

LOADING AND BRACING (TL AND LTL) IN VAN TRAILERS[⊕] OF PALLETIZED PROPELLING CHARGES PACKED IN CYLINDRICAL METAL CONTAINERS

M13 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		DO NOT SCALE				
			REV.	MICHAEL SARDONE	WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
	TECHNICIAN		BASIC	RALPH ARNOLD	NOVEMBER 1984			
			REV.		REVISION NO. 1 SEPTEMBER 1997			
APPROVED BY ORDER OF COMMANDING GENERAL U.S. ARMY MATERIEL COMMAND DEFENSE AMMUNITION CENTER	TRANSPORTATION ENGINEERING DIVISION			SEE THE REVISION LISTING ON PAGE 5				
	VALIDATION ENGINEERING DIVISION		TESTED	CLASS	DIVISION	DRAWING	FILE	
	LOGISTICS ENGINEERING OFFICE			19	48	4042C/2	11PM1000	

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE M13 PROPELLING CHARGE CONTAINER ASSEMBLED ON THE 40" X 48" 4-WAY ENTRY PALLET. SEE THE PICTORAL VIEWS ON PAGE 3 FOR SIZES AND WEIGHTS. SEE U.S. ARMY MATERIEL COMMAND DRAWING 19-48-4042A/2-20PM1001 FOR UNITIZATION PROCEDURES FOR THE M13 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.

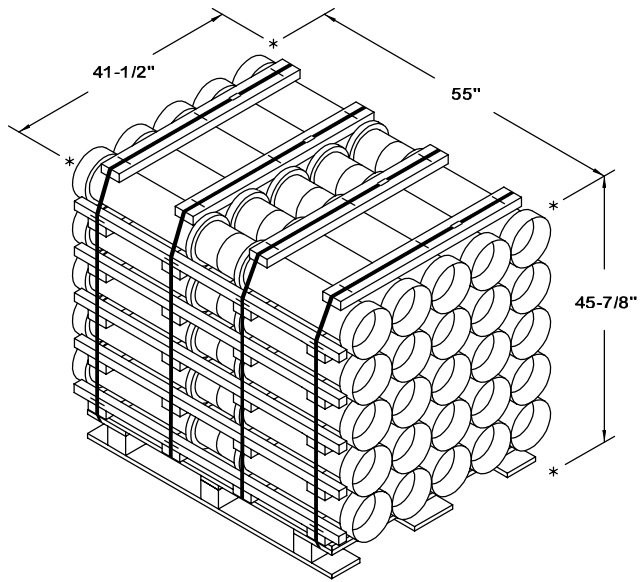
(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- 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.

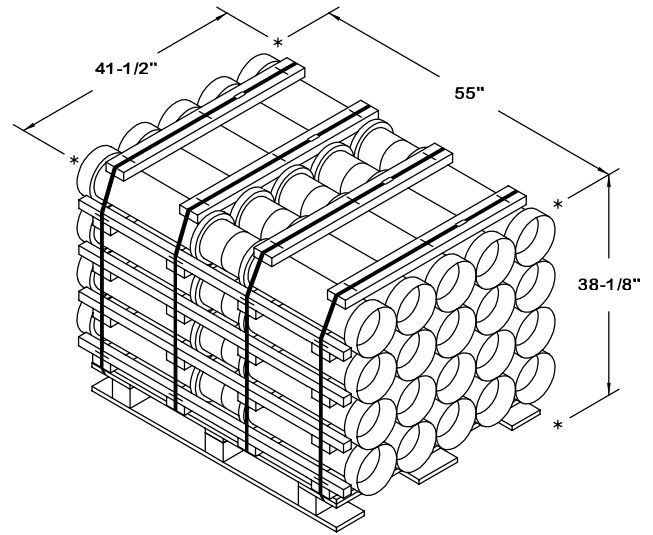
(GENERAL NOTES CONTINUED)

- 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 FEDERAL SPECIFICATION FF-N-105 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 CRIB FILL. NAIL EACH ADDITIONAL PIECE TO THE BUFFER PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND QUANTITY OF THE LUMBER USED IN CRIB FILL AND ANTI-SWAY BRACE ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNIT.
- Q. 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.
- R. 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 29. FOR "SHIPMENT OF LEFT-OVER CONTAINERS" SEE THE DETAILS ON PAGE 28.
- S. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF PALLET UNITS OF M13 SERIES CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED PROPELLING CHARGES, OR WHEN THEY ARE EMPTY.
- T. 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.
- U. ANY OF THE PALLET UNITS DEPICTED ON PAGE 3 MAY BE LOADED AS A MIXED LOAD IN THE SAME TRAILER, INCLUDING THE BASIC HEIGHT UNITS WITH THE DECREASED HEIGHT UNITS. FOR MIXED-HEIGHT LOADS, POSITION ALL PALLET UNITS OF ONE HEIGHT IN ONE LAYER, WITH THE BASIC HEIGHT 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 BASIC HEIGHT UNITS WILL BE LOADED IN THE FORWARD PORTION OF THE BOTTOM LAYER, AND THE DECREASED HEIGHT UNITS IN THE REAR PORTION.



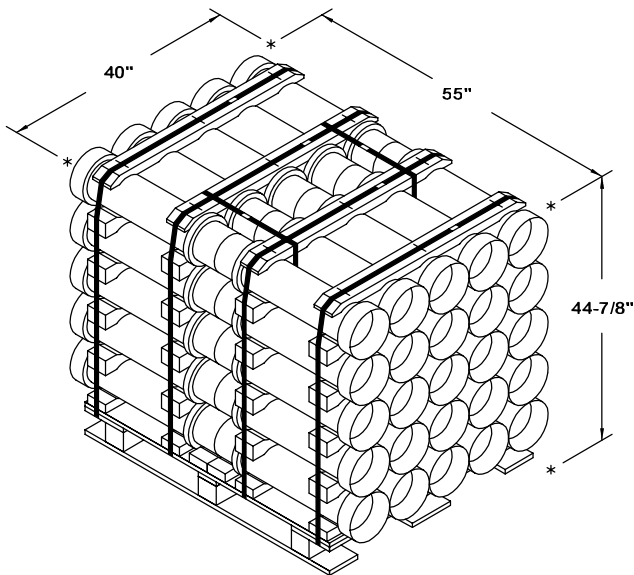
FLAT DUNNAGE UNIT (BASIC HEIGHT)

CONTAINER ----- 50 EACH @ 30.5 LBS (APPROX)
 CUBE ----- 60.6 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,751 LBS (APPROX)



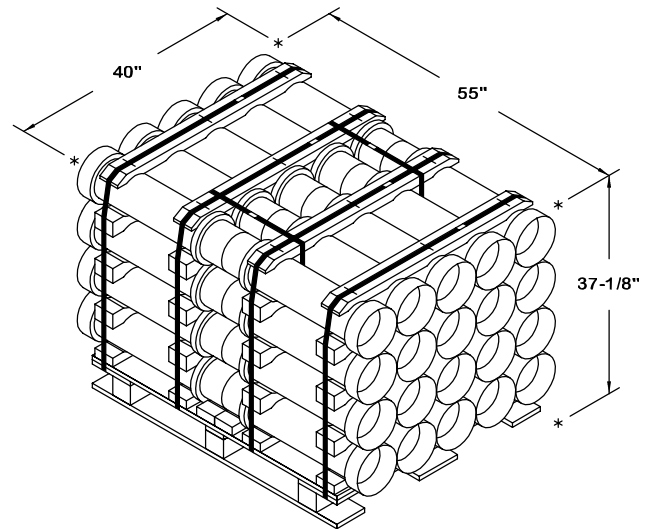
FLAT DUNNAGE UNIT (DECREASED HEIGHT)

CONTAINER ----- 40 EACH @ 30.5 LBS (APPROX)
 CUBE ----- 50.4 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,421 LBS (APPROX)



ROUTED DUNNAGE UNIT (BASIC HEIGHT)

CONTAINER ----- 50 EACH @ 30.5 LBS (APPROX)
 CUBE ----- 57.1 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,766 LBS (APPROX)

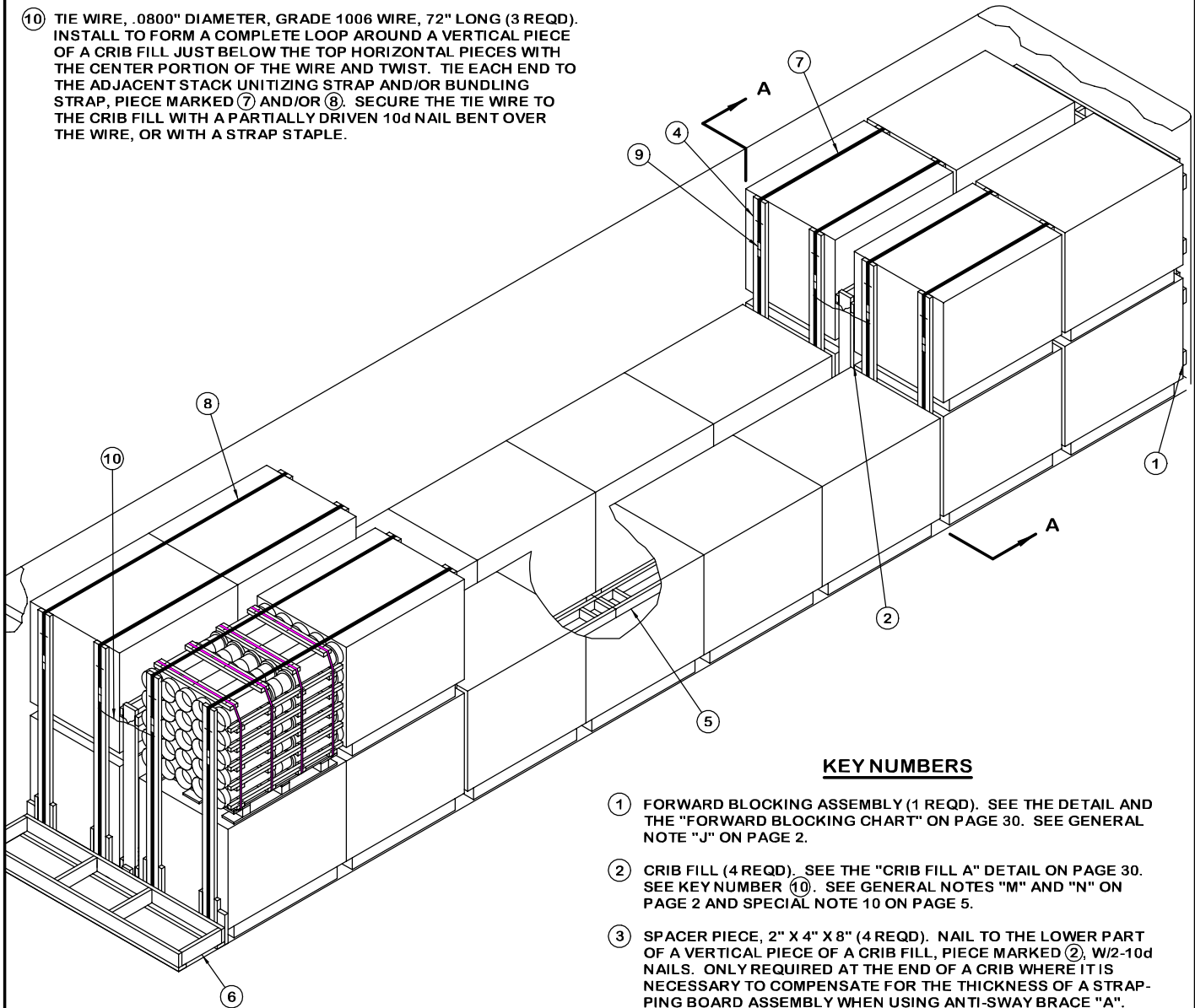


ROUTED DUNNAGE UNIT (DECREASED HEIGHT)

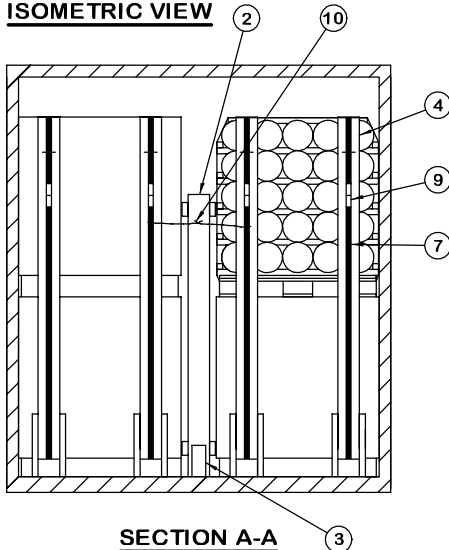
CONTAINER ----- 40 EACH @ 30.5 LBS (APPROX)
 CUBE ----- 47.3 CUBIC FEET (APPROX)
 GROSS WEIGHT ----- 1,432 LBS (APPROX)

(SPECIAL NOTES CONTINUED)

- ⑩ TIE WIRE, .0800" DIAMETER, GRADE 1006 WIRE, 72" LONG (3 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK UNITIZING STRAP AND/OR BUNDLING STRAP, PIECE MARKED ⑦ AND/OR ⑧. SECURE THE TIE WIRE TO THE CRIB FILL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② CRIB FILL (4 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 30. SEE KEY NUMBER ⑩. SEE GENERAL NOTES "M" AND "N" ON PAGE 2 AND SPECIAL NOTE 10 ON PAGE 5.
- ③ SPACER PIECE, 2" X 4" X 8" (4 REQD). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ②, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A".
- ④ STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 5.
- ⑤ ANTI-SWAY BRACE (4 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 5.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 5.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 26'-0" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 5.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 35'-0" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 5.
- ⑨ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

(CONTINUED ABOVE)

**FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)
24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**

(SPECIAL NOTES CONTINUED)

- 15. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

SPECIAL NOTES:

- 1. A 24-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
- 2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 4 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 41'-1/2" LONG BY 55" WIDE BY 45'-7/8" HIGH AND WEIGHING APPROXIMATELY 1,751 POUNDS.
- 3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
- 4. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED (5). THE SPACER PIECES, PIECES MARKED (3), WILL THEN NOT BE REQUIRED.
- 5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED (6) ON PAGE 4. SEE SPECIAL NOTE 15.
- 6. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET 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, PIECE MARKED (8), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
- 7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AS SHOWN, BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), MUST BE INSTALLED TO ENCIRCLE THE REAR-MOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), IN EACH APPLICABLE ROW.
- 8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (4) AND (7).
- 9. IF A PALLET UNIT IS TO BE ADDED TO THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER AND AN ADJACENT STACK MUST BE SECURED BY INSTALLING TWO BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), SO AS TO ENCIRCLE THE TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4).
- 10. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED (2), AND MAY ALSO BE USED IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED (5). THE SPACER PIECES, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
- 11. IN LIEU OF USING ANTI-SWAY BRACE "A", PIECE MARKED (5), BETWEEN LATERALLY ADJACENT PALLET UNITS IN THE ONE-HIGH PORTION OF THE LOAD, CRIB FILL ASSEMBLIES MAY BE USED.
- 12. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
- 13. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 28 FOR GUIDANCE.
- 14. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.

REVISION

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

- 1. INCLUDING LOAD DRAWINGS OF LONGER AND WIDER TRAILERS.
- 2. INCLUDING CHIMNEY PATTERN LOAD.
- 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.
- 6. REMOVING TYGARD METHOD OF LOAD RESTRAINT.
- 7. UPDATING GENERAL NOTES AND DRAWING.

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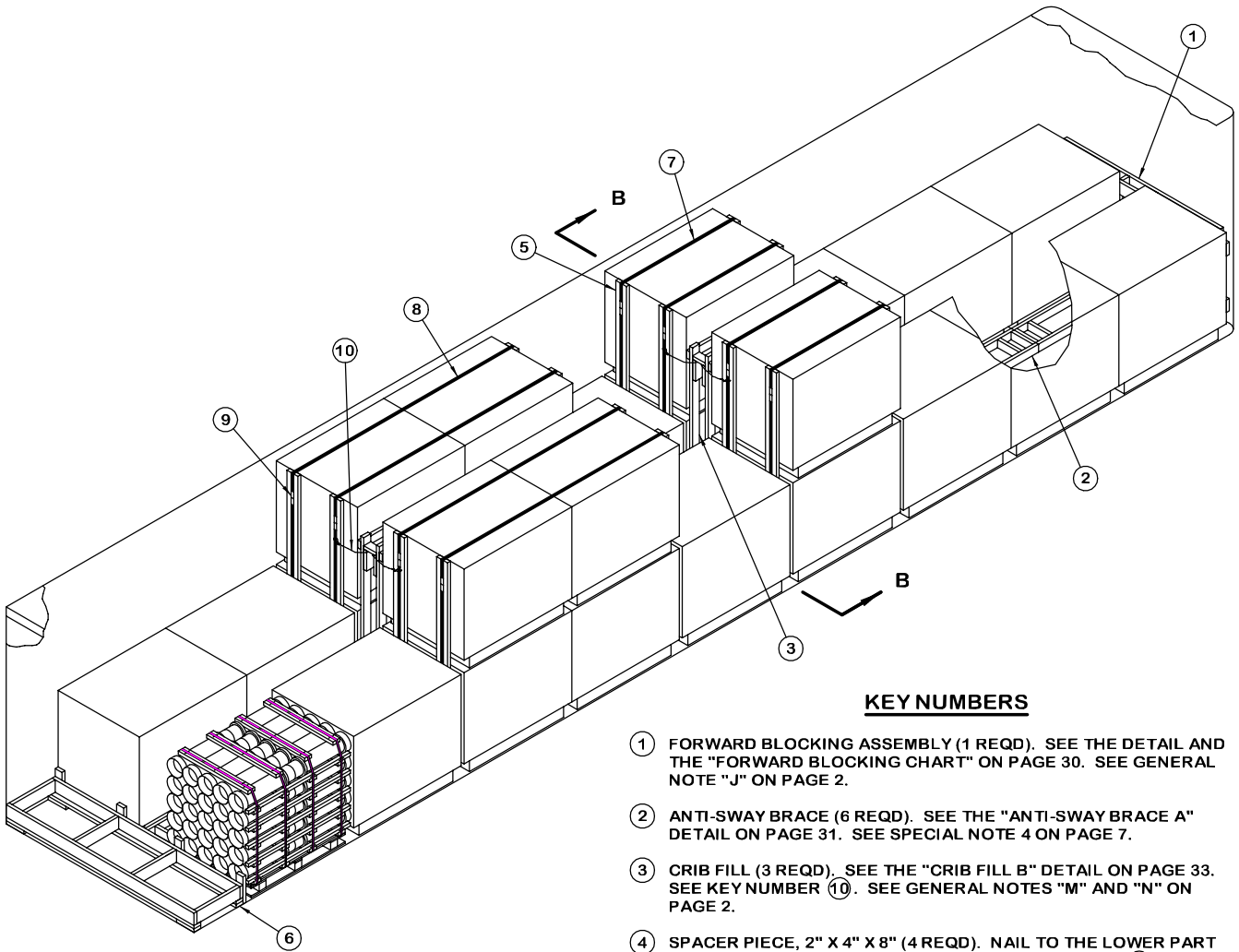
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	24	42,024 LBS
DUNNAGE		770 LBS

TOTAL WEIGHT - - - - - 42,794 LBS (APPROX)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	37	13
2" X 2"	43	15
2" X 4"	136	91
2" X 6"	245	245
NAILS	NO. REQD	POUNDS
6d (2")	32	1/4
10d (3")	317	5
1-1/4" STEEL STRAPPING - -	244' REQD - - - - -	35 LBS
SEAL FOR 1-1/4" STRAPPING -	16 REQD - - - - -	3/4 LB
WIRE, NO. 14 GAGE - - - - -	18' REQD - - - - -	NIL
STAPLE - - - - -	16 REQD - - - - -	NIL

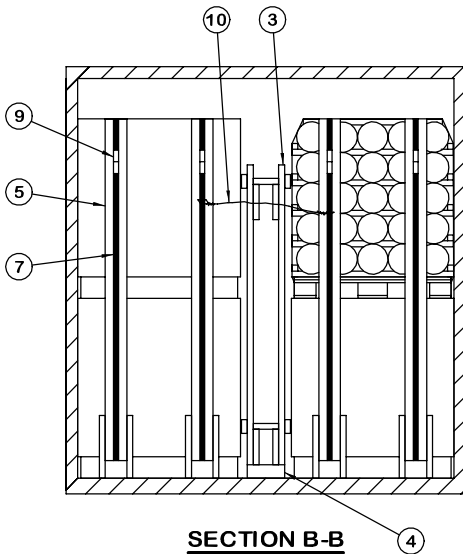
FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)
24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (6 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 7.
- ③ CRIB FILL (3 REQD). SEE THE "CRIB FILL B" DETAIL ON PAGE 33. SEE KEY NUMBER ⑩. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ④ SPACER PIECE, 2" X 4" X 8" (4 REQD). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ③, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A".
- ⑤ STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 7.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 7.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 26'-0" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 7.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 35'-0" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 7.
- ⑨ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.
- ⑩ TIE WIRE, .0800" DIAMETER, GRADE 1006 WIRE, 72" LONG (4 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK UNITIZING STRAP AND/OR BUNDLING STRAP, PIECE MARKED ⑦ AND/OR ⑧. SECURE THE TIE WIRE TO THE CRIB FILL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.



SECTION B-B

**FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)
24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**

SPECIAL NOTES:

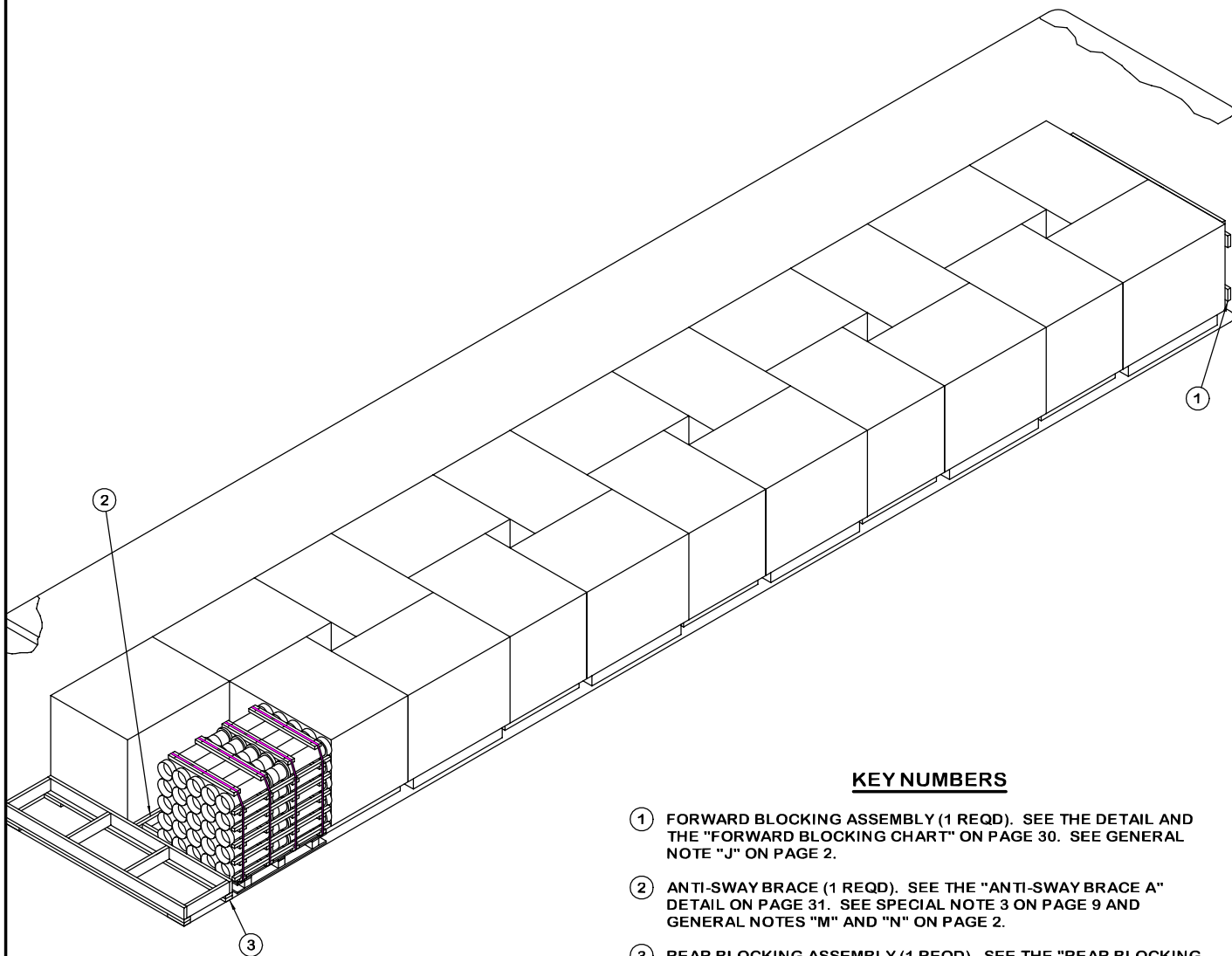
1. A 24-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-0" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 6 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 41'-1/2" LONG BY 55" WIDE BY 45'-7/8" HIGH AND WEIGHING APPROXIMATELY 1,751 POUNDS.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
4. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED (2). THE SPACER PIECES, PIECES MARKED (4), WILL THEN NOT BE REQUIRED.
5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B", PIECE MARKED (6) ON PAGE 6. SEE SPECIAL NOTE 14.
6. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET 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, PIECE MARKED (7), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), MUST BE INSTALLED TO ENCIRCLE THE REARMOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5), IN EACH APPLICABLE ROW.
8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (5) AND (7).
9. IF A PALLET UNIT IS TO BE ADDED TO THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER AND AN ADJACENT STACK MUST BE SECURED BY INSTALLING TWO BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), SO AS TO ENCIRCLE THE TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5).
10. IN LIEU OF USING ANTI-SWAY BRACE "A", PIECE MARKED (2), BETWEEN LATERALLY ADJACENT PALLET UNITS IN THE ONE-HIGH PORTION OF THE LOAD, CRIB FILL ASSEMBLIES MAY BE USED.
11. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
12. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 28 FOR GUIDANCE.
13. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
14. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 2"	43	15
2" x 4"	280	187
2" x 6"	171	171
NAILS	NO. REQD	POUNDS
10d (3")	486	7-1/2
1-1/4" STEEL STRAPPING - - 244' REQD - - - - 35 LBS		
SEAL FOR 1-1/4" STRAPPING - 16 REQD - - - - 3/4 LB		
WIRE, NO. 14 GAGE - - - - 24' REQD - - - - 1/2 LB		
STAPLE - - - - - 16 REQD - - - - NTL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	24 - - - - -	42,024 LBS
DUNNAGE - - - - -	- - - - -	790 LBS
TOTAL WEIGHT - - - - -		42,814 LBS (APPROX)

**FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT)
24-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 9 AND GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32 AND SPECIAL NOTE 4 ON PAGE 9. NOTE THAT THE 2" X 4" X 12" LOAD BEARING PIECES MUST BE OMITTED.

SPECIAL NOTES:

1. A 22-UNIT LOAD IS SHOWN IN A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER LENGTHS MAY BE USED, BUT NARROWER TRAILERS CANNOT BE USED FOR THIS CONFIGURATION.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 41-1/2" LONG BY 55" WIDE BY 45-7/8" HIGH AND WEIGHING APPROXIMATELY 1,751 POUNDS. THESE PROCEDURES ARE ALSO APPLICABLE FOR THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT).
3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED ②.
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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ③ ON PAGE 8. SEE SPECIAL NOTE 9.
5. IF A PALLET UNIT IS TO BE ADDED TO THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER MUST BE SECURED BY INSTALLING TWO STACK UNITIZING STRAPS, SHOWN AS PIECE MARKED ④ ON PAGE 14, SO AS TO ENCIRCLE THE STACK.
6. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
7. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 28 FOR GUIDANCE.
8. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
9. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

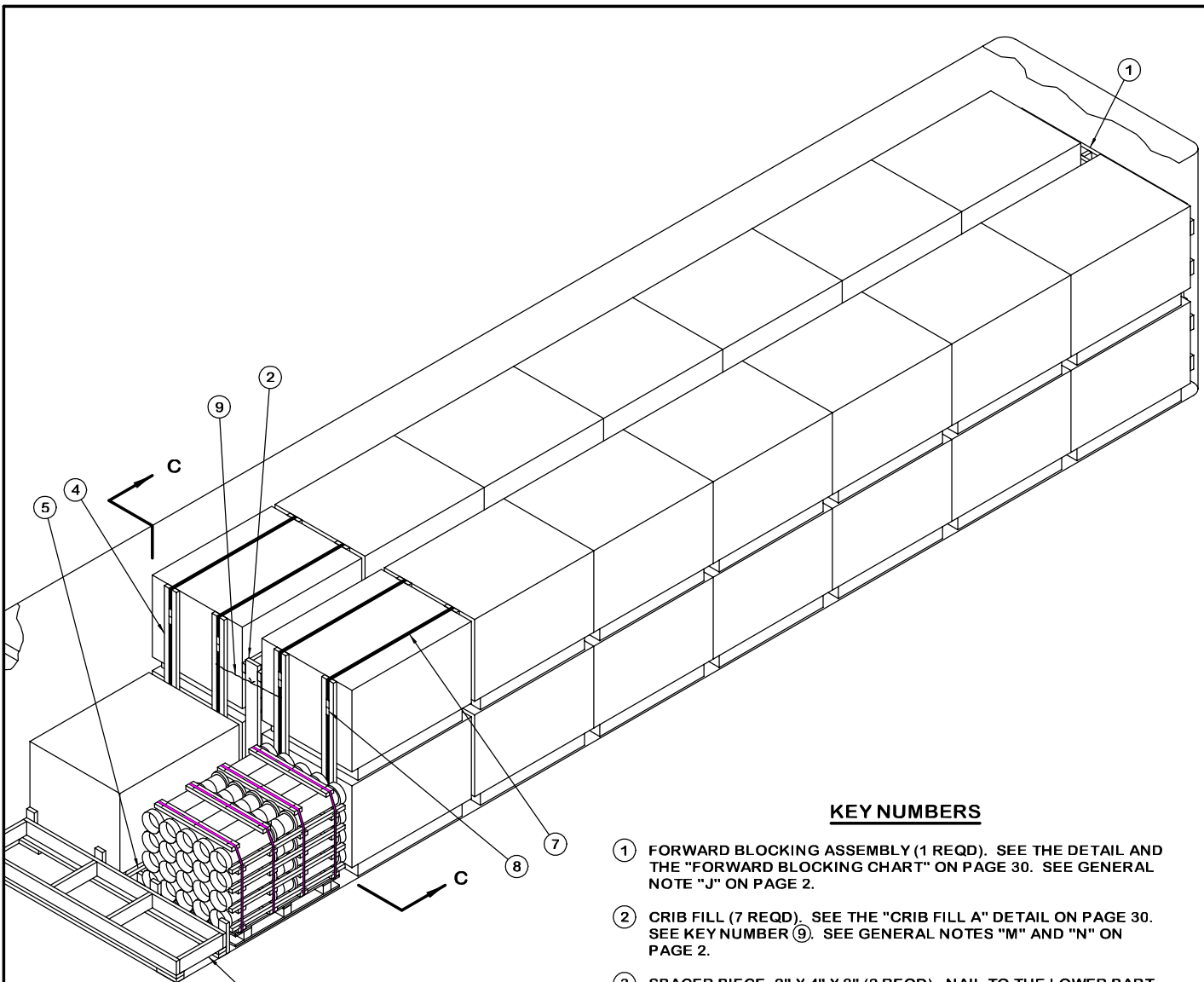
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	49	33
2" X 6"	55	55
NAILS	NO. REQD	POUNDS
10d (3")	98	1-1/2

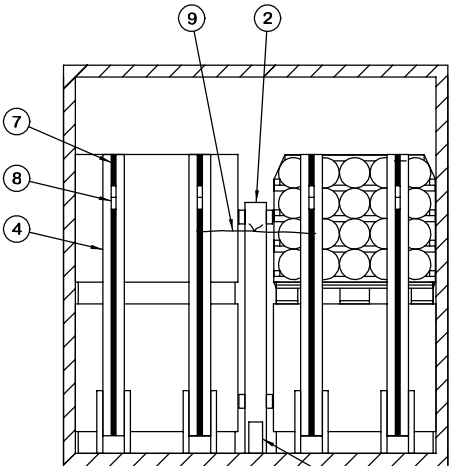
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	22 - - - - -	38,522 LBS
DUNNAGE - - - - -	- - - - -	178 LBS
TOTAL WEIGHT - - - - -		38,700 LBS (APPROX)

**FLAT OR ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT - CHIMNEY PATTERN)
22-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② CRIB FILL (7 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 30. SEE KEY NUMBER ⑨. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ③ SPACER PIECE, 2" X 4" X 8" (2 REQD). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ②, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A".
- ④ STRAPPING BOARD ASSEMBLY (8 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 11.
- ⑤ ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 11.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 11.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ④, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 11.
- ⑧ SEAL FOR 1-1/4" STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.
- ⑨ TIE WIRE, .0800" DIAMETER, GRADE 1006 WIRE, 72" LONG (3 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK UNITIZING STRAP, PIECE MARKED ⑦. SECURE THE TIE WIRE TO THE CRIB FILL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

**FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)
30-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**

(SPECIAL NOTES CONTINUED)

14. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

SPECIAL NOTES:

1. A 30-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 10 IS THE FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 41-1/2" LONG BY 55" WIDE BY 38"1-8" HIGH AND WEIGHING APPROXIMATELY 1,421 POUNDS.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
4. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED (5). THE SPACER PIECES, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B", PIECE MARKED (6) ON PAGE 10. SEE SPECIAL NOTE 14.
6. 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, PIECE MARKED (7), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, TWO EACH, 33'-0" LONG BUNDLING STRAPS, SHOWN AS PIECE MARKED (8) ON PAGE 4, MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4), IN EACH ROW.
8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (4) AND (7).
9. IF A PALLET UNIT IS TO BE OMITTED FROM THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER AND A LONGITUDINALLY ADJACENT STACK MUST BE SECURED BY INSTALLING TWO BUNDLING STRAPS, SHOWN AS PIECE MARKED (8) ON PAGE 6, SO AS TO ENCIRCLE THE TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (4).
10. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED (2), AND MAY ALSO BE USED IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED (5). SPACER PIECES, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
11. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
12. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
13. FOR GUIDANCE IN THE SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE GUIDANCE ON PAGES 26 AND 27.

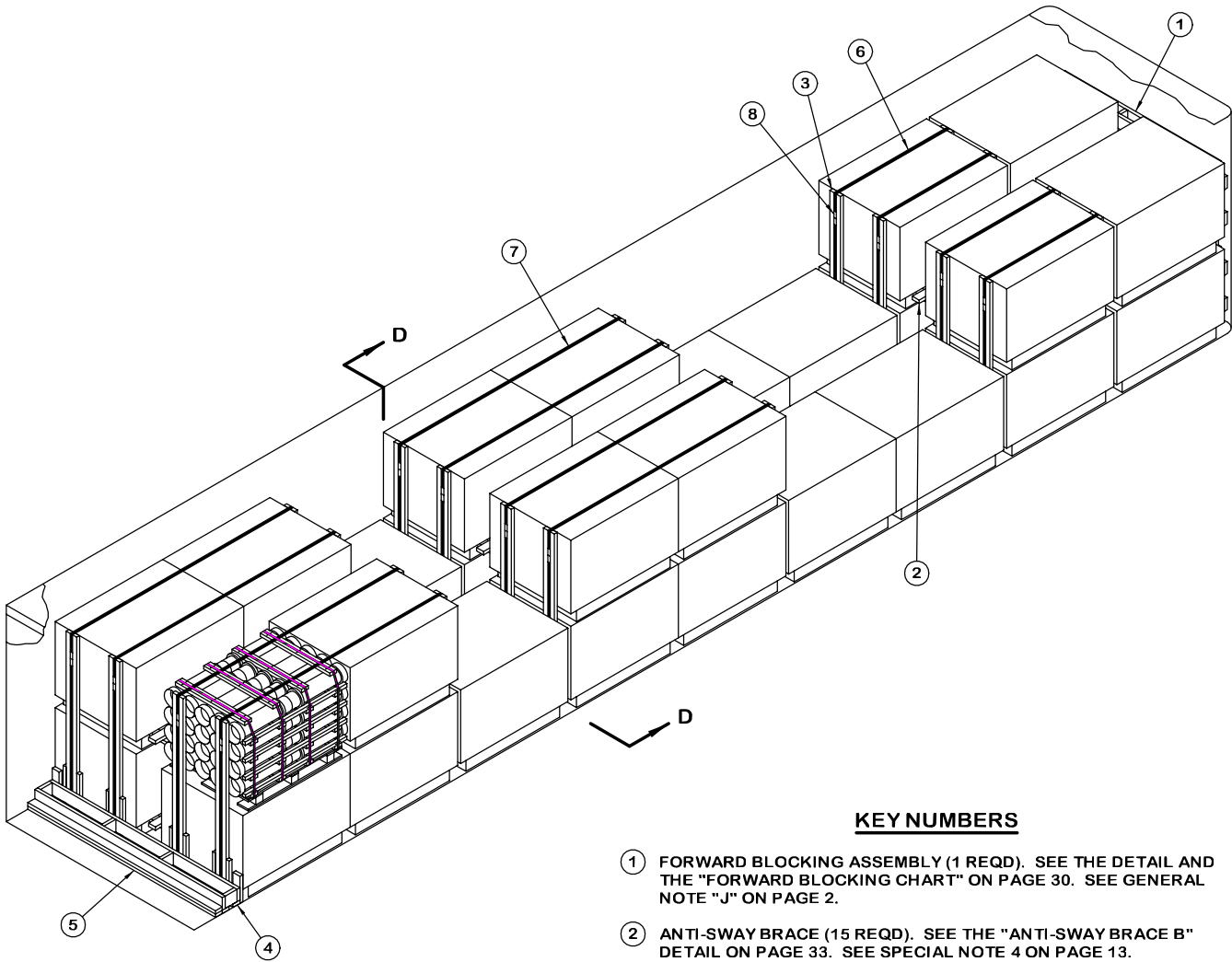
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	65	22
2" X 2"	22	8
2" X 4"	127	85
2" X 6"	203	203
NAILS	NO. REQD	POUNDS
6d (2")	56	1/2
10d (3")	259	4
1-1/4" STEEL STRAPPING - - 94' REQD - - - 13-1/2 LBS		
SEAL FOR 1-1/4" STRAPPING - - 8 REQD - - - 1/2 LB		
WIRE, NO. 14 GAGE - - - - 6' REQD - - - - - NIL		
STAPLE - - - - - 8 REQD - - - - - NIL		

(CONTINUED AT LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	30	42,630 LBS
DUNNAGE		655 LBS
TOTAL WEIGHT		43,285 LBS (APPROX)

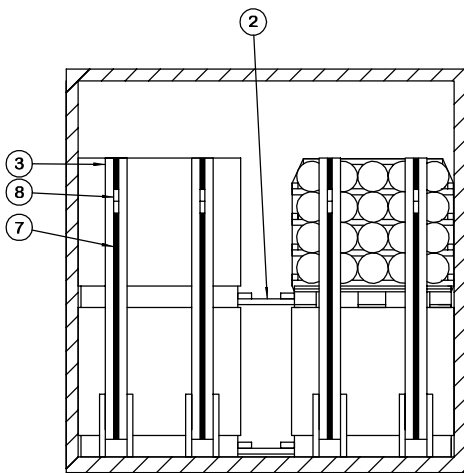
FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)
 30-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (15 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 33. SEE SPECIAL NOTE 4 ON PAGE 13.
- ③ STRAPPING BOARD ASSEMBLY (24 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 13.
- ④ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 13.
- 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. FOR OTHER LOAD WEIGHTS, SEE THE NAILING CHARTS ON PAGE 13.
- ⑥ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-6" LONG STEEL STRAPPING (4 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ③, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 13.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 33'-0" LONG STEEL STRAPPING (8 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ③, W/1 STAPLE. SEE SPECIAL NOTE 8 ON PAGE 13.
- ⑧ SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.



SECTION D-D

**FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)
30-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**

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.

SPECIAL NOTES:

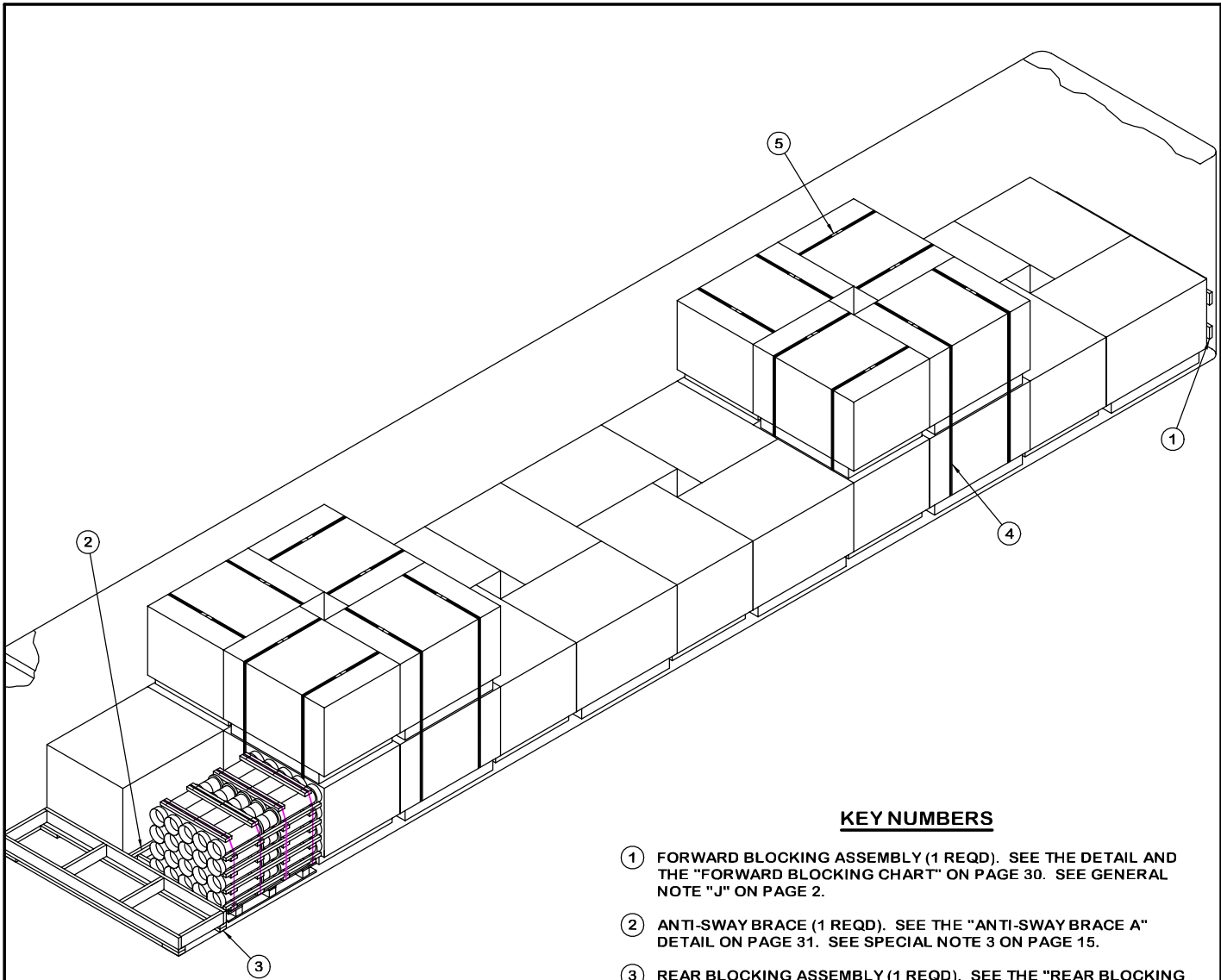
1. A 30-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-0" WIDE (INSIDE DIMENSION) CONVENTIONAL TYPE VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 12 IS THE FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 41-1/2" LONG BY 55" WIDE BY 38'-1/8" HIGH AND WEIGHING APPROXIMATELY 1,421 POUNDS.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③. SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
4. IF DESIRED, ANTI-SWAY BRACE "A", AS DETAILED ON PAGE 31, MAY BE USED IN LIEU OF ANTI-SWAY BRACE "B", PIECE MARKED ②, BETWEEN LATERALLY ADJACENT PALLETS IN THE FIRST LAYER. SPACER PIECES, PIECE MARKED ③ ON PAGE 10, WILL THEN BE REQUIRED AS NEEDED FOR A TIGHT FIT AT LOAD UNITS WHERE STRAPPING BOARD ASSEMBLIES ARE USED.
5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ④ ON PAGE 12. WHEN USING THE NAILED-HEADER METHOD AS SHOWN ON PAGE 12, THE STRUT LENGTHS OF PIECE MARKED ④ WILL BE THE MINIMUM 6". FOR REAR HEADERS, SEE THE NAILING CHART AT LEFT
6. 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 AS SHOWN, 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, PIECE MARKED ⑦, AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED ③ AND ⑥.
8. IF A PALLET UNIT IS TO BE OMITTED FROM THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER AND A LONGITUDINALLY ADJACENT STACK MUST BE SECURED BY INSTALLING TWO BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑦, SO AS TO ENCIRCLE THE TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③.
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
11. FOR GUIDANCE IN THE SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE GUIDANCE ON PAGES 26 AND 27.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	22
2" X 4"	228	152
2" X 6"	221	221
NAILS	NO. REQD	POUNDS
10d (3")	476	7-1/2
1-1/4" STEEL STRAPPING	- - 358' REQD	- - - 51-1/4 LBS
SEAL FOR 1-1/4" STRAPPING	- 24 REQD	- - - 1-1/4 LB
STAPLE	- - - - - 24 REQD	- - - - - NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	- - - - - 30	- - - - - 42,630 LBS
DUNNAGE	- - - - -	- - - - - 849 LBS
TOTAL WEIGHT		- - - - - 43,479 LBS (APPROX)

**FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT)
30-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (1 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 15.
- ③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 4 ON PAGE 15. NOTE THAT THE 2" X 4" X 12" LOAD BEARING PIECES MUST BE OMITTED.
- ④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 20'-0" LONG STEEL STRAPPING (16 REQD). PRE-POSITION SO AS TO ENCIRCLE A PALLET UNIT STACK.
- ⑤ SEAL FOR 1-1/4" STRAPPING (32 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

**FLAT OR ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) - CHIMNEY PATTERN
30-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**

SPECIAL NOTES:

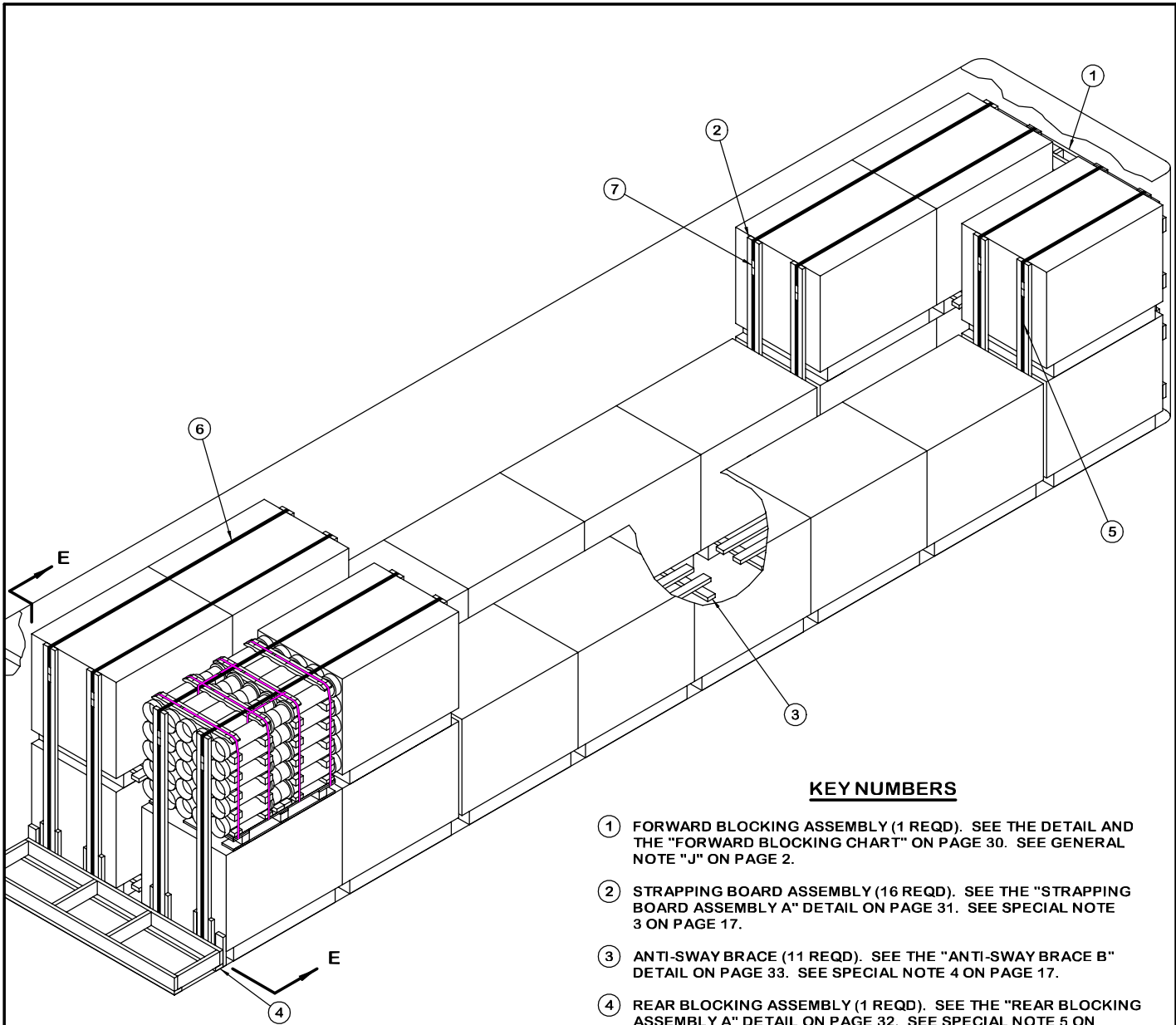
1. A 22-UNIT LOAD IS SHOWN IN A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER LENGTHS MAY BE USED, BUT NARROWER TRAILERS CANNOT BE USED FOR THIS CONFIGURATION.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 8 IS THE FLAT DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 41-1/2" LONG BY 55" WIDE BY 38-1/8" HIGH AND WEIGHING APPROXIMATELY 1,421 POUNDS. THESE PROCEDURES ARE ALSO APPLICABLE FOR THE ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT).
3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED ②.
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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ③ ON PAGE 8. SEE SPECIAL NOTE 9.
5. IF A PALLET UNIT IS TO BE ADDED TO THE DEPICTED LOAD, THE STACK CONTAINING THE ODD UNIT IN THE SECOND LAYER MUST BE SECURED BY INSTALLING TWO STACK UNITIZING STRAPS, SHOWN AS PIECE MARKED ④, SO AS TO ENCIRCLE THE STACK.
6. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
7. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
8. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
9. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	46	31
2" X 6"	56	56
NAILS	NO. REQD	POUNDS
10d (3")	96	1-3/4
1-1/4" STEEL STRAPPING - - 312' REQD - - - 44-3/4 LBS		
SEAL FOR 1-1/4" STRAPPING - 32 REQD - - - 1-1/2 LBS		

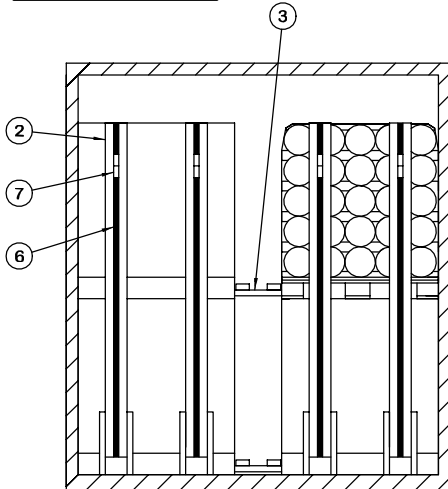
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	30 - - - - -	42,630 LBS
DUNNAGE - - - - -	- - - - -	222 LBS
TOTAL WEIGHT - - - - -		42,852 LBS (APPROX)

**FLAT OR ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) - CHIMNEY PATTERN
30-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW



SECTION E-E

**ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)
23-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 17.
- ③ ANTI-SWAY BRACE (11 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 33. SEE SPECIAL NOTE 4 ON PAGE 17.
- ④ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 17.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 17.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 35'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, W/1 STAPLE. SEE SPECIAL NOTES 9 AND 12 ON PAGE 17.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

(SPECIAL NOTES CONTINUED)

13. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

SPECIAL NOTES:

1. A 23-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 16 IS THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 44-7/8" HIGH AND WEIGHING APPROXIMATELY 1,766 POUNDS.
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 31.
4. IF DESIRED, ANTI-SWAY BRACE "A" AS DETAILED ON PAGE 31, MAY BE USED IN LIEU OF ANTI-SWAY BRACE "B", PIECE MARKED ③, IN BETWEEN LATERALLY ADJACENT ONE-LAYER HIGH LOAD UNITS. "CRIB FILL B", AS DETAILED ON PAGE 33, WILL THEN BE USED BETWEEN LATERALLY ADJACENT TWO-LAYER HIGH LOAD UNITS IN LIEU OF TWO ANTI-SWAY BRACES "B". FOUR SPACER PIECES, PIECE MARKED ③ ON PAGE 10, WILL THEN BE REQUIRED.
5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED ④ ON PAGE 16. SEE SPECIAL NOTE 13.
6. 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. NOTE THAT WHEN THERE IS ONLY ONE FULL LOAD UNIT IN THE FRONT PORTION OF THE LOAD, EACH STACK IN THE LOAD UNIT MUST BE UNITIZED. FOR THE DEPICTED LOAD, ONE STACK IS BUNDLED TO AN ADJACENT STACK IN LIEU OF UNITIZING. THE UNITIZING STRAPS, PIECE MARKED ⑤, AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ②, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑥, MUST BE INSTALLED SO AS TO ENCIRCLE THE REAR-MOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ②, IN EACH APPLICABLE ROW.
8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED ② AND ⑤.
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
11. FOR GUIDANCE IN THE SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE GUIDANCE ON PAGES 26 AND 27.
12. IF THE TRAILER BEING LOADED DOES NOT HAVE A DOOR OPENING HEIGHT OF AT LEAST 7'-7", IT WILL BE NECESSARY TO LIMIT THE REAR MOST LOAD UNIT TO ONE PALLET UNIT IN HEIGHT. IF THE SECOND LAYER AT THE REAR OF THE LOAD IS MOVED FORWARD, THE BUNDLING STRAPS, PIECE MARKED ⑥, WILL THEN NOT BE REQUIRED. REAR BLOCKING ASSEMBLY "B", AS DETAILED ON PAGE 32, WILL BE USED IN LIEU OF PIECE MARKED ④.

BILL OF MATERIAL

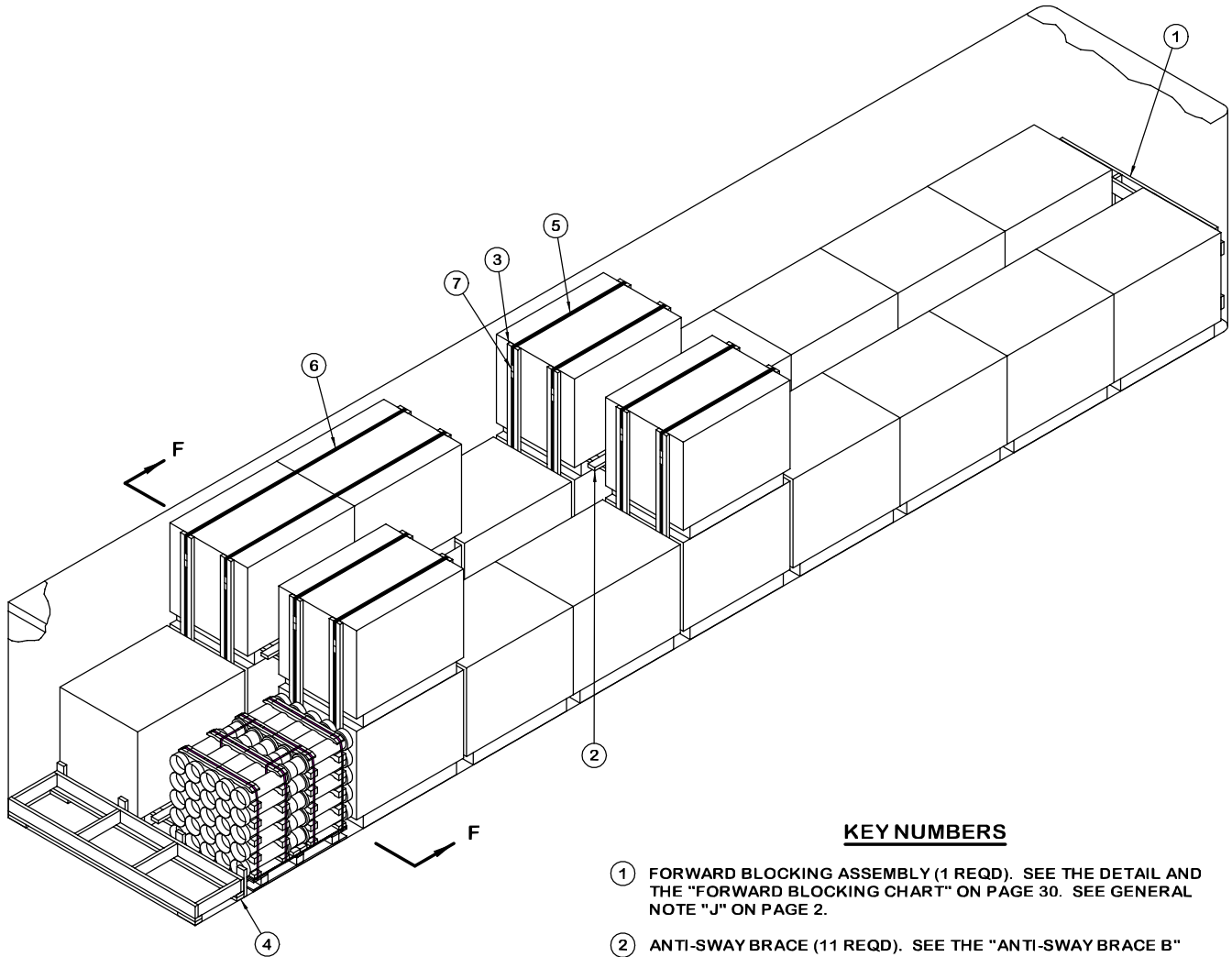
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	43	15
2" X 4"	166	111
2" X 6"	194	194
NAILS	NO. REQD	POUNDS
10d (3")	344	5-1/2
1-1/4" STEEL STRAPPING - - 261' REQD - - -		37-1/2 LBS
SEAL FOR 1-1/4" STRAPPING - 16 REQD - - -		3/4 LB
STAPLE - - - - - 16 REQD - - - - -		NIL

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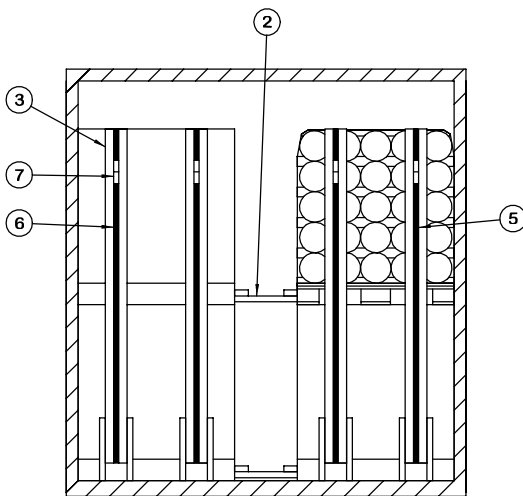
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	23 - - - - -	40,618 LBS
DUNNAGE - - - - -	- - - - -	684 LBS
TOTAL WEIGHT - - - - -		41,302 LBS (APPROX)

ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)
 23-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER



ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (11 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 33. SEE SPECIAL NOTE 4 ON PAGE 19.
- ③ STRAPPING BOARD ASSEMBLY (16 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 19.
- ④ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 19.
- ⑤ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 25'-6" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ③, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 19.
- ⑥ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 35'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ③, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 19.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)

23-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER

SPECIAL NOTES:

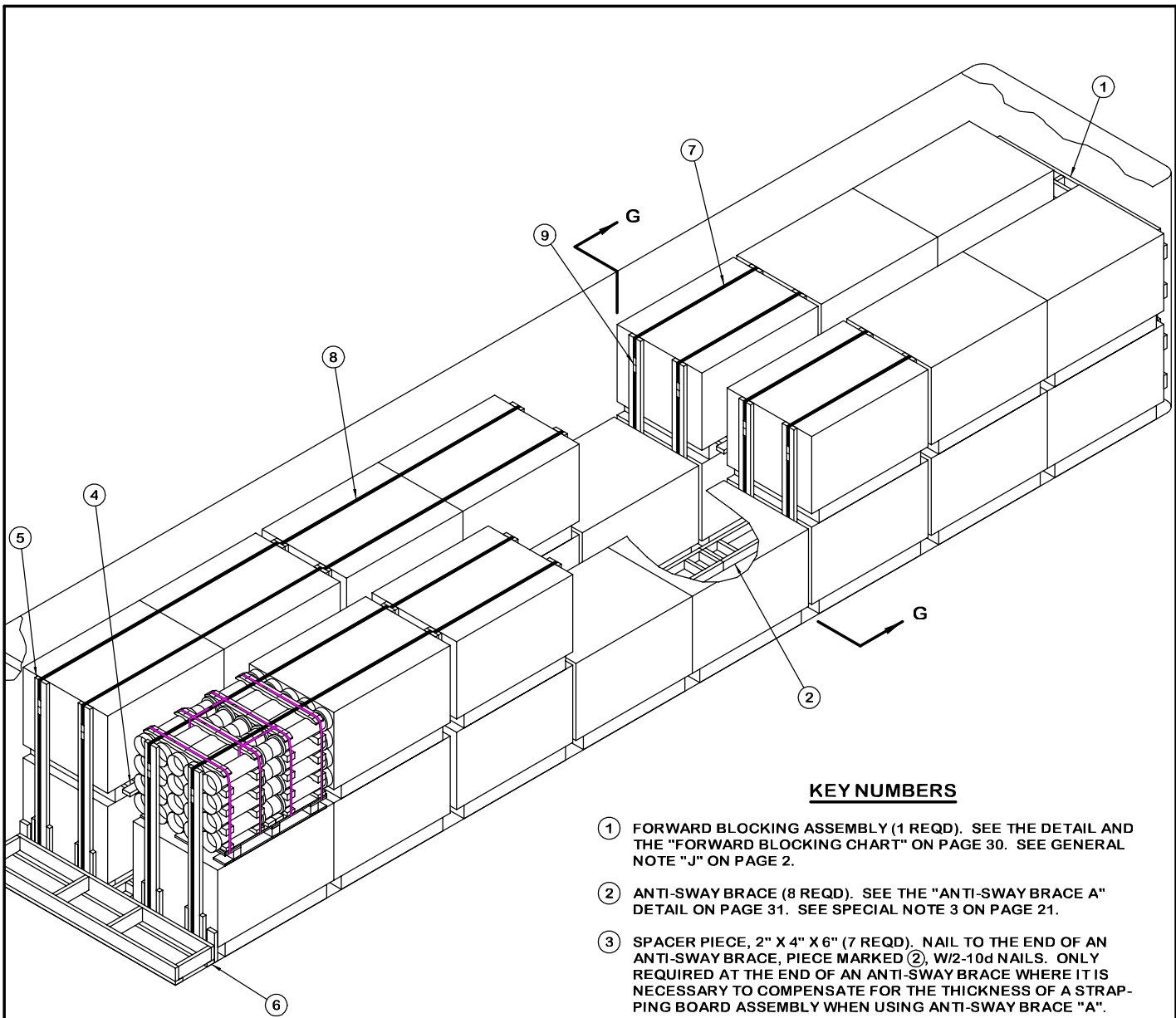
1. A 23-UNIT LOAD IS SHOWN IN A 45'-0" LONG BY 8'-0" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 18 IS THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 44-7/8" HIGH AND WEIGHING APPROXIMATELY 1,766 POUNDS.
3. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③. SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
4. IF DESIRED, ANTI-SWAY BRACE "A", AS DETAILED ON PAGE 31, MAY BE USED IN LIEU OF ANTI-SWAY BRACE "B", PIECE MARKED ②, BETWEEN LATERALLY ADJACENT PALLET IN THE FIRST LAYER. SPACER PIECES, PIECE MARKED ③ ON PAGE 10, WILL THEN BE REQUIRED AS NEEDED FOR A TIGHT FIT AT LOAD UNITS WHERE STRAPPING BOARD ASSEMBLIES ARE USED.
5. 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 34. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A" PIECE MARKED ④ ON PAGE 18. SEE SPECIAL NOTE 12.
6. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET 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, PIECE MARKED ⑤, AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑥, MUST BE INSTALLED TO ENCIRCLE THE REAR MOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ③, IN EACH APPLICABLE ROW.
8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REAR MOST PALLET IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED ③ AND ⑤.
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 28 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
12. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	43	15
2" X 4"	162	108
2" X 6"	168	168
NAILS	NO. REQD	POUNDS
10d (3")	330	5-1/4
1-1/4" STEEL STRAPPING - - 223' REQD - - - - -		32 LBS
SEAL FOR 1-1/4" STRAPPING - 16 REQD - - - - -		3/4 LB
STAPLE - - - - -	16 REQD - - - - -	NIL

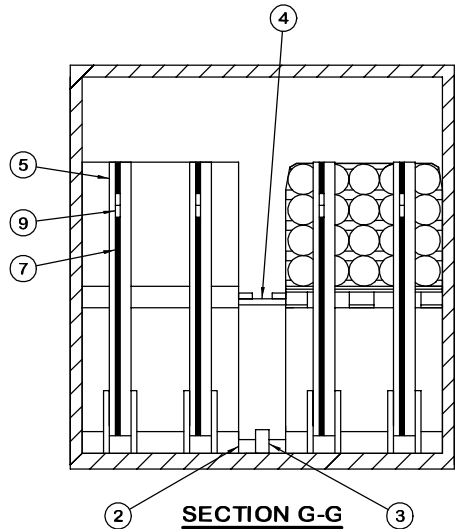
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	23 - - - - -	40,618 LBS
DUNNAGE - - - - -	- - - - -	620 LBS
TOTAL WEIGHT - - - - -		41,238 LBS (APPROX)

**ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT)
23-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW



SECTION G-G

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (8 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 21.
- ③ SPACER PIECE, 2" X 4" X 6" (7 REQD). NAIL TO THE END OF AN ANTI-SWAY BRACE, PIECE MARKED ②, W/2-10d NAILS. ONLY REQUIRED AT THE END OF AN ANTI-SWAY BRACE WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A".
- ④ ANTI-SWAY BRACE (6 REQD). SEE THE "ANTI-SWAY BRACE B" DETAIL ON PAGE 33.
- ⑤ STRAPPING BOARD ASSEMBLY (24 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 21.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY A" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 21.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 21.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 32'-0" LONG STEEL STRAPPING (6 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 21.
- ⑨ SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.

SPECIAL NOTES:

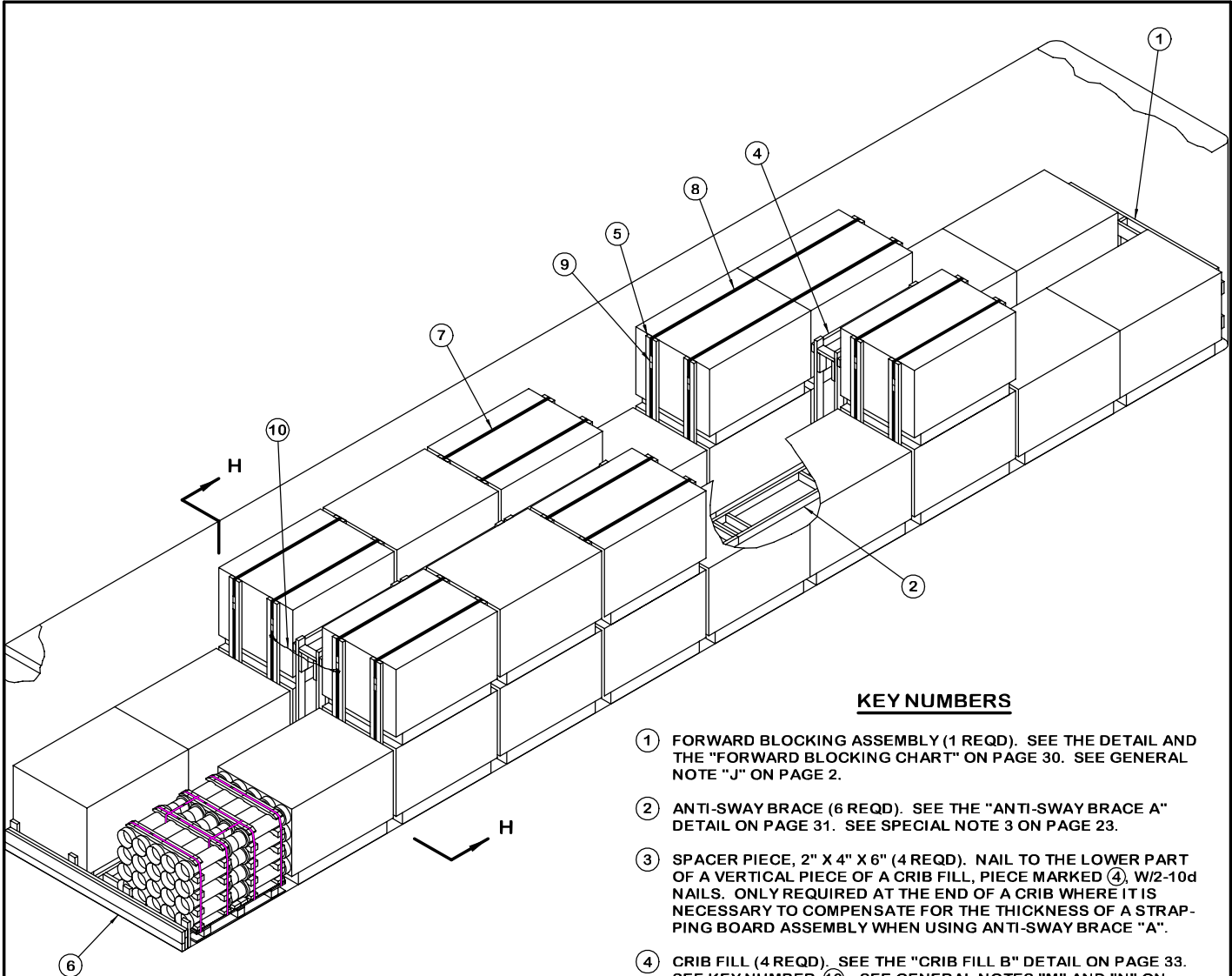
1. A 29-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 20 IS THE ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 37-1/8" HIGH AND WEIGHING APPROXIMATELY 1,432 POUNDS.
3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" USED BETWEEN THE TOP LAYER PALLETS MAY ALSO BE USED BETWEEN THE BOTTOM LAYER PALLETS IN LIEU OF PIECE MARKED (2). THE SPACER PIECES, PIECE MARKED (3), WILL THEN NOT BE REQUIRED.
4. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5). SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
5. 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 32. IF THE VOID IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A", PIECE MARKED (6) ON PAGE 20. SEE SPECIAL NOTE 12.
6. 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 ASSEMBLY, AGAINST THE FORWARD BLOCKING ASSEMBLY, OR AT THE VERY REAR OF THE LOAD. THE UNITIZING STRAPS, PIECE MARKED (7), AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5), MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, AS IN THE DEPICTED LOAD, BUNDLING STRAPS, SHOWN AS PIECE MARKED (8), MUST BE INSTALLED SO AS TO ENCIRCLE THE REARMOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED (5), IN EACH APPLICABLE ROW.
8. IF ONLY ONE PALLET IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW IT MUST NOT BE POSITIONED ON THE REARMOST PALLET UNIT IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED (5) AND (7).
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS THAN FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
12. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	64	22
2" X 4"	207	138
2" X 6"	219	219
NAILS	NO. REQD	POUNDS
10d (3")	472	7-1/2
1-1/4" STEEL STRAPPING - - 330' REQD - - - 47-1/4 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - - - 1-1/4 LB		
STAPLE - - - - - 24 REQD - - - - - NIL		

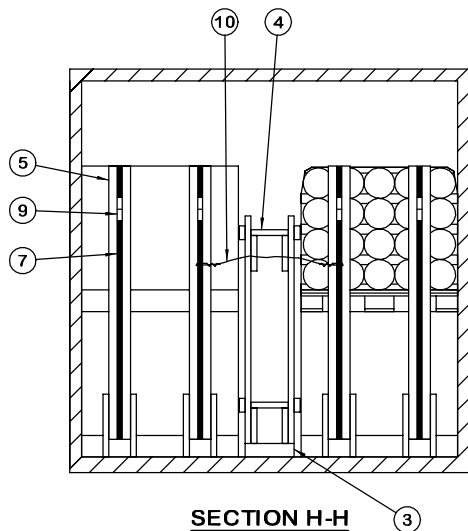
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	29 - - - - -	41,528 LBS
DUNNAGE - - - - -	- - - - -	814 LBS
TOTAL WEIGHT - - - - -		42,342 LBS (APPROX)

**ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
29-UNIT LOAD IN A 40'-0" LONG BY 7'-8" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW



SECTION H-H

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② ANTI-SWAY BRACE (6 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 23.
- ③ SPACER PIECE, 2" X 4" X 6" (4 REQD). NAIL TO THE LOWER PART OF A VERTICAL PIECE OF A CRIB FILL, PIECE MARKED ④, W/2-10d NAILS. ONLY REQUIRED AT THE END OF A CRIB WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY WHEN USING ANTI-SWAY BRACE "A".
- ④ CRIB FILL (4 REQD). SEE THE "CRIB FILL B" DETAIL ON PAGE 33. SEE KEY NUMBER ⑩. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ⑤ STRAPPING BOARD ASSEMBLY (24 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 23.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY C" DETAIL ON PAGE 34. SEE SPECIAL NOTE 5 ON PAGE 23.
- ⑦ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (10 REQD). INSTALL SO AS TO ENCIRCLE A PALLET UNIT STACK AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 6 ON PAGE 23.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 32'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ⑤, W/1 STAPLE. SEE SPECIAL NOTE 7 ON PAGE 23.
- ⑨ SEAL FOR 1-1/4" STRAPPING (24 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.
- ⑩ TIE WIRE, .0800" DIAMETER, GRADE 1006 WIRE, 72" LONG (4 REQD). INSTALL TO FORM A COMPLETE LOOP AROUND A VERTICAL PIECE OF A CRIB FILL JUST BELOW THE TOP HORIZONTAL PIECES WITH THE CENTER PORTION OF THE WIRE AND TWIST. TIE EACH END TO THE ADJACENT STACK UNITIZING STRAP AND/OR BUNDLING STRAP, PIECE MARKED ⑦ AND/OR ⑧. SECURE THE TIE WIRE TO THE CRIB FILL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

SPECIAL NOTES:

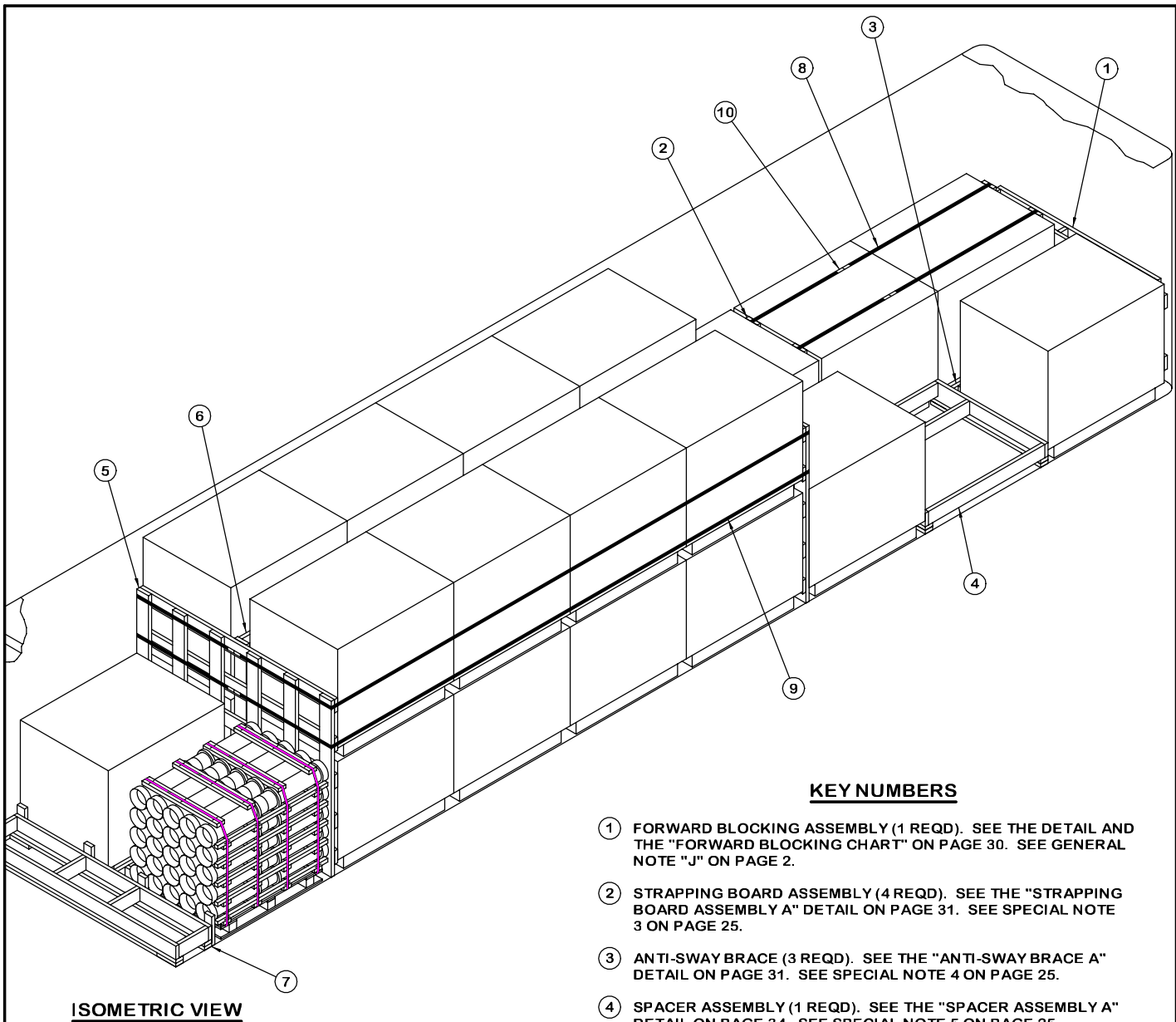
1. A 29-UNIT LOAD IS SHOWN IN A 48'-0" LONG BY 8'-0" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 22 IS THE ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 37-1/8" HIGH AND WEIGHING APPROXIMATELY 1,432 POUNDS.
3. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED ②. THE SPACER PIECES, PIECES MARKED ③, WILL THEN NOT BE REQUIRED.
4. FOR EASE OF INSTALLATION, A STRAPPING BOARD ASSEMBLY "B" MAY BE USED IN LIEU OF EACH PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ⑤. SEE THE "STRAPPING BOARD ASSEMBLY B" DETAIL ON PAGE 31.
5. 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", PIECE MARKED ⑥ ON PAGE 22. IF THE VOID AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY A" AS DETAILED ON PAGE 32. SEE SPECIAL NOTE 12.
6. A PALLET UNIT AT EACH END OF THE SECOND LAYER PORTION OF THE LOAD MUST BE UNITIZED TO A PALLET 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, PIECE MARKED ⑦, AND THE STRAPPING BOARD ASSEMBLIES, PIECE MARKED ⑤, MUST BE INSTALLED PRIOR TO FINAL POSITIONING OF THE STACK.
7. IF A STACK IN THE LOAD UNIT AT THE REAR OF THE LOAD IS MORE THAN ONE UNIT HIGH, BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑧, MUST BE INSTALLED TO ENCIRCLE THE REAR MOST TWO STACKS AND TWO PAIR OF STRAPPING BOARD ASSEMBLIES, PIECE MARKED ⑤, IN EACH APPLICABLE ROW.
8. IF ONLY ONE PALLET UNIT IS TO BE LOADED IN THE SECOND LAYER OF EITHER ROW, IT MUST NOT BE POSITIONED ON THE REAR MOST PALLET IN THE FIRST LAYER. PROVIDE LONGITUDINAL BRACING BY INSTALLING STRAPPING BOARD ASSEMBLIES AND UNITIZING STRAPS, PIECES MARKED ⑤ AND ⑦.
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS ON PAGE 28 FOR GUIDANCE.
11. FOR SHIPMENT OF LESS-THAN-FULL LOADS, REFER TO THE APPLICABLE GUIDANCE ON PAGES 26 AND 27.
12. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 2"	64	22
2" x 4"	305	204
2" x 6"	186	186
NAILS	NO. REQD	POUNDS
10d (3")	546	8-1/2
1-1/4" STEEL STRAPPING - - 294' REQD - - - - 42 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - - - 1-1/4 LBS		
WIRE, NO. 14 GAGE - - - - 24' REQD - - - - - NIL		
STAPLE - - - - - 24 REQD - - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	29	41,528 LBS
DUNNAGE		876 LBS
TOTAL WEIGHT		42,404 LBS (APPROX)

**ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT)
29-UNIT LOAD IN A 48'-0" LONG BY 8'-2" WIDE CONVENTIONAL VAN TRAILER**



ISOMETRIC VIEW

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL AND THE "FORWARD BLOCKING CHART" ON PAGE 30. SEE GENERAL NOTE "J" ON PAGE 2.
- ② STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 3 ON PAGE 25.
- ③ ANTI-SWAY BRACE (3 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 ON PAGE 25.
- ④ SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 34. SEE SPECIAL NOTE 5 ON PAGE 25.
- ⑤ BULKHEAD GATE (2 REQD). SEE THE "BULKHEAD GATE" DETAIL ON PAGE 35. POSITION WITH THE HORIZONTAL PIECES AGAINST THE 2-HIGH PORTION OF THE LOAD.
- ⑥ CRIB FILL (4 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 30. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- ⑦ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 7 ON PAGE 25.
- ⑧ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 28'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNIT STACKS AND THE STRAPPING BOARD ASSEMBLIES AS SHOWN. STAPLE TO THE UPPER PORTION OF THE STRAPPING BOARD ASSEMBLY, PIECE MARKED ②, W/1 STAPLE. SEE SPECIAL NOTE 12 ON PAGE 25.
- ⑨ BUNDLING STRAP, 1-1/4" X .035" OR .031" X 55'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE EIGHT PALLET UNIT STACKS AND THE BULKHEAD GATES, PIECE MARKED ⑥, AS SHOWN. STAPLE TO THE BULKHEAD GATE W/4 STAPLES. SEE SPECIAL NOTE 8 ON PAGE 25.
- ⑩ 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 23-UNIT LOAD IS SHOWN IN A 40'-0" LONG BY 7'-8" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER. TRAILERS OF OTHER DIMENSIONS MAY BE USED.
2. THE PALLET UNIT SHOWN IN THE LOAD ON PAGE 24 IS THE FLAT DUNNAGE METHOD UNIT (BASIC HEIGHT) HAVING OVERALL DIMENSIONS OF 41-1/2" LONG BY 55" WIDE BY 45-7/8" HIGH AND WEIGHING APPROXIMATELY 1,751 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED 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 31.
4. IF THE SPACE BETWEEN THE ROWS OF PALLET UNITS PERMITS, AND IF DESIRED, ANTI-SWAY BRACE "B" AS DETAILED ON PAGE 33 MAY BE USED IN LIEU OF PIECE MARKED ③.
5. THE SPACER ASSEMBLY "A", PIECE MARKED ④, IS SHOWN ONLY TO DEPICT A TYPICAL INSTALLATION. IF DESIRED, A PALLET UNIT MAY BE LOADED IN THE PLACE OF THE SPACER. NOTE THAT A SPACER ASSEMBLY SHOULD NOT BE LOCATED ADJACENT TO EITHER THE FORWARD BLOCKING ASSEMBLY OR A BULKHEAD GATE, PIECES MARKED ① AND ⑥ RESPECTIVELY.
6. IF A TRAILER WHICH IS WIDER THAN 7'-8-1/2" IS FURNISHED FOR LOADING, THE ANTI-SWAY BRACE "B", AS DETAILED ON PAGE 33, WILL BE USED IN LIEU OF THE CRIB FILL, PIECE MARKED ⑥, AND MAY ALSO BE USED IN LIEU OF THE ANTI-SWAY BRACE "A", PIECE MARKED ③.
7. 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 32. IF THE VOID IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B", PIECE MARKED ⑦ ON PAGE 24. SEE SPECIAL NOTE 11.
8. THE SECOND LAYER PORTION OF THE LOAD IS LIMITED TO NOT MORE THAN TEN BASIC HEIGHT FLAT AND/OR ROUTED DUNNAGE METHOD UNITS OR 12 DECREASED HEIGHT FLAT AND/OR ROUTED DUNNAGE METHOD UNITS. ONLY ONE BUNDLING STRAP, PIECE MARKED ⑨, WILL BE REQUIRED IF THE SECOND LAYER CONSISTS OF NOT MORE THAN FOUR BASIC HEIGHT OR SIX DECREASED HEIGHT FLAT AND/OR ROUTED DUNNAGE METHOD UNITS.
9. REFER TO PAGE 29 FOR GUIDANCE IN THE SHIPMENT OF PARTIAL PALLET UNITS.
10. LEFTOVER CONTAINERS IN AN AMOUNT NOT TO EXCEED EIGHT MAY BE SECURED TO THE TOP OF A FULL PALLET UNIT FOR SHIPMENT. REFER TO THE "PROCEDURES FOR SHIPMENT OF LEFTOVER CONTAINERS" ON PAGE 28 FOR GUIDANCE.
11. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE NAILED-HEADER METHOD OF REAR BLOCKING AS DEPICTED ON PAGES 12 AND 13. NOTE THAT THE NAILED-HEADER METHOD MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS.
12. A PALLET UNIT THAT DOES NOT HAVE A PALLET UNIT DIRECTLY OPPOSITE MUST BE SECURED BY INSTALLING BUNDLING STRAPS, SHOWN AS PIECE MARKED ⑧ IN THE LOAD ON PAGE 24, AROUND THAT PALLET UNIT AND THE PALLET UNIT IMMEDIATELY ADJACENT. NOTE THAT ONLY ONE BUNDLING STRAP IS REQUIRED WHEN A PALLET UNIT IS OMITTED FROM A LOAD OF DECREASED HEIGHT PALLET UNITS. A PALLET UNIT WILL NOT BE OMITTED FROM THE SECOND LAYER PORTION OF THE LOAD.

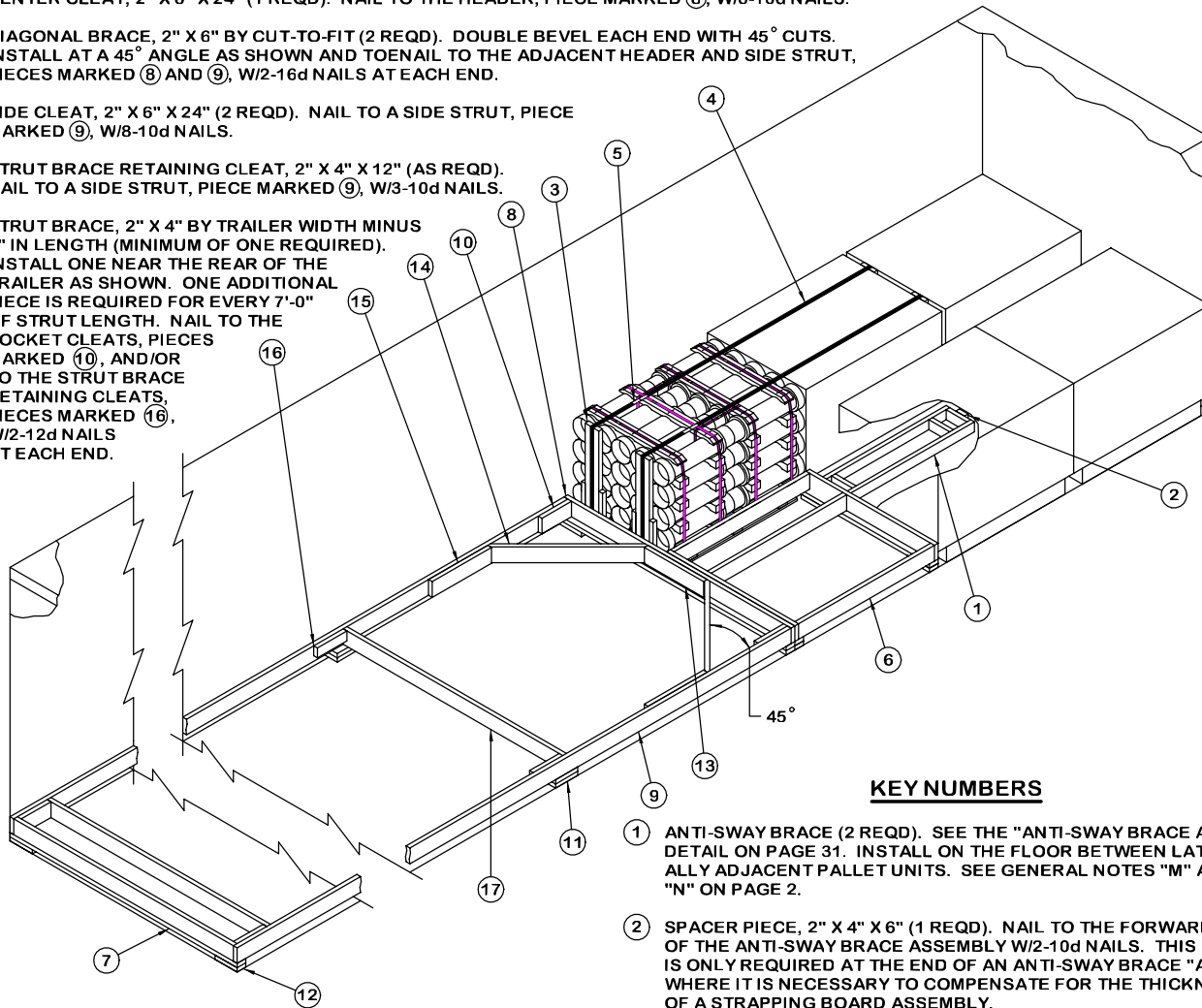
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" x 4"	37	13
2" x 2"	11	4
2" x 4"	121	82
2" x 6"	279	279
NAILS	NO. REQD	POUNDS
6d (2")	32	1/4
10d (3")	428	6-3/4
1-1/4" STEEL STRAPPING - - 166' REQD - - - 23-3/4 LBS		
SEAL FOR 1-1/4" STRAPPING - - 8 REQD - - - 1/2 LB		
STAPLE - - - - - 20 REQD - - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	23 - - - - -	40,273 LBS
DUNNAGE - - - - -	- - - - -	788 LBS
TOTAL WEIGHT - - - - -		41,061 LBS (APPROX)

(KEY NUMBERS CONTINUED)

- 13 CENTER CLEAT, 2" X 6" X 24" (1 REQD). NAIL TO THE HEADER, PIECE MARKED 8, W/6-10d NAILS.
- 14 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, PIECES MARKED 8 AND 9, W/2-16d NAILS AT EACH END.
- 15 SIDE CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO A SIDE STRUT, PIECE MARKED 9, W/8-10d NAILS.
- 16 STRUT BRACE RETAINING CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO A SIDE STRUT, PIECE MARKED 9, W/3-10d NAILS.
- 17 STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" IN LENGTH (MINIMUM OF ONE REQUIRED). INSTALL ONE NEAR THE REAR OF THE TRAILER AS SHOWN. ONE ADDITIONAL PIECE IS REQUIRED FOR EVERY 7'-0" OF STRUT LENGTH. NAIL TO THE POCKET CLEATS, PIECES MARKED 10, AND/OR TO THE STRUT BRACE RETAINING CLEATS, PIECES MARKED 16, W/2-12d NAILS AT EACH END.



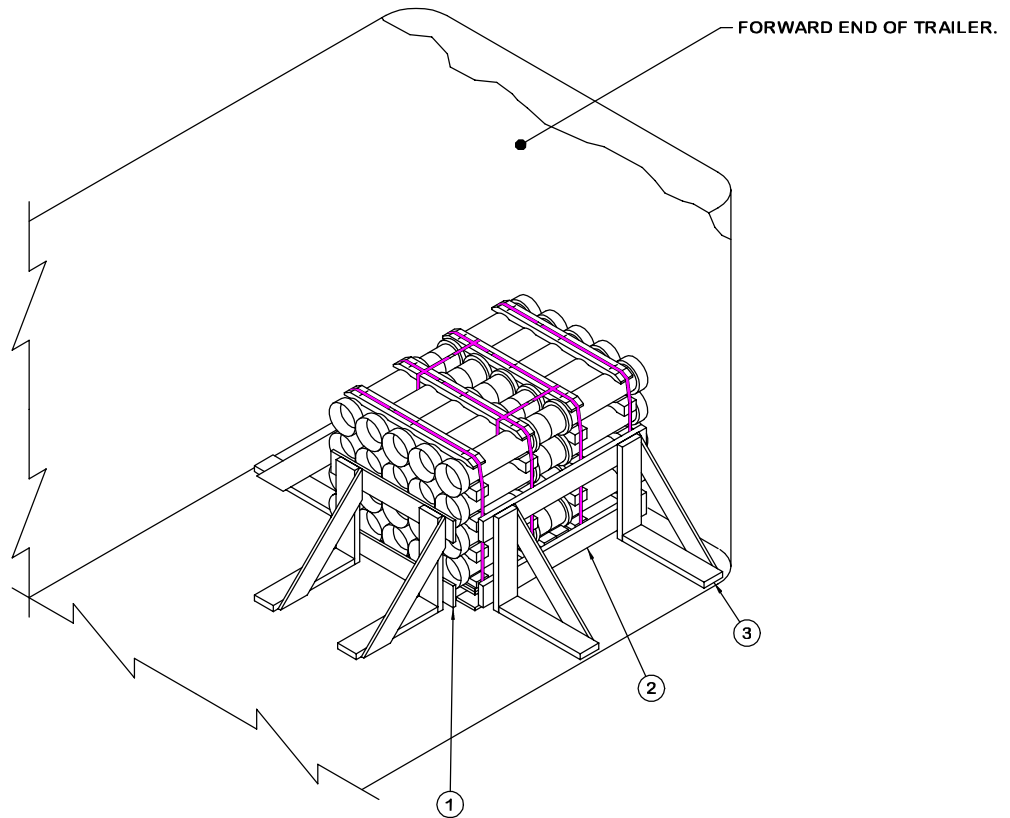
ISOMETRIC VIEW

SPECIAL NOTES:

- 1. A 5-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 ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT) HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 37-1/2" HIGH AND WEIGHING APPROXIMATELY 1,432 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR OTHER LOADS ON PAGE 3.
- 3. THE TRAILER IS SHOWN HAVING A SQUARE FRONT, HOWEVER, IF THE TRAILER BEING USED HAS ROUNDED CORNERS, A FORWARD BLOCKING ASSEMBLY, AS DEPICTED ON PAGE 30, MUST BE USED.
- 4. THE SPACER PIECE, STRAPPING BOARD ASSEMBLIES, AND BUNDLING STRAPS, PIECES MARKED 2, 3, AND 4, ARE ONLY REQUIRED WHEN SHIPPING THE BASIC HEIGHT FLAT DUNNAGE AND ROUTED DUNNAGE METHOD UNITS.
- 5. THE "K-BRACE BLOCKING", SHOWN AS PIECES MARKED 7 THRU 17, IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
- 6. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED, HOWEVER, SPECIAL REAR BLOCKING MUST BE INSTALLED. SEE THE LOAD ON PAGES 12 AND 13 FOR GUIDANCE. NOTE THAT THE REAR BLOCKING FOR TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS, AND MAY BE USED IN LIEU OF PIECES MARKED 7 THRU 17 WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.

KEY NUMBERS

- 1 ANTI-SWAY BRACE (2 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 31. INSTALL ON THE FLOOR BETWEEN LATERALLY ADJACENT PALLET UNITS. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- 2 SPACER PIECE, 2" X 4" X 6" (1 REQD). NAIL TO THE FORWARD END OF THE ANTI-SWAY BRACE ASSEMBLY W/2-10d NAILS. THIS PIECE IS ONLY REQUIRED AT THE END OF AN ANTI-SWAY BRACE "A" WHERE IT IS NECESSARY TO COMPENSATE FOR THE THICKNESS OF A STRAPPING BOARD ASSEMBLY.
- 3 STRAPPING BOARD ASSEMBLY (4 REQD). SEE THE "STRAPPING BOARD ASSEMBLY A" DETAIL ON PAGE 31. SEE SPECIAL NOTE 4 AT LEFT.
- 4 BUNDLING STRAP, 1-1/4" X .035" OR .031" X 27'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENCIRCLE TWO PALLET UNITS AND STRAPPING BOARD ASSEMBLIES. SEE SPECIAL NOTE 4 AT LEFT.
- 5 SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "K" ON PAGE 2.
- 6 SPACER ASSEMBLY (1 REQD). SEE THE "SPACER ASSEMBLY A" DETAIL ON PAGE 34. NAIL TO A HEADER, PIECE MARKED 8, W/2-10d NAILS.
- 7 RISER, 2" X 4" X TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). NAIL TO BOTTOM EDGE OF HEADER, PIECE MARKED 8, W/1-10d NAIL EVERY 12".
- 8 HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" IN LENGTH (2 REQD). SEE SPECIAL NOTE 5 AT LEFT.
- 9 SIDE STRUT, 2" X 6" BY CUT-TO-FIT BETWEEN FORWARD AND REAR HEADERS, PIECES MARKED 8.
- 10 POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT, PIECE MARKED 9, W/3-10d NAILS. TOENAIL TO THE ADJACENT HEADER, PIECE MARKED 8, W/3-12d NAILS.
- 11 FILLER PIECE, 2" X 4" X 9" (AS REQD). POSITION SO AS TO BE CENTERED UNDER THE JOINT OF THE STRUT BRACE AND THE STRUT BRACE RETAINING CLEAT, PIECES MARKED 16 AND 17. NAIL TO A SIDE STRUT, PIECE MARKED 9, W/2-10d NAILS.
- 12 RISER PIECE, 2" X 4" X 9" (AS REQD). NAIL TO THE BOTTOM EDGE OF THE RISER, PIECE MARKED 7, AND/OR TO A FILLER PIECE, PIECE MARKED 11, W/2-10d NAILS.



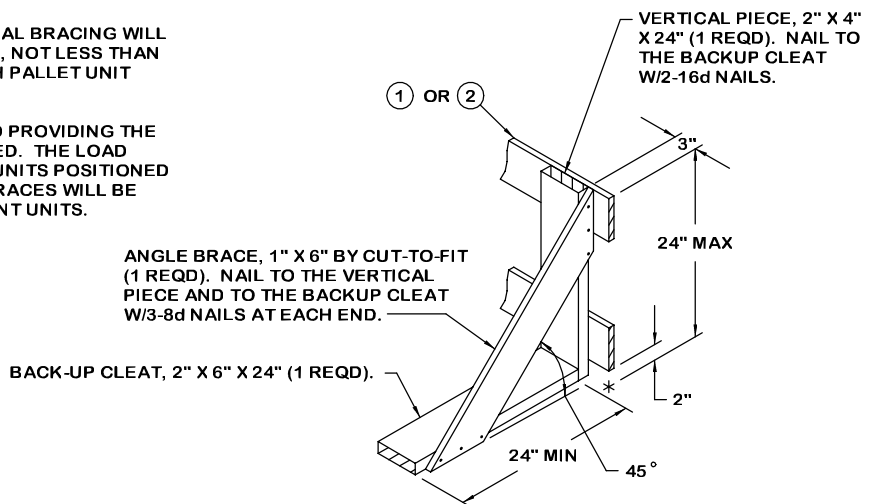
ISOMETRIC VIEW

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 PALLET UNIT SHOWN IS THE ROUTED DUNNAGE METHOD UNIT (DECREASED HEIGHT), HAVING OVERALL DIMENSIONS OF 40" LONG BY 55" WIDE BY 37-1/8" HIGH AND WEIGHING APPROXIMATELY 1,432 POUNDS. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS ON PAGES 3.
3. THE POSITIONING OF A UNIT IS OPTIONAL. IF THE TRAILER BEING USED HAS A SQUARE FRONT, THE PALLET UNIT MAY BE LOCATED IN THE CORNER OF THE TRAILER AND TWO LESS LTL BRACES WILL BE USED.
4. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING; HOWEVER, NOT LESS THAN TWO LTL 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 OPPOSITE SIDEWALLS. ANTI-SWAY BRACES WILL BE INSTALLED BETWEEN THE LATERALLY ADJACENT UNITS.

KEY NUMBERS

- ① LOAD BEARING PIECE, 1" X 6" X 36" (2 REQD). LOCATE AT THE HEIGHTS AS SPECIFIED IN THE "LTL BRACE" DETAIL BELOW. NAIL TO THE LTL BRACES W/4-6d NAILS AT EACH JOINT. SEE GENERAL NOTE "M" ON PAGE 2.
- ② LOAD BEARING PIECE, 1" X 6" X 48" (4 REQD). LOCATE AT THE HEIGHTS AS SPECIFIED IN THE "LTL BRACE" DETAIL BELOW. NAIL TO THE LTL BRACES W/4-6d NAILS AT EACH JOINT.
- ③ LTL BRACE (6 REQD). SEE THE "LTL BRACE" DETAIL BELOW. NAIL TO THE TRAILER FLOOR W/7-10d NAILS. SEE SPECIAL NOTE 4 AT LEFT.



LTL BRACE

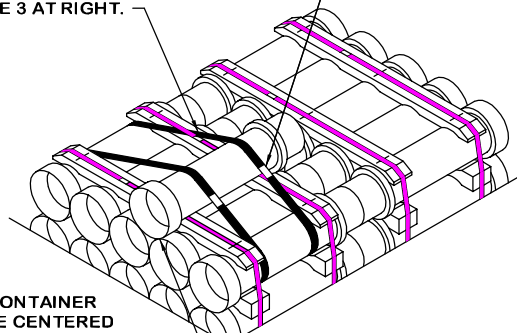
TYPICAL LTL (1-UNIT LOAD) IN A CONVENTIONAL VAN TRAILER

SPECIAL NOTES:

1. SHIPMENTS OF PROPELLING CHARGES 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 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 29.
2. SHIPMENT OF LEFTOVER CONTAINERS IS APPLICABLE FOR CONUS AND OCONUS MOTOR CARRIER SHIPMENTS FROM DEPOT TO DEPOT OR DEPOT TO POSTS, CAMPS, AND STATIONS, OR, UPON APPROVAL FROM HIGHER HEADQUARTERS, FOR SHIPMENT 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. FOR THE FLAT DUNNAGE METHOD UNITS, THE UNITIZING STRAP MUST NOT GO AROUND THE INTERMEDIATE DUNNAGE ASSEMBLY. THE STRAP MUST BE THREADED BEHIND THE 2" X 2" PIECES OF THE ASSEMBLIES.
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.

UNITIZING STRAP, 1-1/4" X .035" OR .031" X 9'-6" LONG STEEL STRAPPING (2 REQD). SEE SPECIAL NOTE 3 AT RIGHT.

SEAL FOR 1-1/4" STRAP (2 REQD). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.



POSITION CONTAINER SO AS TO BE CENTERED ON THE JOINTS OF THE CONTAINERS BELOW FOR ROUTED DUNNAGE METHOD UNIT; POSITION SO AS TO BE CENTERED ON LENGTH OF UNIT FOR FLAT DUNNAGE METHOD UNIT.

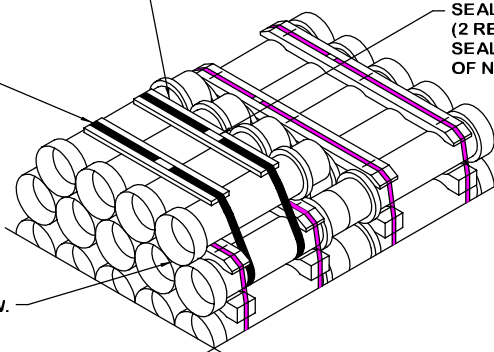
SECUREMENT OF ONE CONTAINER

ROUTED DUNNAGE METHOD UNIT SHOWN.

STRAPPING BOARD, 1" X 4" X 25" (2 REQD).

UNITIZING STRAP, 1-1/4" X .035" OR .031" X 10'-6" LONG STEEL STRAPPING (2 REQD). SEE SPECIAL NOTE 3 ABOVE.

SEAL FOR 1-1/4" STRAP (2 REQD). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.



POSITION CONTAINERS SO AS TO BE CENTERED ON THE JOINTS OF THE CONTAINERS BELOW.

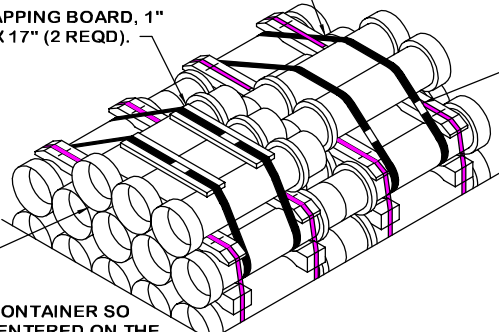
UNITIZING STRAP, 1-1/4" X .035" OR .031" X 10'-6" LONG STEEL STRAPPING (4 REQD). STAPLE TO THE STRAPPING BOARD W/2 STAPLES, AS APPLICABLE. SEE SPECIAL NOTE 3 ABOVE.

SECUREMENT OF FOUR CONTAINERS

ROUTED DUNNAGE METHOD UNIT SHOWN.

STRAPPING BOARD, 1" X 4" X 17" (2 REQD).

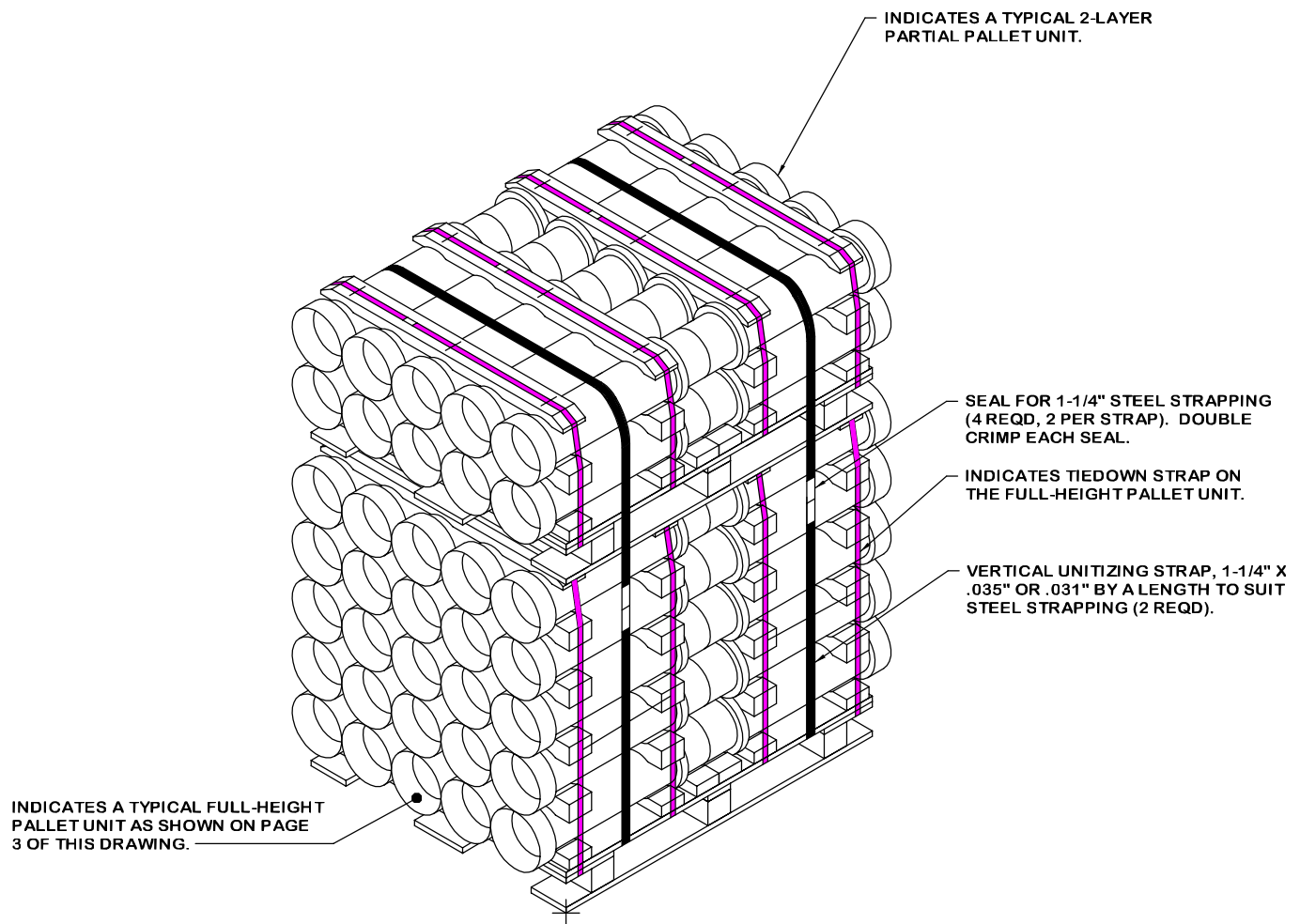
SEAL FOR 1-1/4" STRAP (4 REQD). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.



POSITION CONTAINER SO AS TO BE CENTERED ON THE LENGTH OF THE UNIT FOR FLAT DUNNAGE METHOD UNIT; POSITION SO AS TO BE CENTERED ON JOINTS OF CONTAINERS FOR ROUTED DUNNAGE METHOD UNIT.

SECUREMENT OF FIVE CONTAINERS

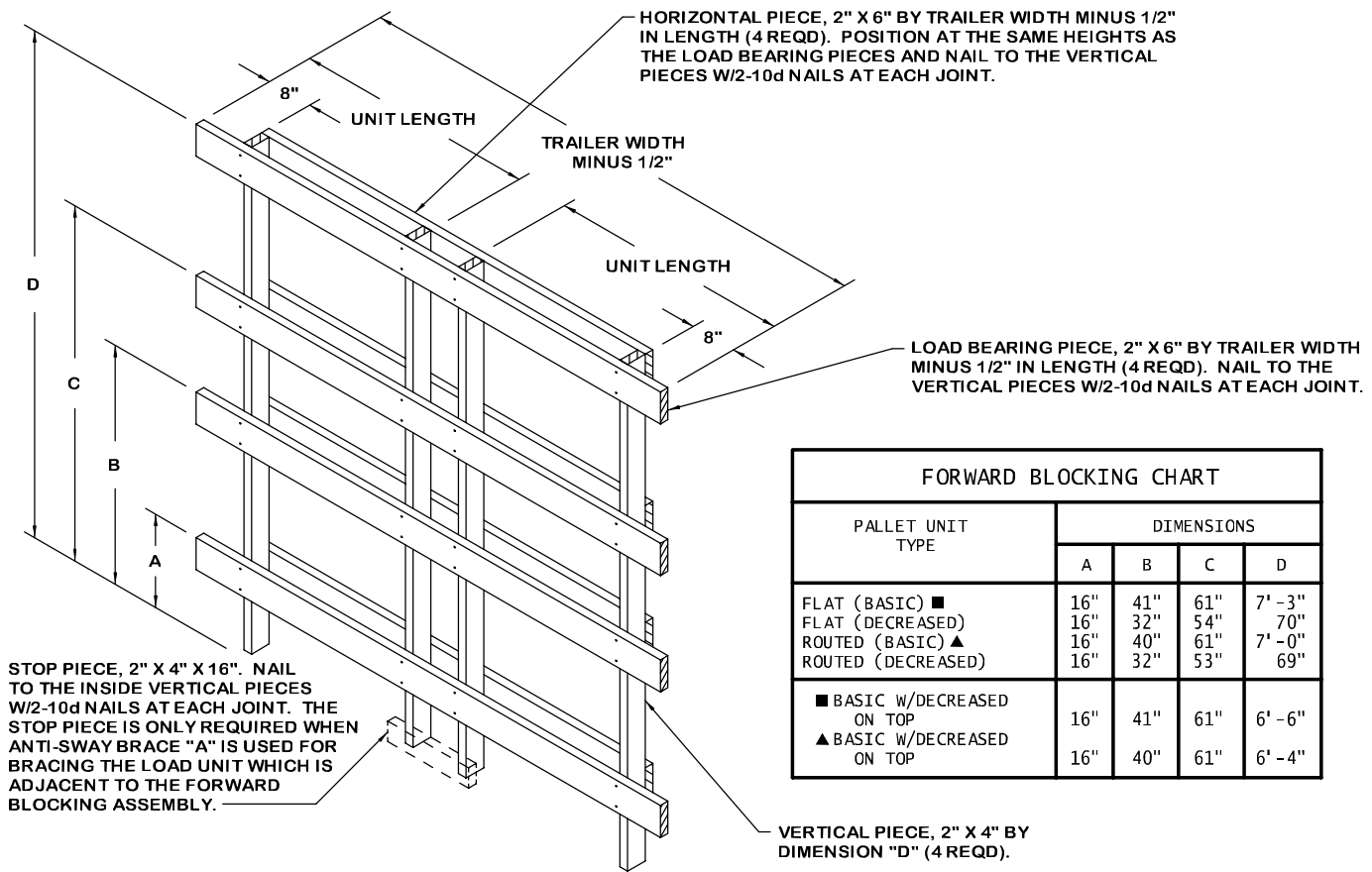
ROUTED DUNNAGE METHOD UNIT SHOWN.



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

SPECIAL NOTES:

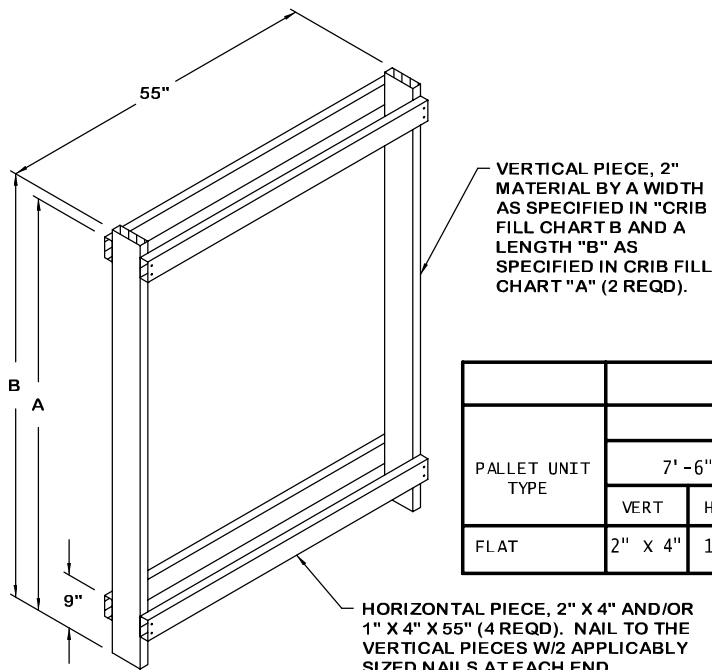
1. THE VIEW ABOVE DEPICTS A PARTIAL 2-LAYER PALLET UNIT POSITIONED ON TOP OF A FULL-HEIGHT PALLET UNIT AND UNITIZED WITH TWO VERTICAL UNITIZING STRAPS. PLACEMENT WITHIN THE LOAD IS OPTIONAL, EXCEPT THAT IT SHOULD NOT BE POSITIONED WITHIN A GROUP WHICH IS BUNDLED TOGETHER OR WITHIN A STACK WHICH IS UNITIZED. THE PREFERRED LOCATION WOULD BE WITHIN A ONE-HIGH PORTION OF A LOAD (NOT IN A REAR UNIT), IF AVAILABLE, OR WITHIN THE TOP LAYER OF A LOAD IF THE TRAILER HEIGHT PERMITS.
2. SHIPMENT 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 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 AND ON PAGE 28 ARE PRESENTED AS GUIDANCE IN THE SHIPMENT OF THESE PARTIAL UNITS.
3. THE "SHIPMENT OF A PARTIAL PALLET UNIT" PROCEDURES ON THIS PAGE ARE APPLICABLE FOR LOADS IN CONVENTIONAL VAN TRAILERS.
4. FOR SHIPMENT OF ONE THRU EIGHT "LEFTOVER" CONTAINERS, SEE THE PROCEDURES ON PAGE 28.



FORWARD BLOCKING CHART				
PALLET UNIT TYPE	DIMENSIONS			
	A	B	C	D
FLAT (BASIC) ■	16"	41"	61"	7'-3"
FLAT (DECREASED)	16"	32"	54"	7'0"
ROUTED (BASIC) ▲	16"	40"	61"	7'-0"
ROUTED (DECREASED)	16"	32"	53"	6'9"
■ BASIC W/DECREASED ON TOP	16"	41"	61"	6'-6"
▲ BASIC W/DECREASED ON TOP	16"	40"	61"	6'-4"

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. IF THE TRAILER TO BE LOADED HAS LARGE ANGLED FRONT CORNERS, REFER TO PAGE 36 FOR GUIDANCE.

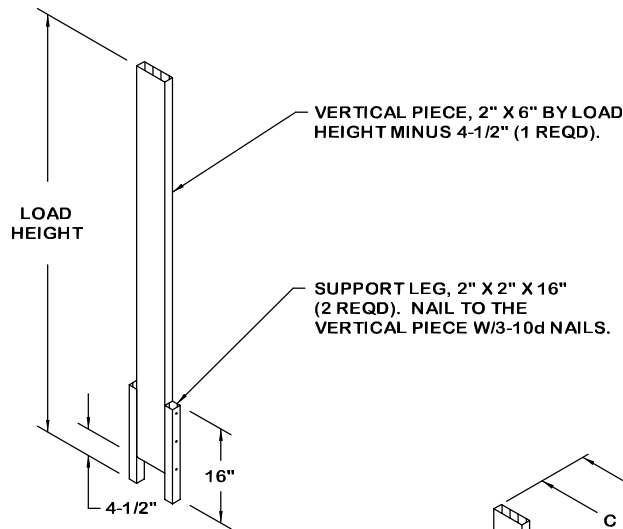


CRIB FILL CHART A				
PALLET UNIT TYPE	DIMENSIONS			
	A		B	
	1-HIGH	2-HIGH	1-HIGH	2-HIGH
FLAT (BASIC) ■	32"	70"	36"	72"
FLAT (DECREASED)	25"	62"	28"	64"
■ INCREASED W/BASIC ON TOP	- - -	70"	- - -	72"

CRIB FILL CHART B								
PALLET UNIT TYPE	TRAILER WIDTH							
	7' - 6"		7' - 7"		7' - 8"		7' - 8-1/2"	
	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ	VERT	HORIZ
FLAT	2" X 4"	1" & 2"	2" X 4"	2" & 2"	2" X 6"	1" & 2"	2" X 6"	2" & 2"

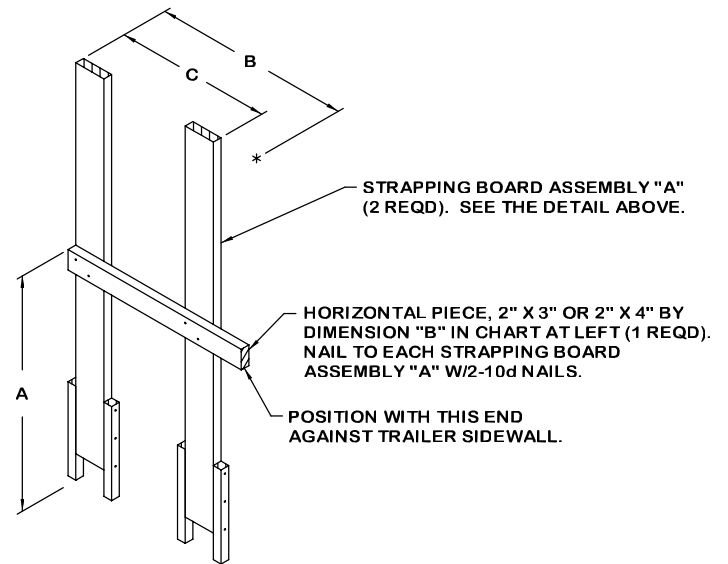
CRIB FILL A

DETAILS

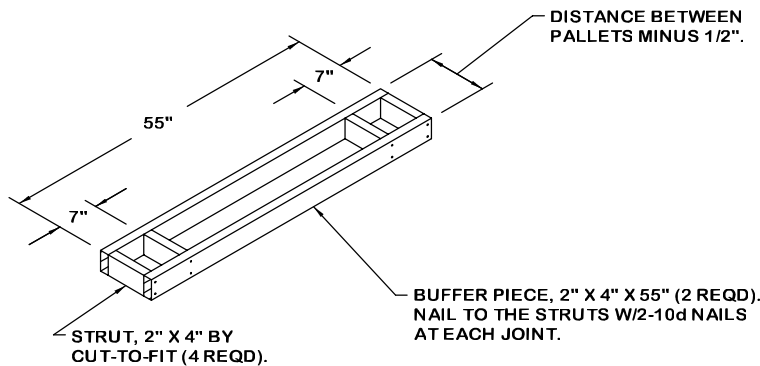


STRAPPING BOARD ASSEMBLY A

STRAPPING BOARD ASSEMBLY B CHART			
PALLET UNIT TYPE	DIMENSIONS		
	A	B	C
FLAT (BASIC)	50"	36"	30-1/2"
FLAT (DECREASED)	42"	36"	30-1/2"
ROUTED (BASIC)	49"	35-1/2"	30-1/2"
ROUTED (DECREASED)	41"	35-1/2"	30-1/2"



STRAPPING BOARD ASSEMBLY B



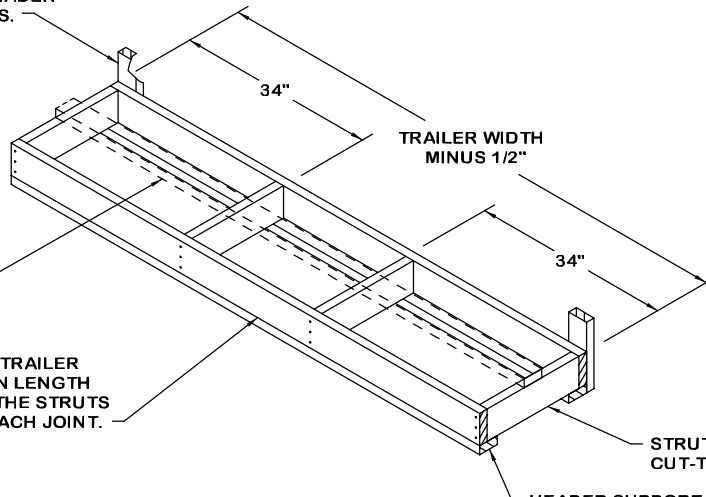
ANTI-SWAY BRACE A

THIS ANTI-SWAY BRACE IS DESIGNED FOR USE BETWEEN LATERALLY ADJACENT PALLET UNITS WHEN THE VOID IS 8" OR MORE. NOTE THAT AN ASSEMBLY NEED NOT BE CONSTRUCTED FOR A TIGHT FIT; UP TO 1/2" SPACE IS PERMITTED.

LOAD BEARING PIECE, 2" X 4" X 12"
(4 REQD). NAIL TO THE HEADER
W/3-10d NAILS AND TO THE HEADER
SUPPORT PIECE W/2-10d NAILS.

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/2-10d
NAILS AT EACH JOINT.

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).

HEADER 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 12".

REAR BLOCKING ASSEMBLY A

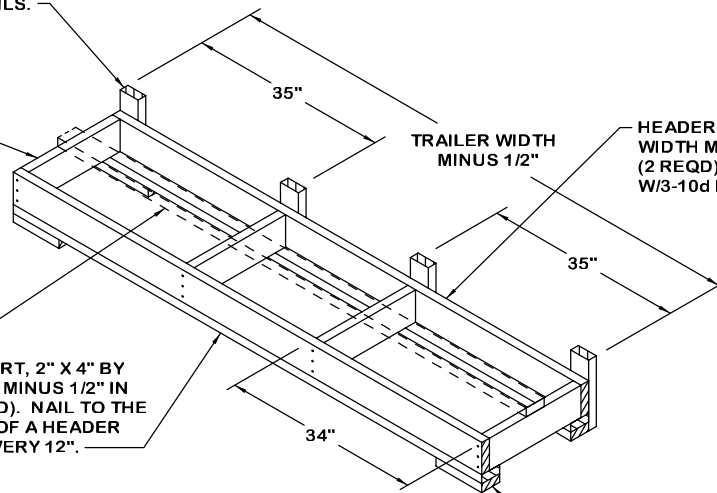
THIS ASSEMBLY IS FOR USE AT THE REAR OF A LOAD IN
A CONVENTIONAL VAN TRAILER WHEN THE REARMOST
LOAD UNIT IS STACKED TWO UNITS IN HEIGHT AND THE
EXCESS SPACE BETWEEN THE LADING AND THE
TRAILER DOORS IS 9" OR GREATER.

LOAD BEARING PIECE, 2" X 4" X 12"
(4 REQD). NAIL TO THE HEADER
W/3-10d NAILS AND TO THE HEADER
SUPPORT PIECE W/2-10d NAILS.

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

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/2-10d
NAILS AT EACH JOINT.

HEADER 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 12".

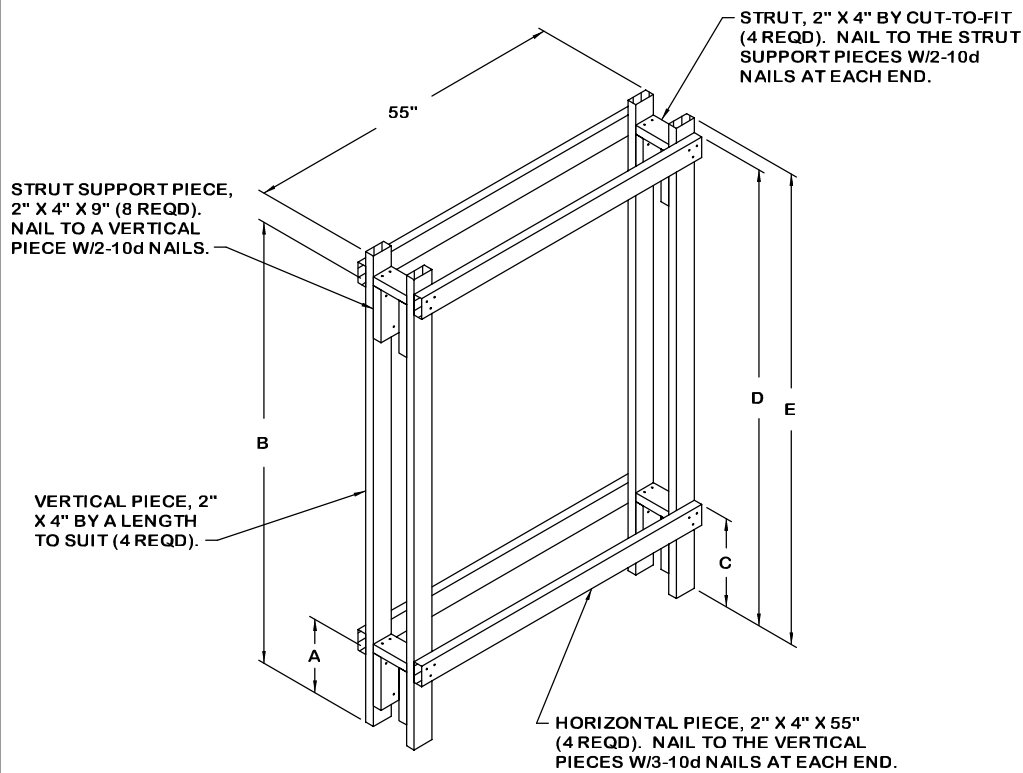


HEADER, 2" X 6" BY TRAILER
WIDTH MINUS 1/2" IN LENGTH
(2 REQD). NAIL TO THE STRUTS
W/3-10d NAILS AT EACH JOINT.

RISER PIECE, 2" X 4"
X 9" (4 REQD). NAIL TO
THE HEADER SUPPORT
W/2-10d NAILS.

REAR BLOCKING ASSEMBLY B

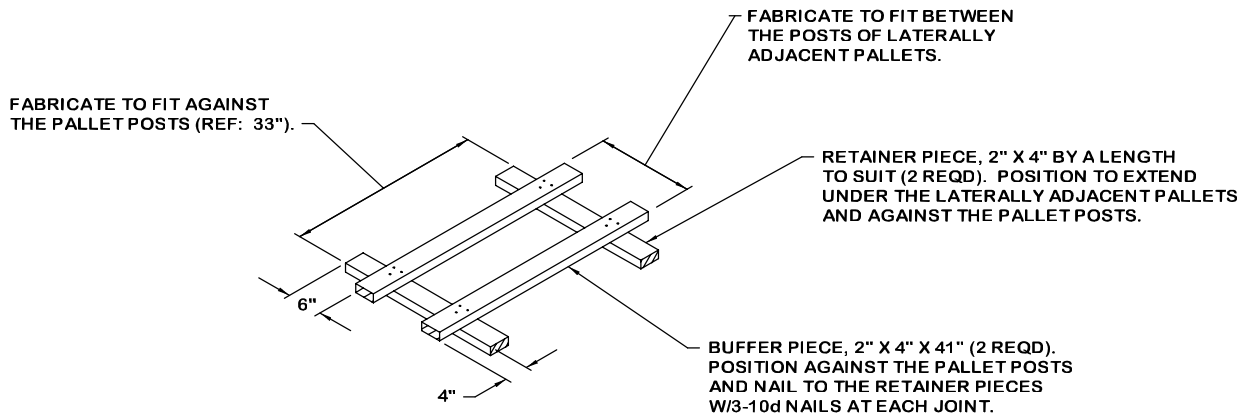
THIS ASSEMBLY IS FOR USE AT THE REAR OF A LOAD IN
A CONVENTIONAL VAN TRAILER WHEN THE REARMOST
LOAD UNIT IS ONLY ONE UNIT IN HEIGHT AND THE
EXCESS SPACE BETWEEN THE LADING AND THE
TRAILER DOORS IS 9" OR GREATER.



CRIB FILL B

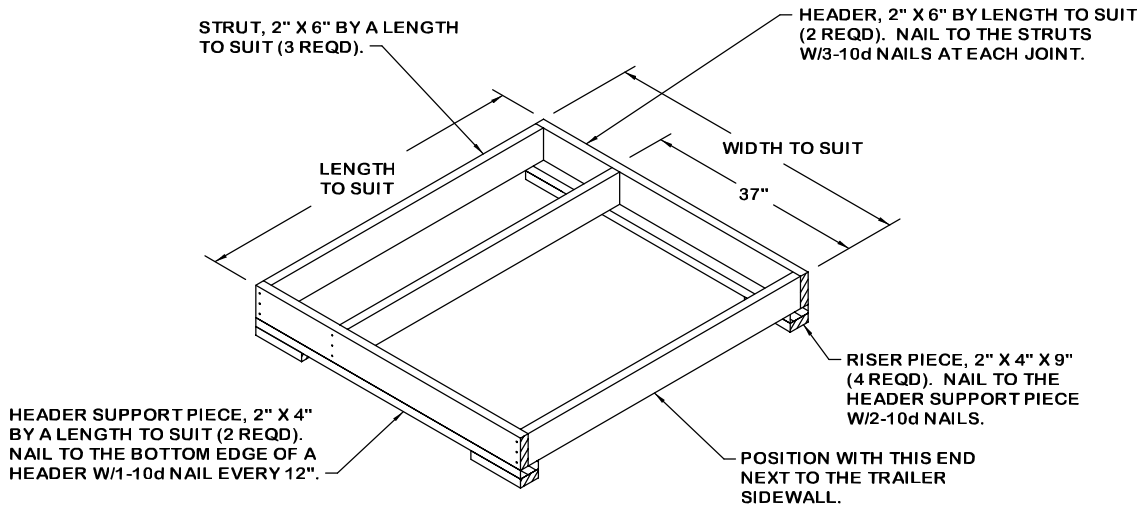
CRIB FILL IS TO BE PRE-ASSEMBLED AND SLID INTO PLACE.

CRIB FILL CHART					
PALLET UNIT TYPE	DIMENSIONS				
	A	B	C	D	E
FLAT (BASIC) ■	14"	62-1/2"	16-1/2"	6'-5"	6'-7"
FLAT (DECREASED)	14"	60"	16-1/2"	62-1/2"	64"
ROUTED (BASIC) ▲	12-1/2"	6'-0-1/2"	15"	6'-3"	6'-5"
ROUTED (DECREASED)	12-1/2"	56-1/2"	15"	59"	60"
■ BASIC W/DECREASED ON TOP	14"	67-1/2"	16-1/2"	70"	72"
▲ BASIC W/DECR EASED ON TOP	12-1/2"	65"	15"	67-1/2"	70"



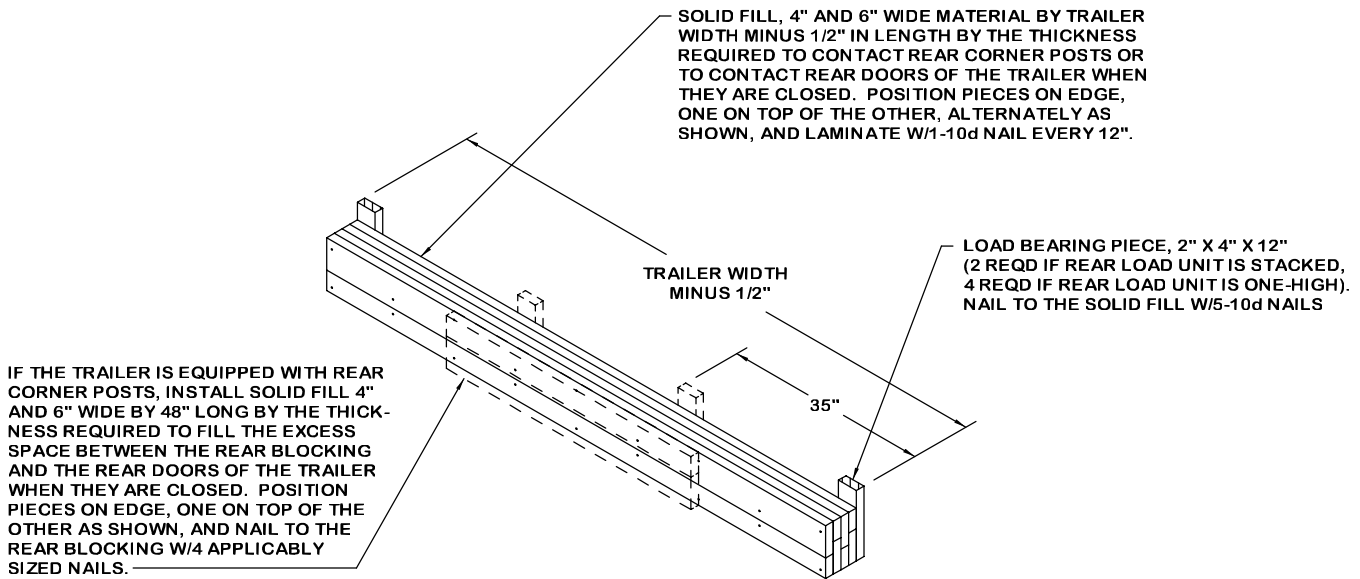
ANTI-SWAY BRACE B
THE ANTI-SWAY BRACE MUST BE ASSEMBLED IN PLACE.

DETAILS



SPACER ASSEMBLY

THIS ASSEMBLY IS DESIGNED FOR USE IN THE PLACE OF A PALLET UNIT WHICH IS OMITTED FROM THE BOTTOM LAYER OF A LOAD IN A CONVENTIONAL VAN TRAILER, AS TYPICALLY SHOWN IN THE LOAD ON PAGE 24.

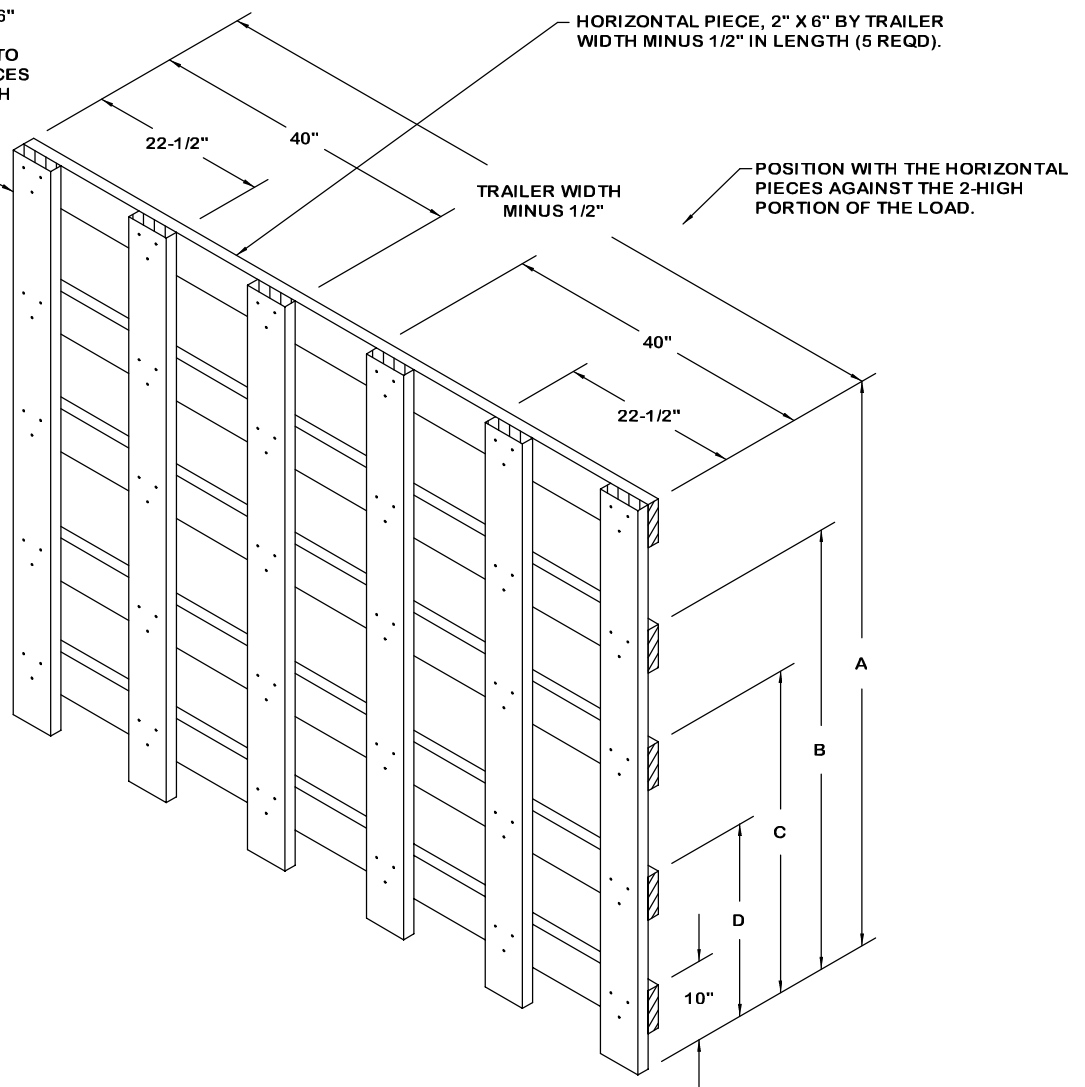


REAR BLOCKING ASSEMBLY C

THIS REAR BLOCKING ASSEMBLY IS DESIGNED FOR USE AT THE REAR END OF A LOAD IN A CONVENTIONAL VAN TRAILER WHEN THE SPACE BETWEEN THE LADING AND THE TRAILER DOOR IS LESS THAN 9" BUT AT LEAST 1-1/2".

VERTICAL PIECE, 2" X 6" BY DIMENSION "A" IN CHART BELOW. NAIL TO THE HORIZONTAL PIECES W/3-10d NAILS AT EACH JOINT.

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



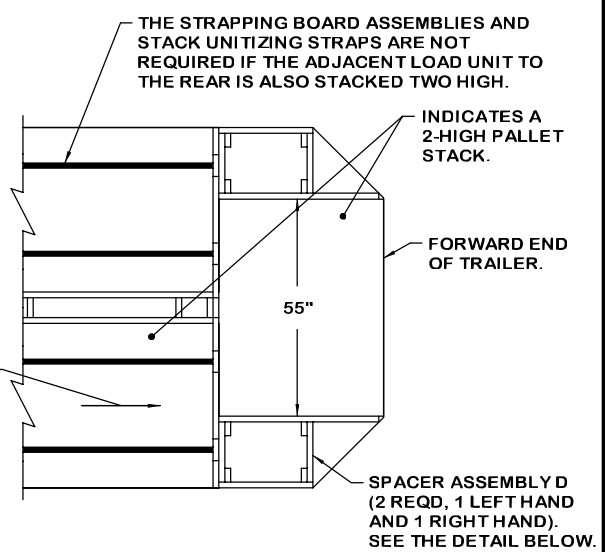
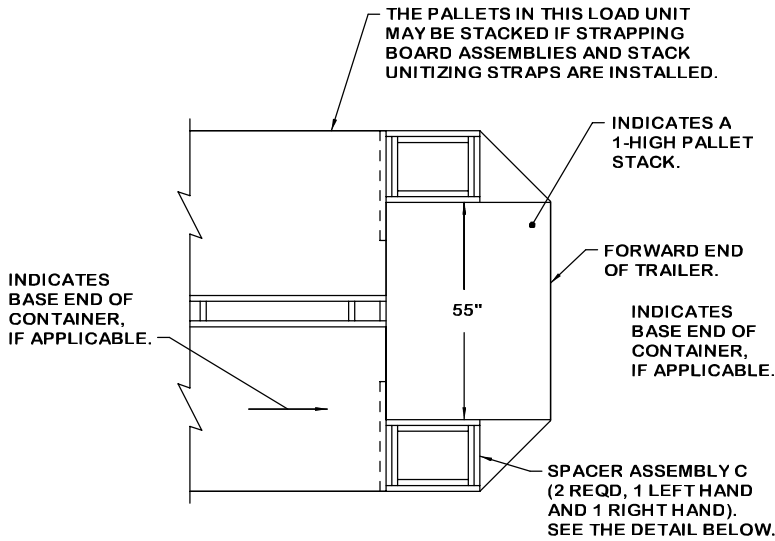
BULKHEAD GATE

THIS GATE IS DESIGNED FOR USE IN THE ALTERNATIVE LOADING PROCEDURE LOAD ON PAGE 16.

BULKHEAD GATE CHART

PALLET UNIT TYPE	DIM A	DIM B	DIM C	DIM D
FLAT (BASIC)	72"	56"	41"	24-1/2"
FLAT (DECREASED)	64"	48"	37-1/2"	24-1/2"
ROUTED (BASIC)	72"	55"	40"	24"
ROUTED (DECREASED)	60"	47"	37"	24"

DETAILS



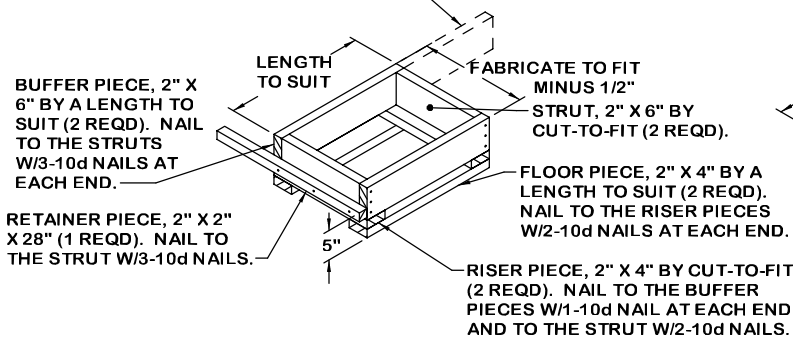
ALTERNATIVE FORWARD LOADING PATTERN A

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 ROUTED DUNNAGE METHOD UNIT (BASIC HEIGHT) IS SHOWN. 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 BEHID THE STACKED PALLETS IN THE FRONT OF THE TRAILER IS ONLY ONE HIGH, TWO STACK UNITIZINS STRAPS MUST BE INSTALLED AROUND THOSE PALLET UNITS IN THE FRONT STACK. THE ROUTED DUNNAGE METHOD (BASIC HEIGHT) IS SHOWN. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OTHER UNITS DEPICTED ON PAGE 3.

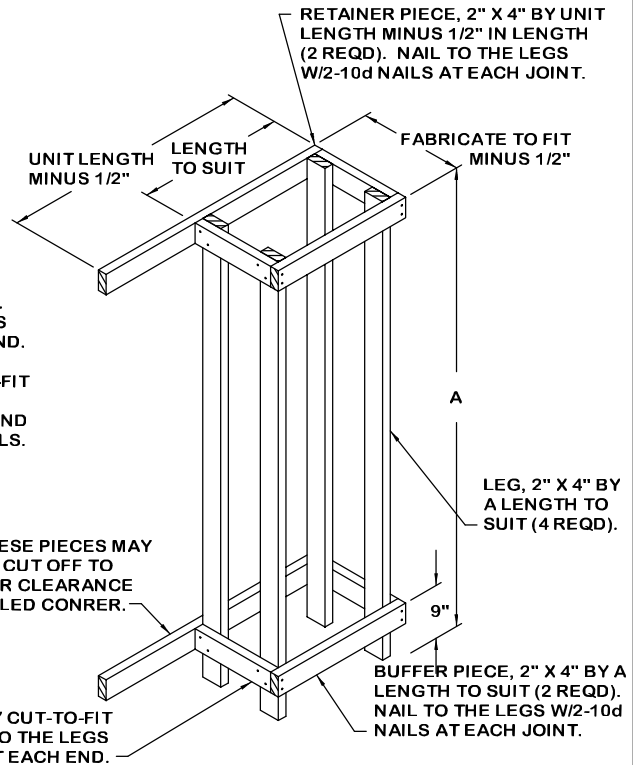
IF THE LONGITUDINALLY ADJACENT LOAD UNIT IS STACKED AND SECURED WITH STRAPPING AND STRAPPING BOARD ASSEMBLIES, THIS BUFFER PIECE MUST BE EXTENDED TO WITHIN 1/2" OF THE FRONT WALL OF THE TRAILER IN LIEU OF USING THE RETAINER PIECE.



SPACER ASSEMBLY B

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.

ENDS OF THESE PIECES MAY NEED TO BE CUT OFF TO PROVIDE FOR CLEARANCE OF THE ANGLED CONRER.



SPACER ASSEMBLY C

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 180° FROM THE POSITION IN WHICH IT WILL BE INSTALLED IN A LOAD. RIGHT HAND AND LEFT HAND SPACER ASSEMBLIES ARE REQUIRED.

SPACER ASSEMBLY C CHART	
PALLET UNIT TYPE	DIM A
FLAT (BASIC) ▲	62"
FLAT (DECREASED)	54"
ROUTED (BASIC) ●	60"
ROUTED (DECREASED)	53"
▲ BASIC W/DECREASED ON TOP	62"
● BASIC W/DECREASED ON TOP	60"

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