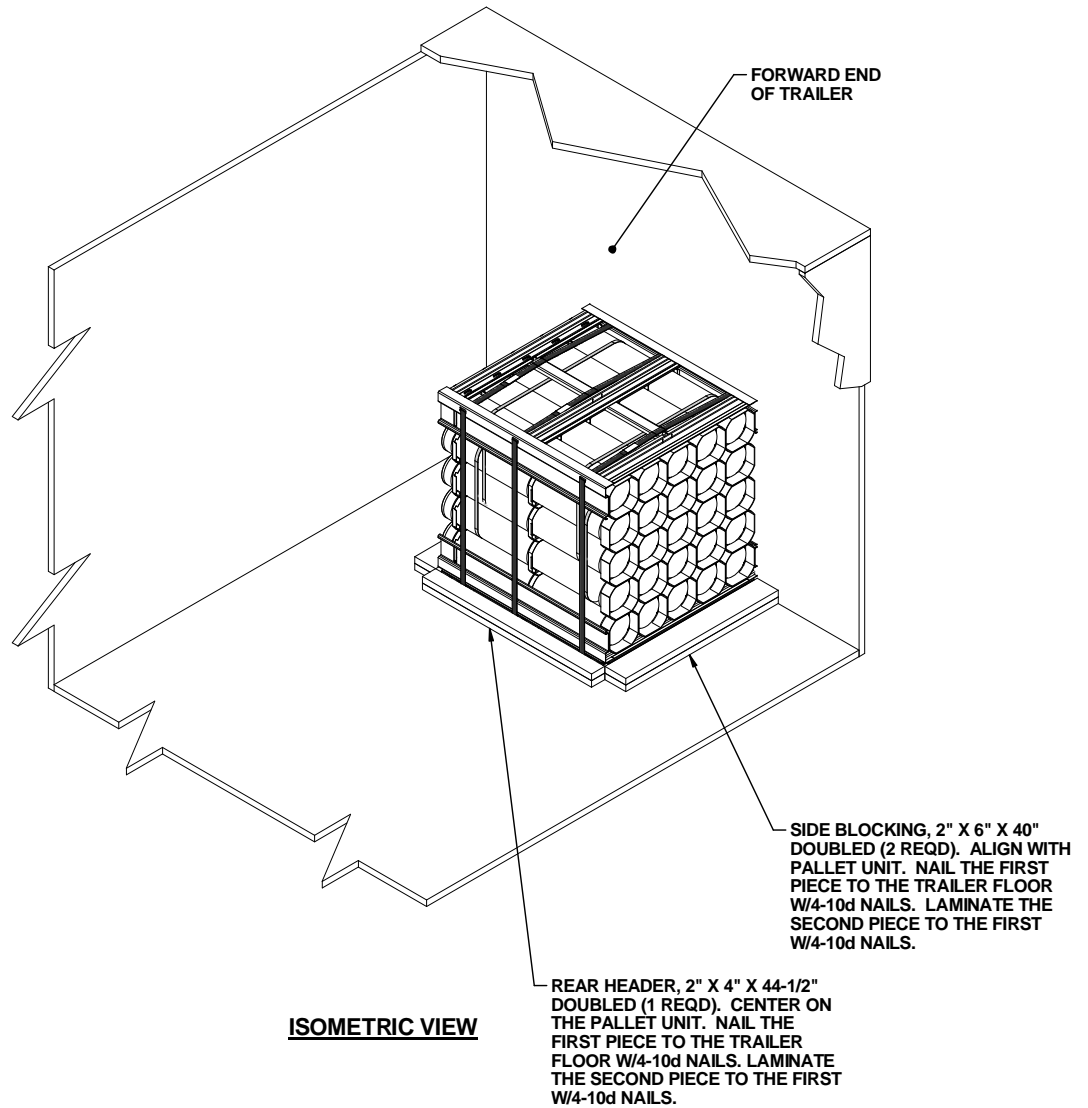


ISOMETRIC VIEW

SPECIAL NOTES:

1. A 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. THE POSITIONING OF A UNIT IS OPTIONAL. LTL BRACES MUST CONTACT EITHER THE AFT OR FORWARD END OF THE UNIT, NOT THE SIDES. UNITS MAY ALSO BE LOCATED IN THE CORNER OF THE TRAILER, IF DESIRED. IF THE TRAILER DOES NOT HAVE A SQUARE FRONT, A FORWARD BLOCKING ASSEMBLY MUST BE INSTALLED WHEN POSITIONING A UNIT IN THE CORNER OF THE TRAILER. SEE THE DETAIL ON PAGE 20.
3. MORE THAN ONE PALLET UNIT CAN BE SHIPPED, PROVIDING THE CAPACITY OF THE LTL BRACES IS NOT EXCEEDED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDEWALLS. THE PROPER ANTI-SWAY BRACES, IF REQUIRED, WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS. SEE THE DETAIL ON PAGE 20.
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.

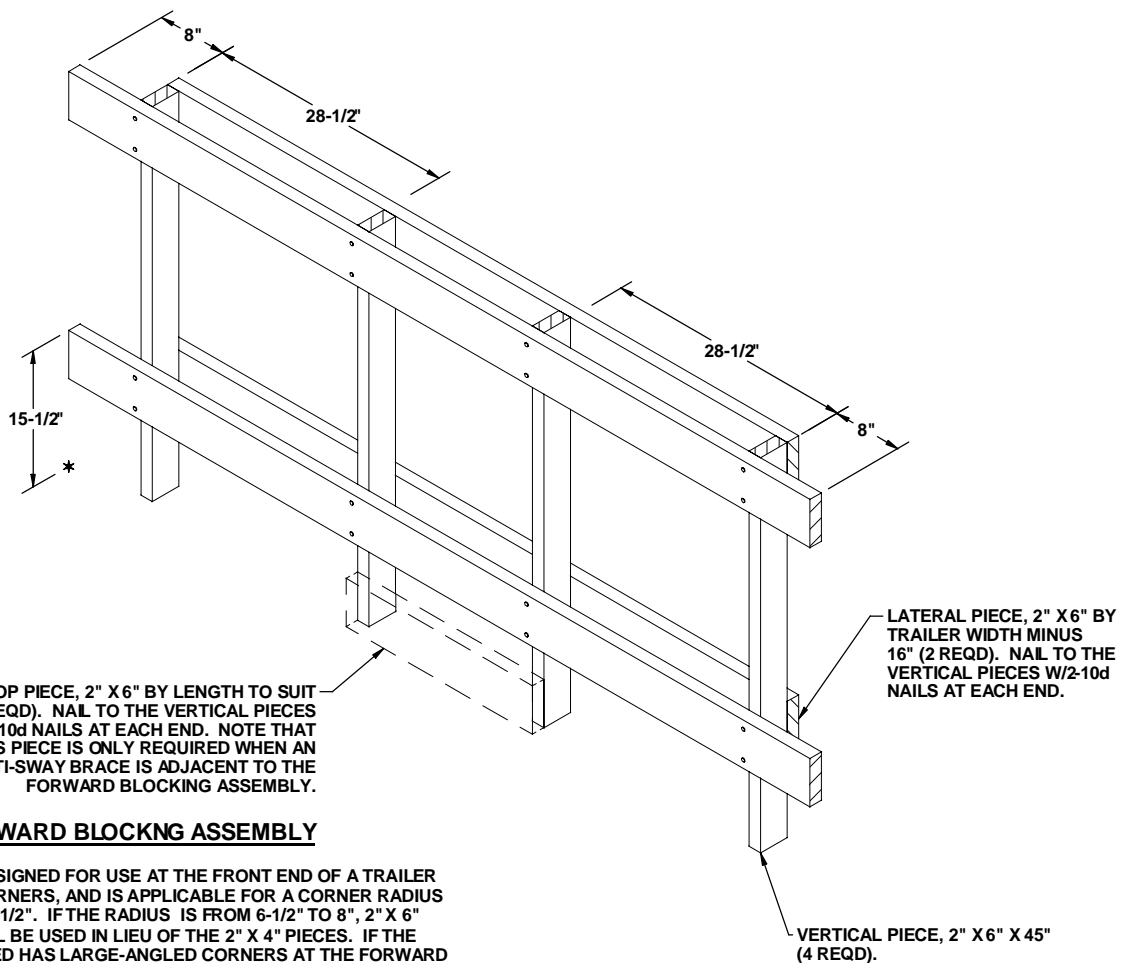
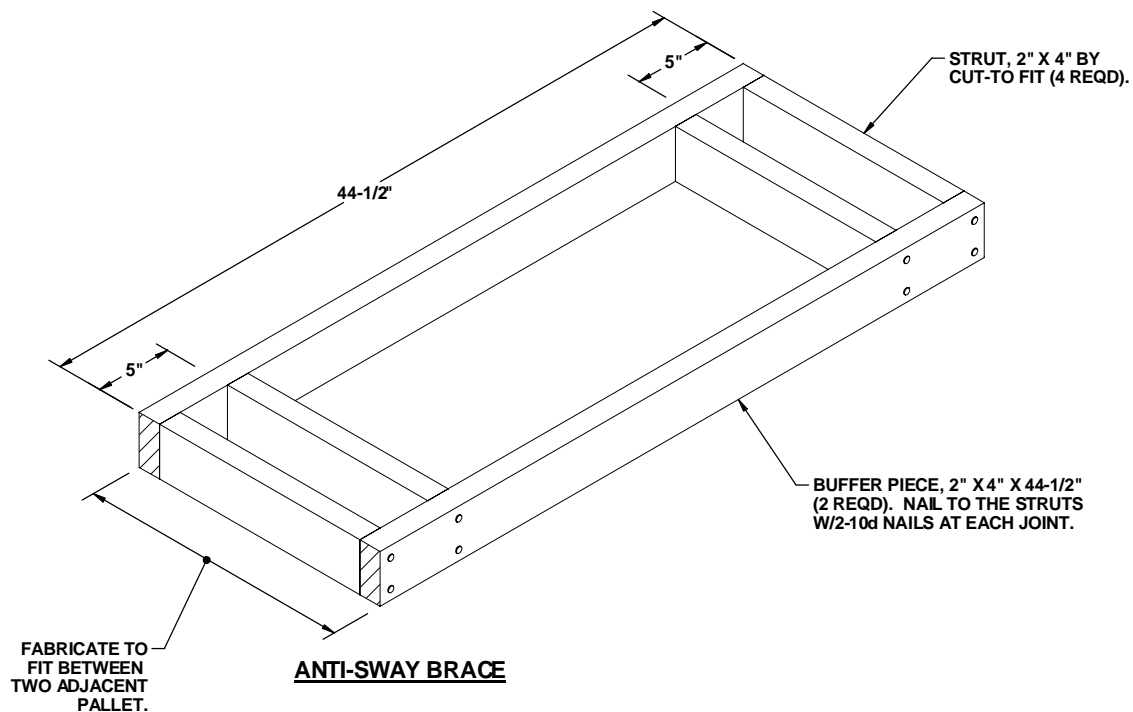




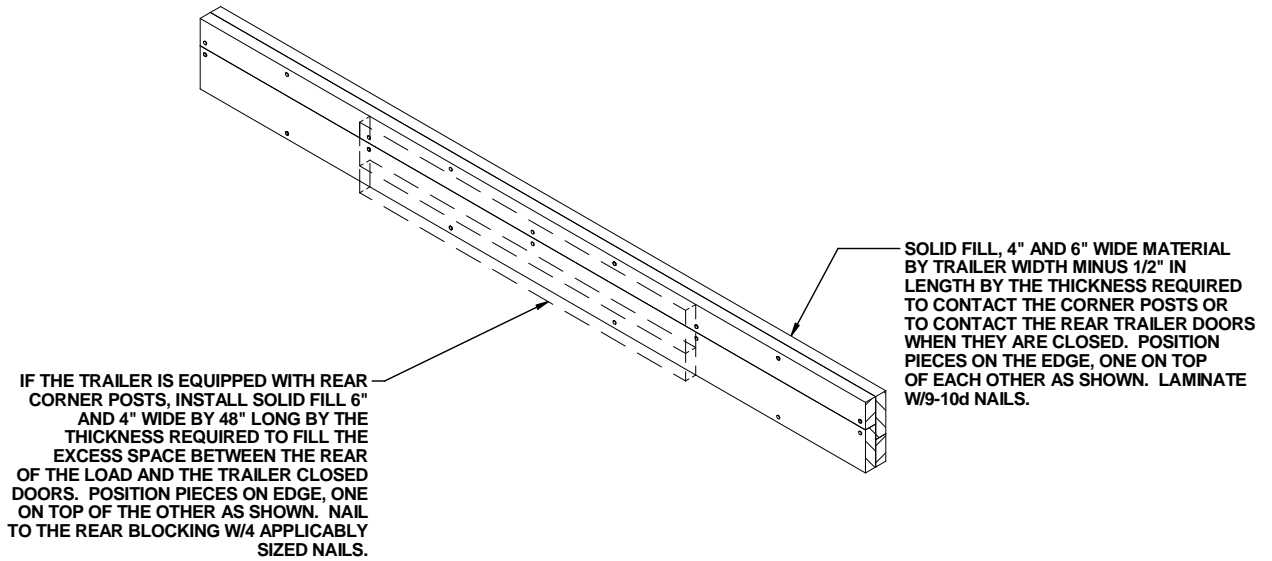
ISOMETRIC VIEW

SPECIAL NOTES:

1. AN 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. THE POSITIONING OF A UNIT IS OPTIONAL. UNITS MAY BE LOCATED IN THE CORNER OF THE TRAILER. IF THE TRAILER DOES NOT HAVE A SQUARE FRONT, A FORWARD BLOCKING ASSEMBLY MUST BE INSTALLED WHEN POSITIONING A UNIT IN THE CORNER OF THE TRAILER. SEE THE DETAIL ON PAGE 20.
3. MORE THAN ONE PALLET UNIT CAN BE SHIPPED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE UNITS POSITIONED AGAINST OPPOSITE SIDE-WALLS. THE PROPER ANTI-SWAY BRACES, IF REQUIRED, WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS. SEE THE DETAIL ON PAGE 20.
4. THE HEADER AS APPLIED ABOVE FOR LONGITUDINAL BRACING WILL SUPPORT 10,000 POUNDS OF LADING; A TRAILER WIDTH HEADER WILL SUPPORT UP TO A FULL TRAILER LOAD OF PALLET UNITS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

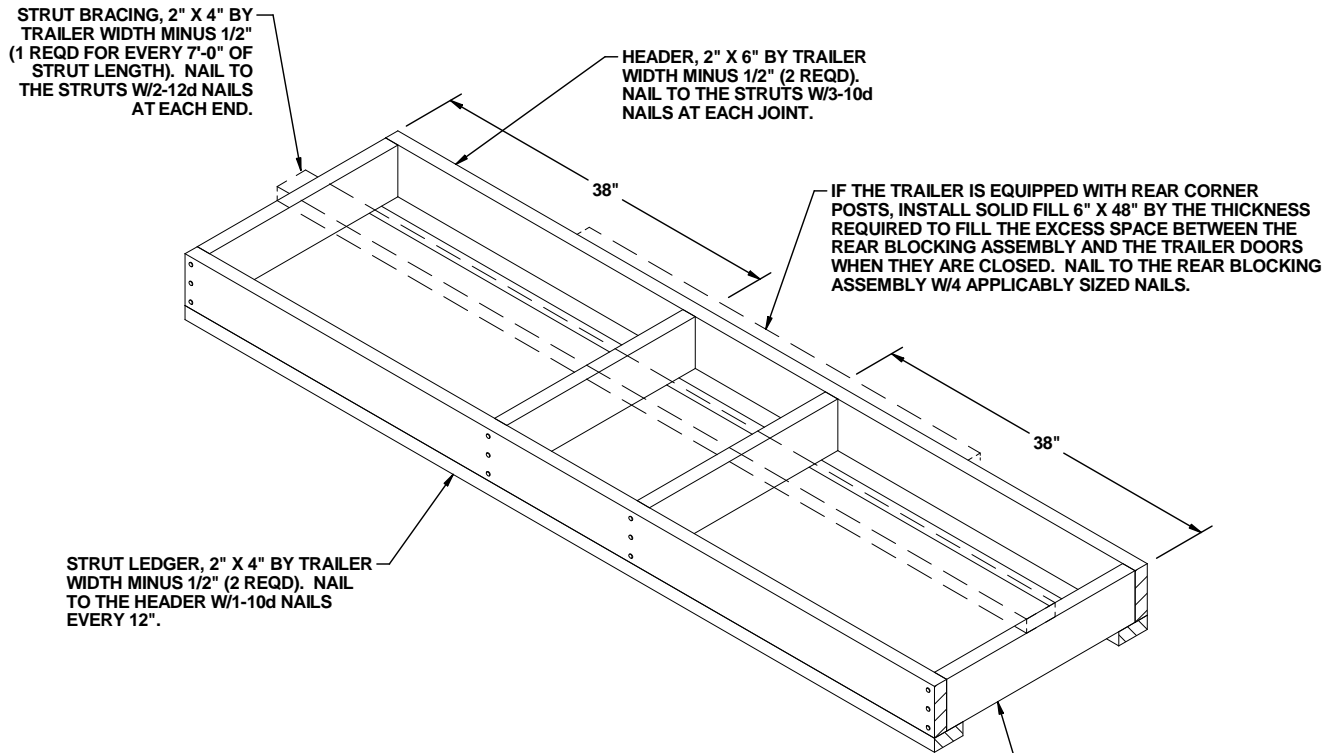


THIS ASSEMBLY IS DESIGNED FOR USE AT THE FRONT END OF A TRAILER HAVING ROUNDED CORNERS, AND IS APPLICABLE FOR A CORNER RADIUS OF NOT MORE THAN $6\frac{1}{2}''$. IF THE RADIUS IS FROM $6\frac{1}{2}''$ TO $8''$, 2" X 6" VERTICAL PIECES WILL BE USED IN LIEU OF THE 2" X 4" PIECES. IF THE TRAILER TO BE LOADED HAS LARGE-ANGLED CORNERS AT THE FORWARD END, REFER TO PAGE 27 FOR GUIDANCE.



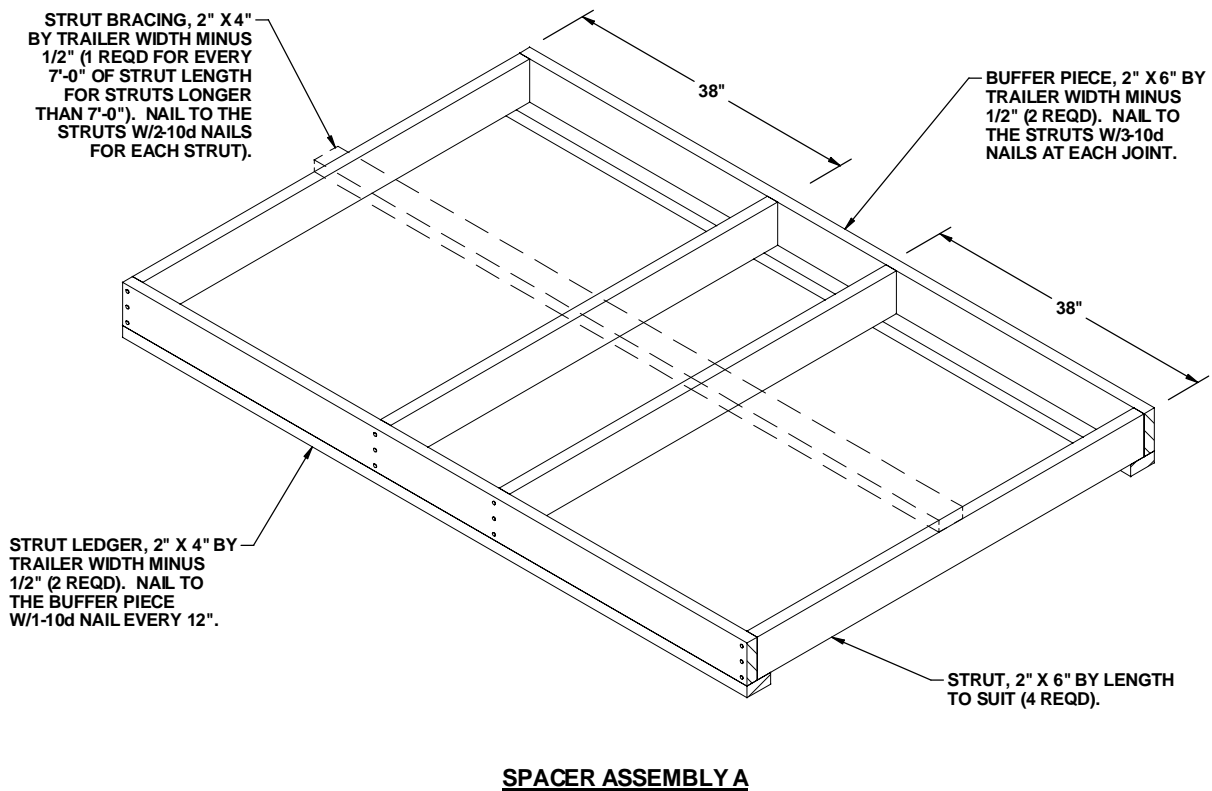
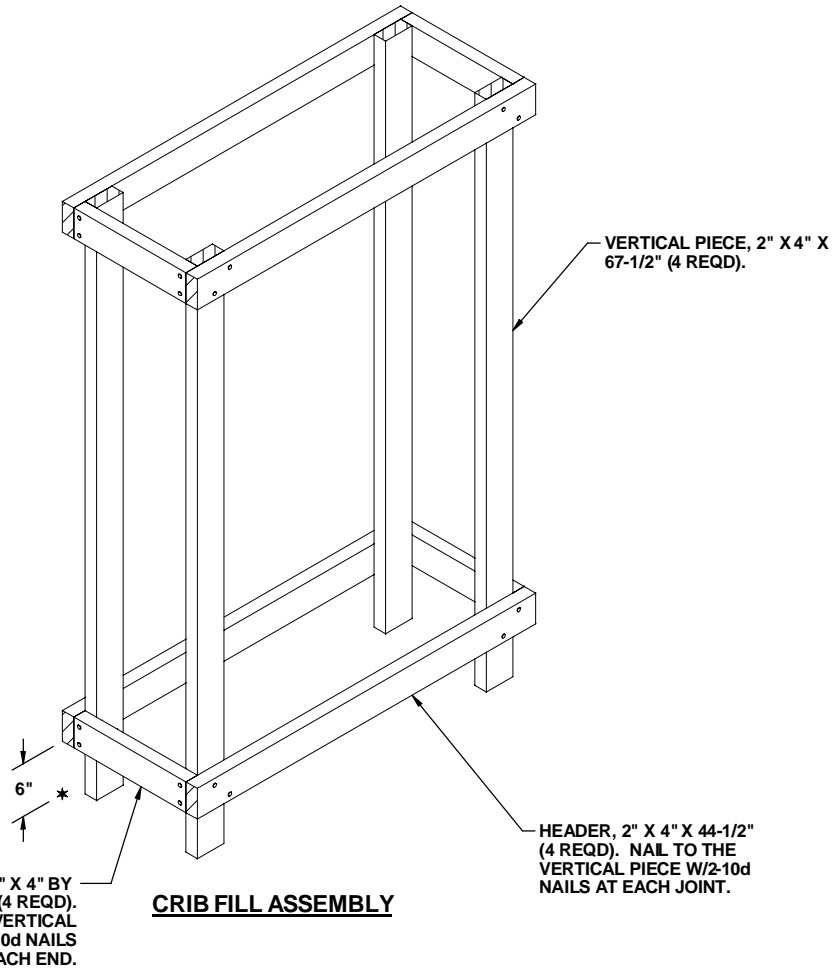
REAR BLOCKING ASSEMBLY A

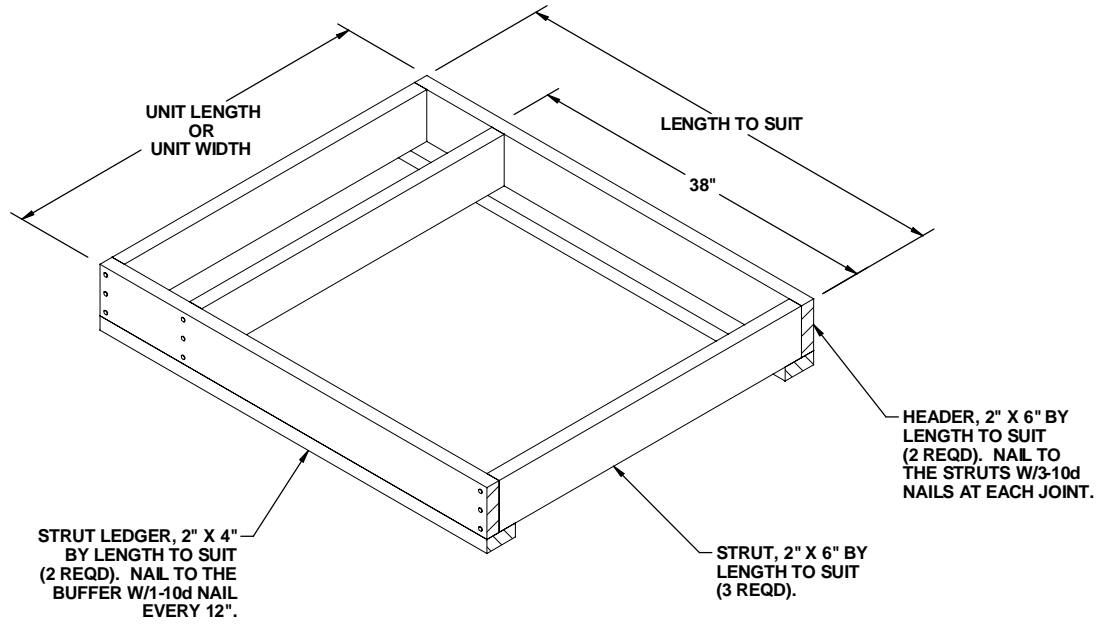
THIS REAR BLOCKING ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOORS IS GREATER THAN 1-1/2" BUT LESS THAN 9".



REAR BLOCKING ASSEMBLY B

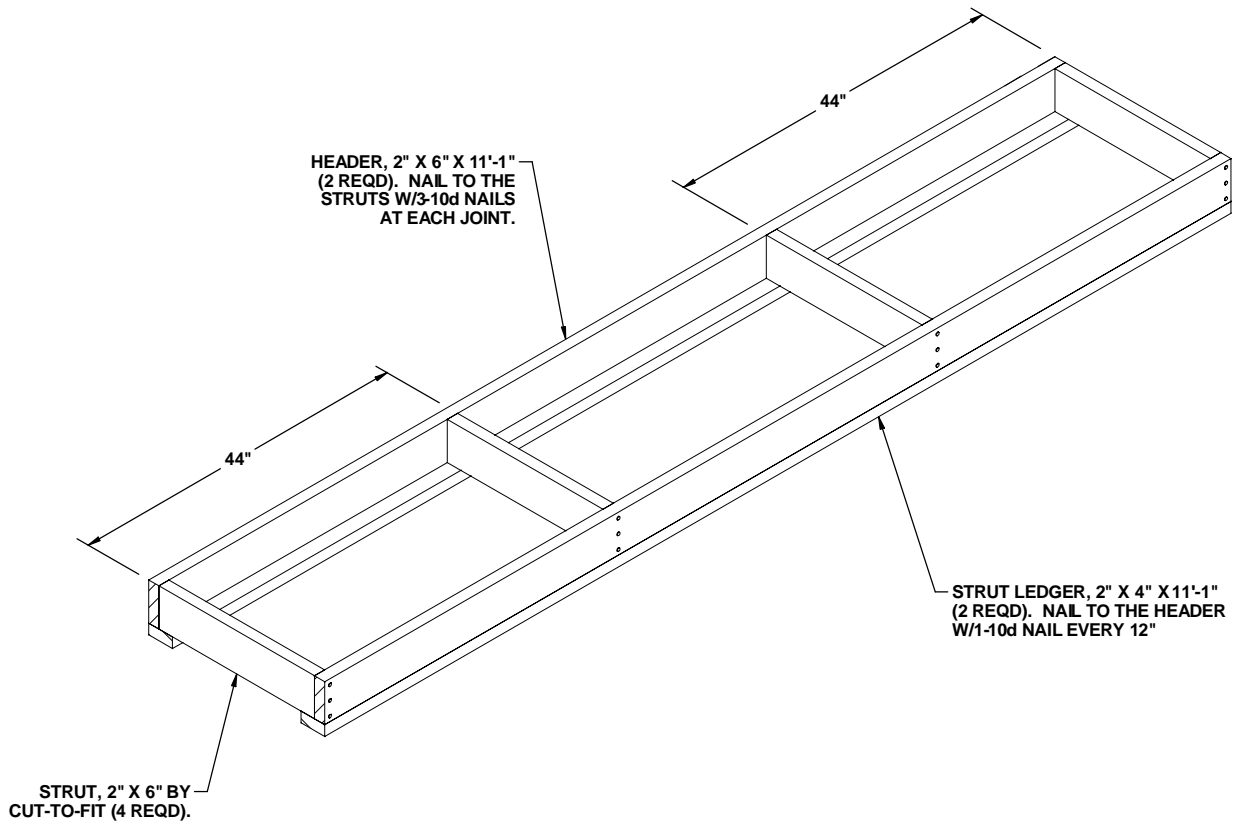
THIS ASSEMBLY IS DESIGNED FOR USE AT THE REAR OF A LOAD WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOOR IS MORE THAN 9". NOTE THAT THIS VIEW IS ROTATED 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED.





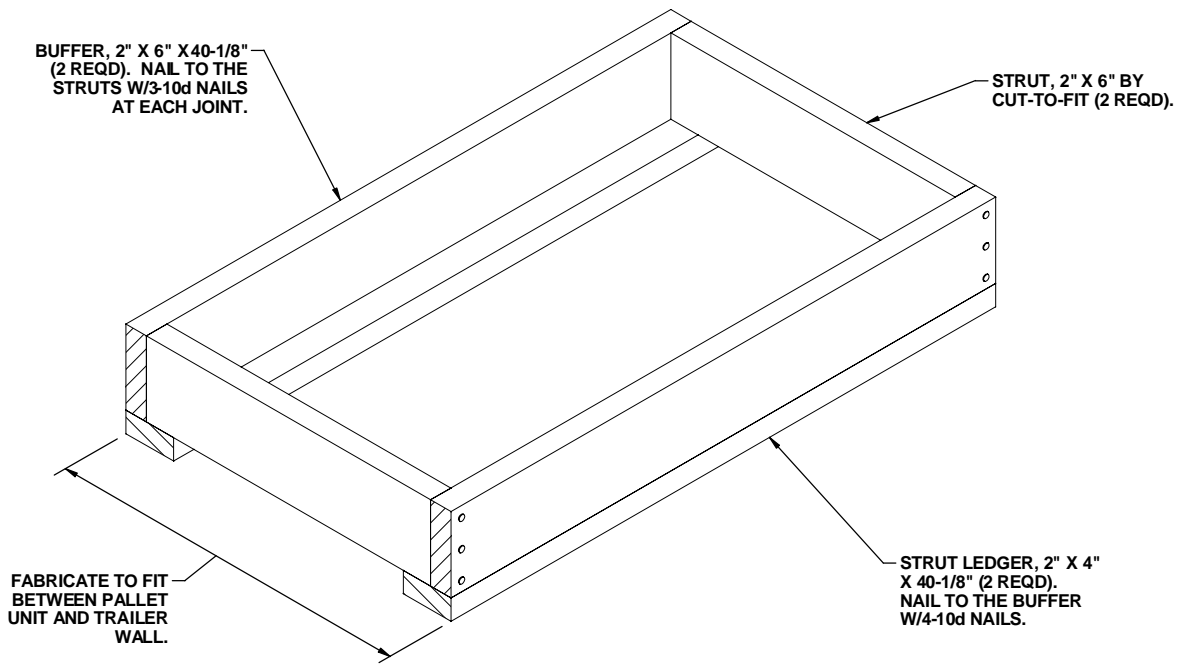
SPACER ASSEMBLY B

THIS ASSEMBLY IS DESIGNED FOR USE FOR USE IN PLACE OF A PALLET UNIT WHICH IS OMITTED FROM THE LOAD OF A VAN TRAILER AS SHOWN IN PAGE 8.



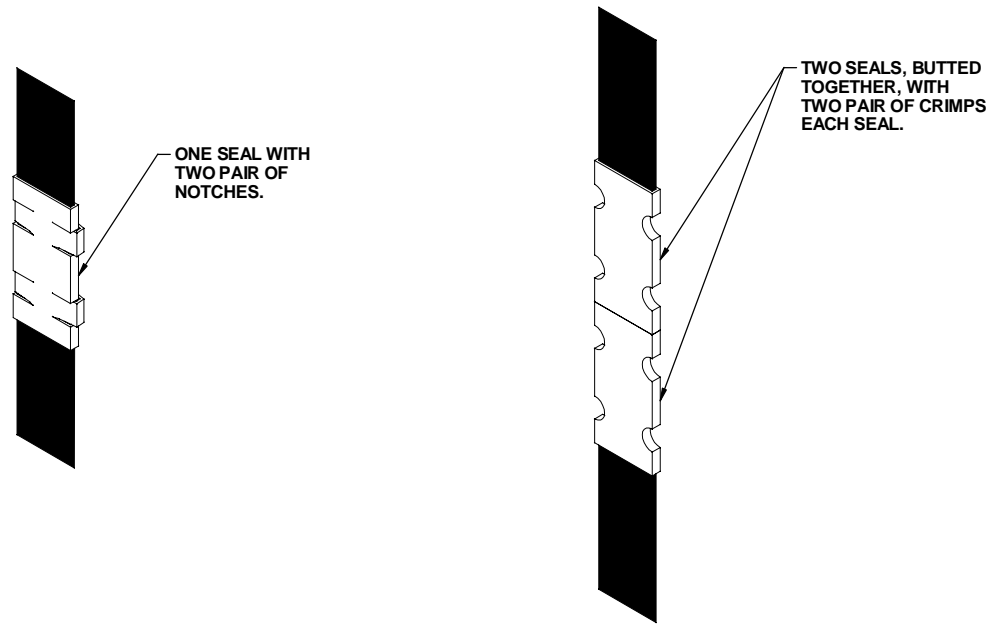
SIDE SPACER ASSEMBLY A

THIS ASSEMBLY IS THREE PALLET UNITS LONG AND IS DESIGNED TO FIT BETWEEN THE PALLET UNITS AND THE VAN TRAILER SIDE WALLS.



SIDE SPACER ASSEMBLY B

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF ONE PALLET UNIT.



STRAP JOINT A

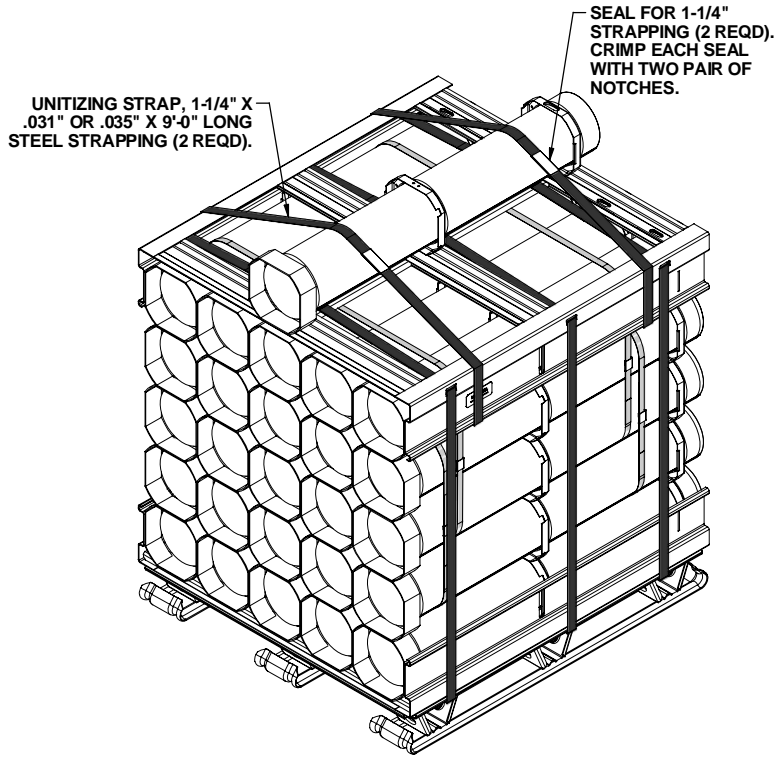
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.

STRAP JOINT B

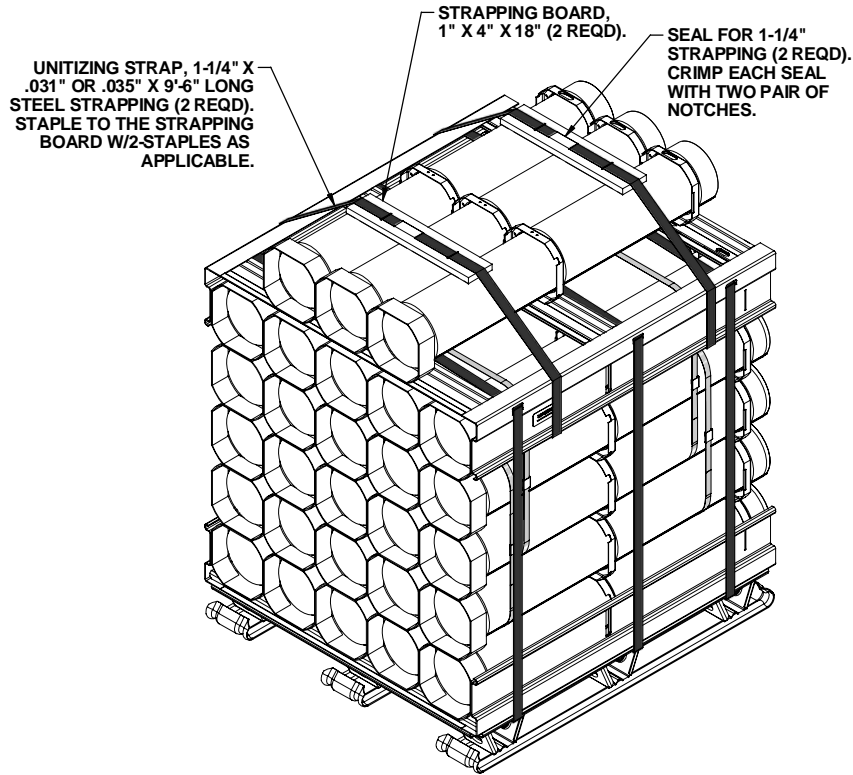
METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.

SPECIAL NOTES:

1. SHIPMENTS OF PALLET UNITS OF 120MM MUNITIONS IN PA116 AND PA171 CONTAINERS SHOULD CONSIST OF FULL-HEIGHT 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 LEFTOVER CONTAINERS. LEFTOVER CONTAINERS ARE DESCRIBED AS ANY QUANTITY OF CONTAINERS BETWEEN ONE AND THREE.
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 PROCEDURES ARE ALSO APPLICABLE FOR SECUREMENT OF LEFTOVER CONTAINERS TO PARTIAL PALLET UNITS FOR SHIPMENT ON TOP OF A LOAD. SEE SPECIAL NOTE 6 ON PAGE 26 FOR LIMITATIONS. IN ADDITION, THE PROCEDURES ARE APPLICABLE FOR SECURING LEFTOVER CONTAINERS TO A PARTIAL UNIT FOR SHIPMENT WITHIN A TIER.
4. THE PROCEDURES DEPICTED ON THIS PAGE ARE APPLICABLE FOR THE SHIPMENT OF LEFTOVER CONTAINERS IN ANY OF THE LOADS DEPICTED HEREIN.

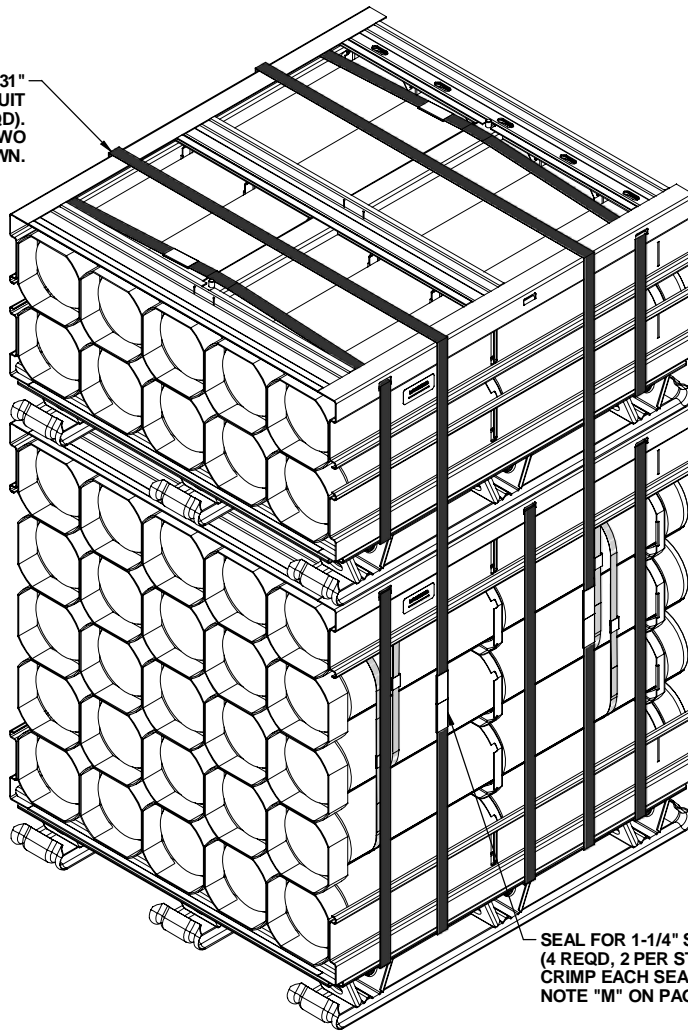


SECUREMENT OF ONE CONTAINER



SECUREMENT OF THREE CONTAINERS

UNITIZING STRAP, 1-1/4" X .031"
OR .035" BY A LENGTH TO SUIT
STEEL STRAPPING (2 REQD).
INSTALL TO ENCIRCLE THE TWO
PALLET UNITS AS SHOWN.



SEAL FOR 1-1/4" STEEL STRAPPING
(4 REQD, 2 PER STRAP). DOUBLE
CRIMP EACH SEAL, SEE GENERAL
NOTE "M" ON PAGE 2.

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

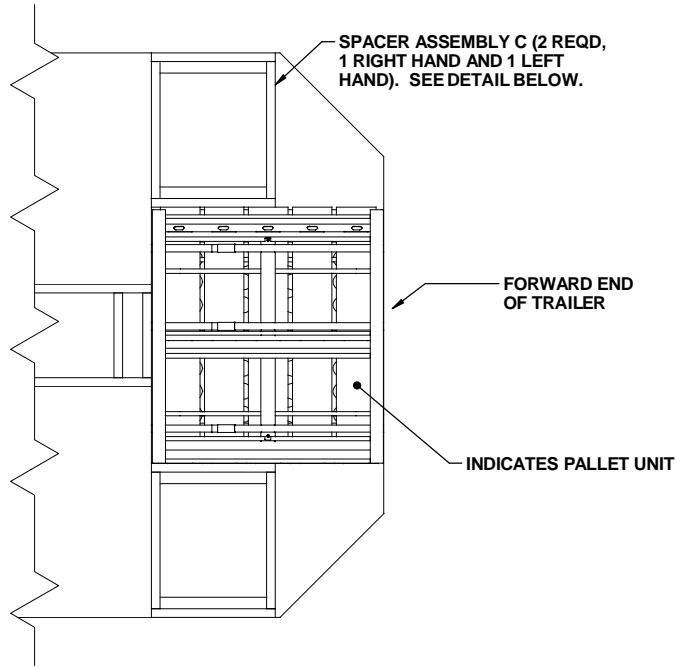
SPECIAL NOTES:

1. 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. THE PROCEDURES ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
2. A PARTIAL PALLET UNIT MUST CONSIST OF EITHER TWO, THREE OR FOUR FULL LAYERS IN ORDER FOR THE TOP AND BOTTOM PALLET ADAPTER ASSEMBLIES TO PROPERLY FUNCTION. A LAYER MAY CONSIST OF EMPTY CONTAINERS.
3. ELIMINATE THE BUNDLING STRAPS WHEN UNITIZING A TWO-HIGH PARTIAL PALLET UNIT.

(CONTINUED AT RIGHT)

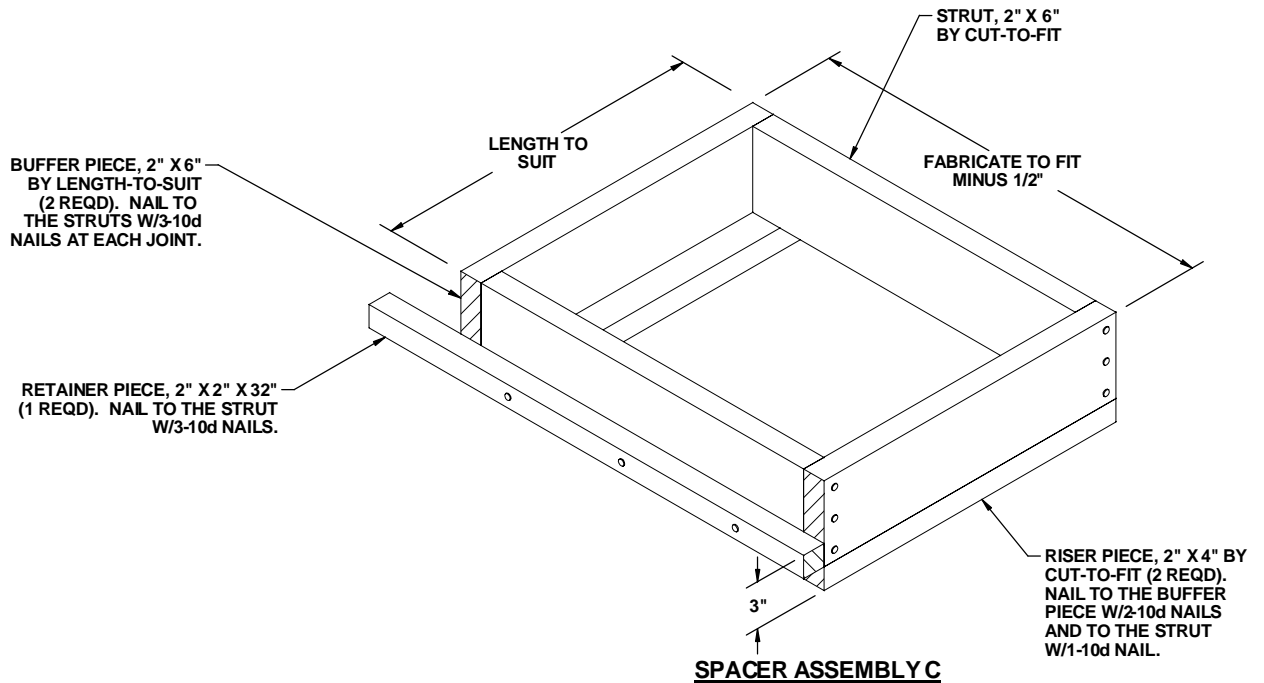
(SPECIAL NOTES CONTINUED)

4. A LESS-THAN-FULL HEIGHT PALLET UNIT CAN BE SHIPPED BY POSITIONING IT EITHER ON THE TOP TIER OF A LOAD OR ON THE TOP OF A LOWER PORTION OF A LOAD WHEN THE LOAD CONTAINS A PARTIAL TIER IN THE END OF THE TRAILER. THE PARTIAL UNIT WILL BE STRAPPED TO THE PALLET UNIT DIRECTLY BELOW WITH TWO VERTICAL UNITIZING STRAPS. SEE THE VIEW ABOVE FOR GUIDANCE.
5. A PARTIAL PALLET UNIT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE LOAD.
6. LEFTOVER CONTAINERS, IN AN AMOUNT WHICH IS LESS THAN THE QUANTITY IN ONE LAYER OF A UNIT, CAN BE SECURED TO THE TOP OF A PARTIAL UNIT FOR SECUREMENT ON TOP OF A LOAD. THE LEFTOVER CONTAINERS MUST BE SECURED TO THE PARTIAL UNIT WITH THEIR OWN STRAPPING, SEPARATE FROM THE STRAPS FOR THE PARTIAL UNIT. SEE THE DETAILS ON PAGE 25 FOR GUIDANCE IN STRAP APPLICATION.

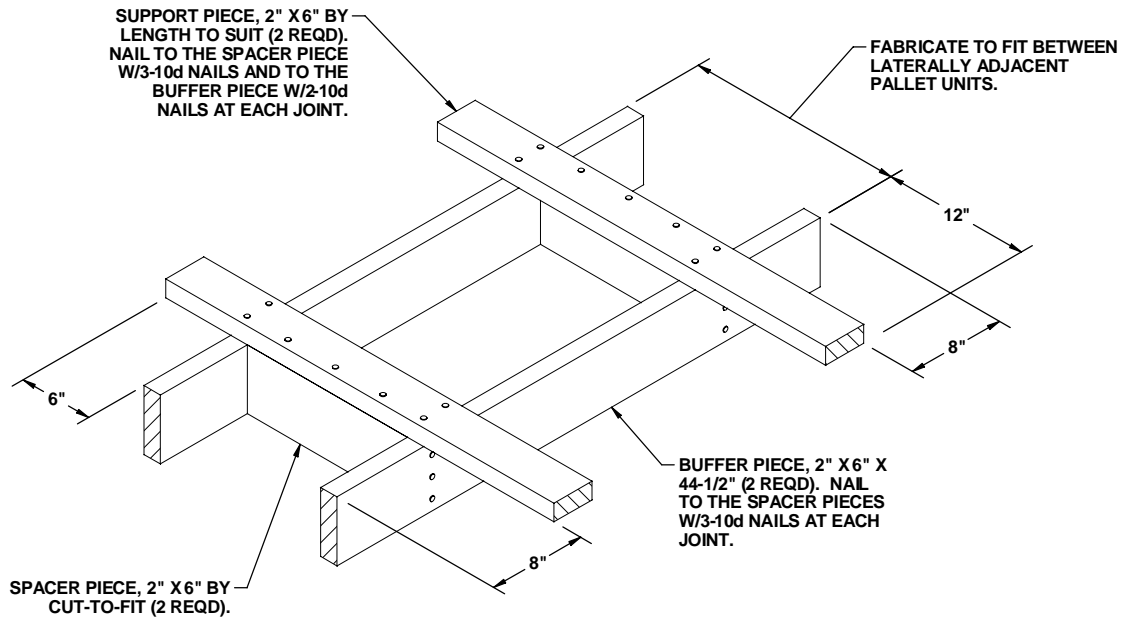


ALTERNATE FORWARD LOADING PATTERN

THIS PROCEDURE IS APPLICABLE TO THE LOADING OF ONE PALLET UNIT IN THE FORWARD END OF A 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. A 98" WDE TRAILER IS SHOWN, NARROWER TRAILERS CAN BE USED.



THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF ONE PALLET UNIT LOCATED AT THE FRONT OF AN ANGLED-CORNER VAN TRAILER AS SHOWN IN THE "ALTERNATIVE FORWARD LOADING PATTERN" VIEW ABOVE. NOTE THAT THIS VIEW DEPICTED ABOVE. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.



TOP-OF-LOAD ASSEMBLY

THIS ASSEMBLY IS DESIGNED FOR LATERAL BRACING OF A PALLET UNIT IN A SECOND LAYER WHEN THERE IS NOT A PALLET UNIT DIRECTLY OPPOSITE IT. POSITION THE 6" END OF THE SUPPORT PIECE TOWARD TOP PALLET UNIT. FABRICATE IN PLACE.