LOADING AND BRACING (TL & LTL) IN VAN TRAILERS* OF MINIATURE AIR LAUNCHED DECOY (MALD) (ADM-160) PACKED IN CNU-683 CONTAINERS

INDEX

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

U.S. ARMY MATERIEL COMMAND DRAWING

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JUNE 2008

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CLASS	DIVISION	DRAWING	FILE
19	48	8863	SP11J123

PROJECT SP 562-07

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 SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF MINIATURE AIR LAUNCHED DECOY (MALD) (ADM-160) PACKED IN CNU-683 CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MALD ITEMS. SEE PAGE 3 AND RAYTHEON DRAWING 2280133 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE VAN TRAILERS MUST NOT BE EXCEEDED.

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 FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY VEHICLES IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS WILL BE SELECTED FOR USE.

E. GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF 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 34,000 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 ON A TRAILER WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, 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. SOME LOADS ARE SHOWN IN TRAILERS HAVING ROUNDED CORNERS AT THE FORWARD END. IF THE CONVENTIONAL VAN TRAILER BEING USED IS EQUIPPED WITH A SQUARE FRONT OR WITH AN INSTALLED BULKHEAD, OMIT THE FORWARD BULKHEAD, OR MODIFY AS DESCRIBED ON PAGES 12, 13 AND 14.

K. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 14 FOR GUIDANCE.

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(GENERAL NOTES CONTINUED)

L. 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.

M. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES THAT ARE TO BE USED IN THE DELINEATED TRAILER LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH ASTM F1667 AS NEARLY AS PRACTICABLE. STAPLES THAT 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.

N. 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 CENTER BLOCKING ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE ASSEMBLIES W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND QUANTITY OF THE LUMBER USED IN THESE ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER.

O. 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.

P. IF THE SPACE AT THE REAR OF THE LOAD BETWEEN THE CONTAINERS AND THE REAR DOOR MEASURES 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. IF THE SPACE AT THE REAR OF THE LOAD IS GREATER THAN 1-1/2" BUT LESS THAN 9", USE THE "REAR BLOCKING ASSEMBLY A" ON PAGE 12. IF THE SPACE AT THE REAR OF THE LOAD IS 9" OR GREATER, USE THE "REAR BLOCKING ASSEMBLY B" ON PAGE 13. NOTE: REAR BLOCKING ASSEMBLIES AND FORWARD BLOCKING ASSEMBLIES MAY BE REPLACED WITH NAILED HEADERS, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE LOAD ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE. CAUTION: THE NAILED HEADER METHOD IS REQUIRED WHEN LOADING VAN TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS.

Q. PORTIONS OF THE TRAILERS, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

R. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF CNU-683 CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM OTHER THAN THE SPECIFIED MALD, OR WHEN THEY ARE EMPTY.

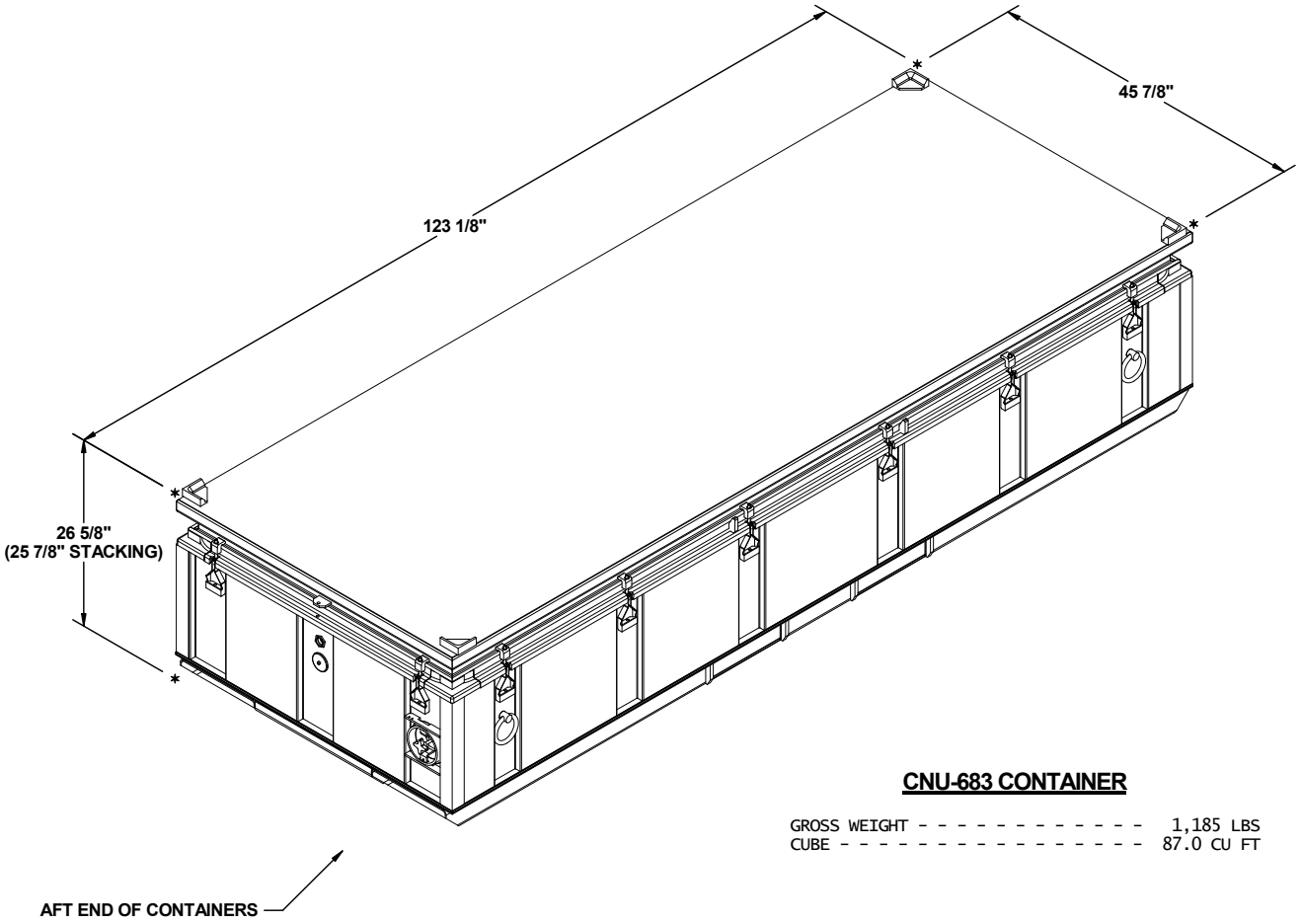
S. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.

T. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN CONTAINERS AND STEEL STRAPPING, IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS.

U. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM, AND ONE POUND EQUALS 0.454 KG.

MATERIAL SPECIFICATIONS

LUMBER - - - - - - - -:	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
NAILS - - - - - - - -:	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).
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.
ANTI-CHAFING MATERIAL - - - - - -:	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
WIRE, CARBON STEEL -:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.



CNU-683 CONTAINER

GROSS WEIGHT - - - - - - - - - - - - - 1,185 LBS
CUBE - - - - - - - - - - - - - - - - - 87.0 CU FT

UNITIZATION AND HANDLING GUIDANCE

1. STACKING CONTAINERS FOR LOADING:

   A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.

   B. POSITION THE FORWARD END OF AN UPPER CONTAINER ABOVE THE FORWARD END OF THE NEXT LOWER CONTAINER.

   C. THE CONTAINER SKIDS OF AN UPPER CONTAINER SHOULD BE FULLY SEATED AGAINST THE SKID LOCATOR PIECES ON THE COVER OF THE NEXT LOWER CONTAINER.

2. INSTALLATION OF UNITIZING STRAPS:

   A. STRAPS WILL BE POSITIONSED SO AS TO ENCIRCLE THE CONTAINERS AND SO THAT THE STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACE OF THE CONTAINER; I.E., VERTICAL ALONG THE SIDES AND FLAT ACROSS THE TOP AND BOTTOM OF THE STACK.

   B. PLACE ANTI-CHAFING NEUTRAL BARRIER MATERIAL UNDER THE STRAPPING AT ALL POINTS OF CONTACT WITH THE CONTAINER AND SECURE TO PREVENT DISLODGEMENT DURING AND AFTER STRAP APPLICATION. STRIPS OF ANTI-CHAFING MATERIAL MAY BE TAPED OR STRING-TIED TO THE CONTAINER OR STRAPPING, OR IT CAN BE FORMED INTO STRAP ENCIRCLING TUBES BY WINDING THE MATERIAL AROUND THE STRAPPING TO FORM A SELF-HOLDING UNIT.

   C. STRAPPING WILL BE FIRMLY TENSIONED AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE CRIPLED STRAP SEALS. SEE GENERAL NOTE "K" ON PAGE 2. THE LAP JOINTS WILL BE MADE ALONG THE SIDE OF THE STACK AS SHOWN. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

(CONTINUED AT RIGHT)

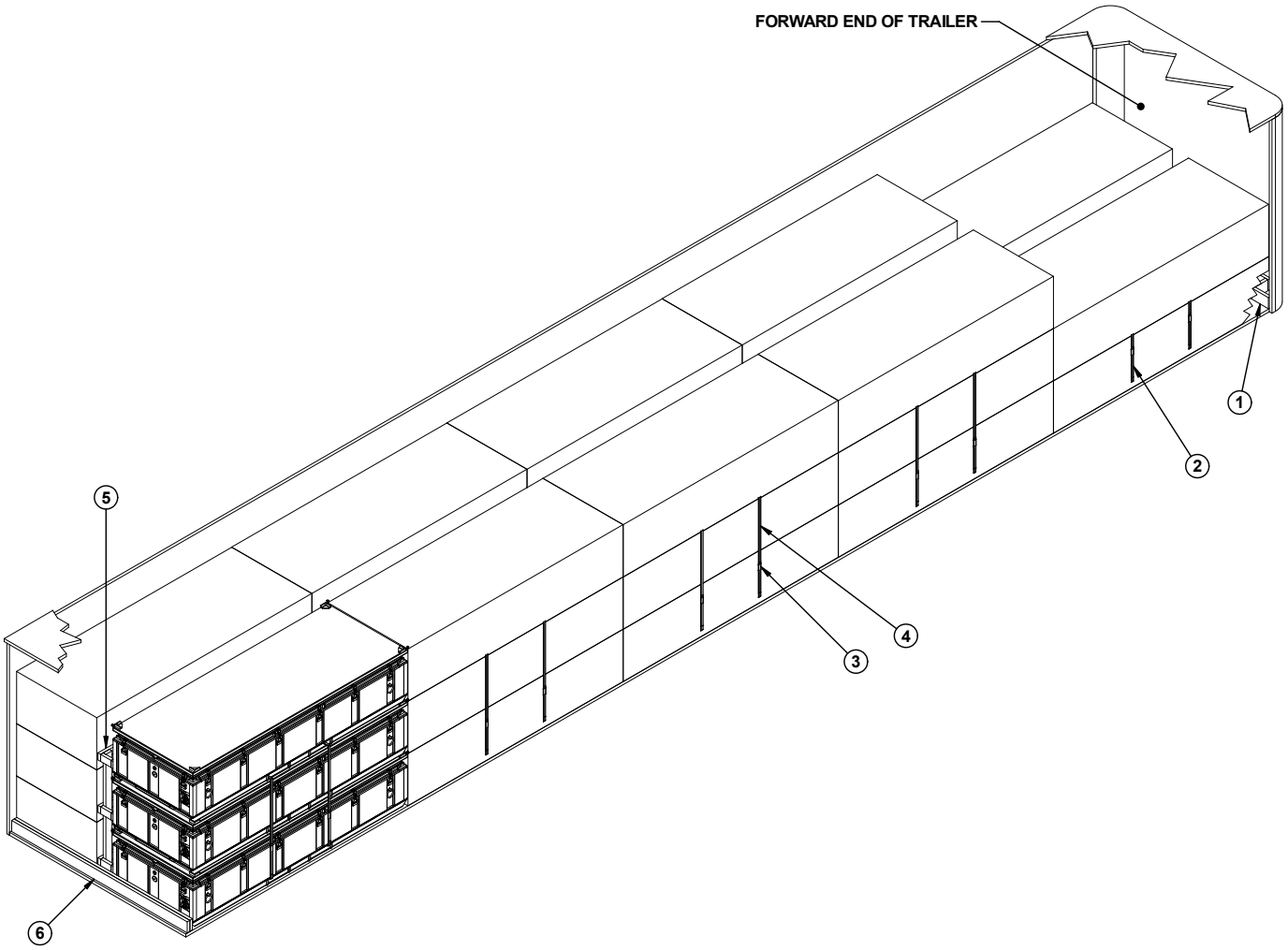
(UNITIZATION AND HANDLING GUIDANCE CONTINUED)

3. CONTAINER OR CONTAINER STACK HANDLING:

   A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS. APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.

   B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

   C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER, TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. IF ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CONTAINER. DO NOT HANDLE STACKED CONTAINERS WITH A SLING.



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 12.

② STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-8" LONG STEEL STRAPPING (4 REQD, 2 PER STACK). INSTALL THROUGH FORKLIFT OPENINGS, AS FAR APART AS ALLOWABLE.

③ SEAL FOR 1-1/4" STEEL STRAPPING (20 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.

④ STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-2" LONG STEEL STRAPPING (16 REQD, 2 PER STACK). INSTALL THROUGH FORKLIFT OPENINGS, AS FAR APART AS ALLOWABLE.

⑤ CENTER BLOCKING ASSEMBLY (5 REQD). SEE DETAIL ON PAGE 13.

⑥ REAR BLOCKING ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 12.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4" 2" X 6"	403 34	269 34
NAILS	NO. REQD	POUNDS
10d (3")	368	5-3/4
STEEL STRAPPING, 1-1/4" - 326' REQD - 46-1/2 LBS SEAL FOR 1-1/4" STRAPPING - 20 REQD - - - - 1 LB		

LOAD AS SHOWN

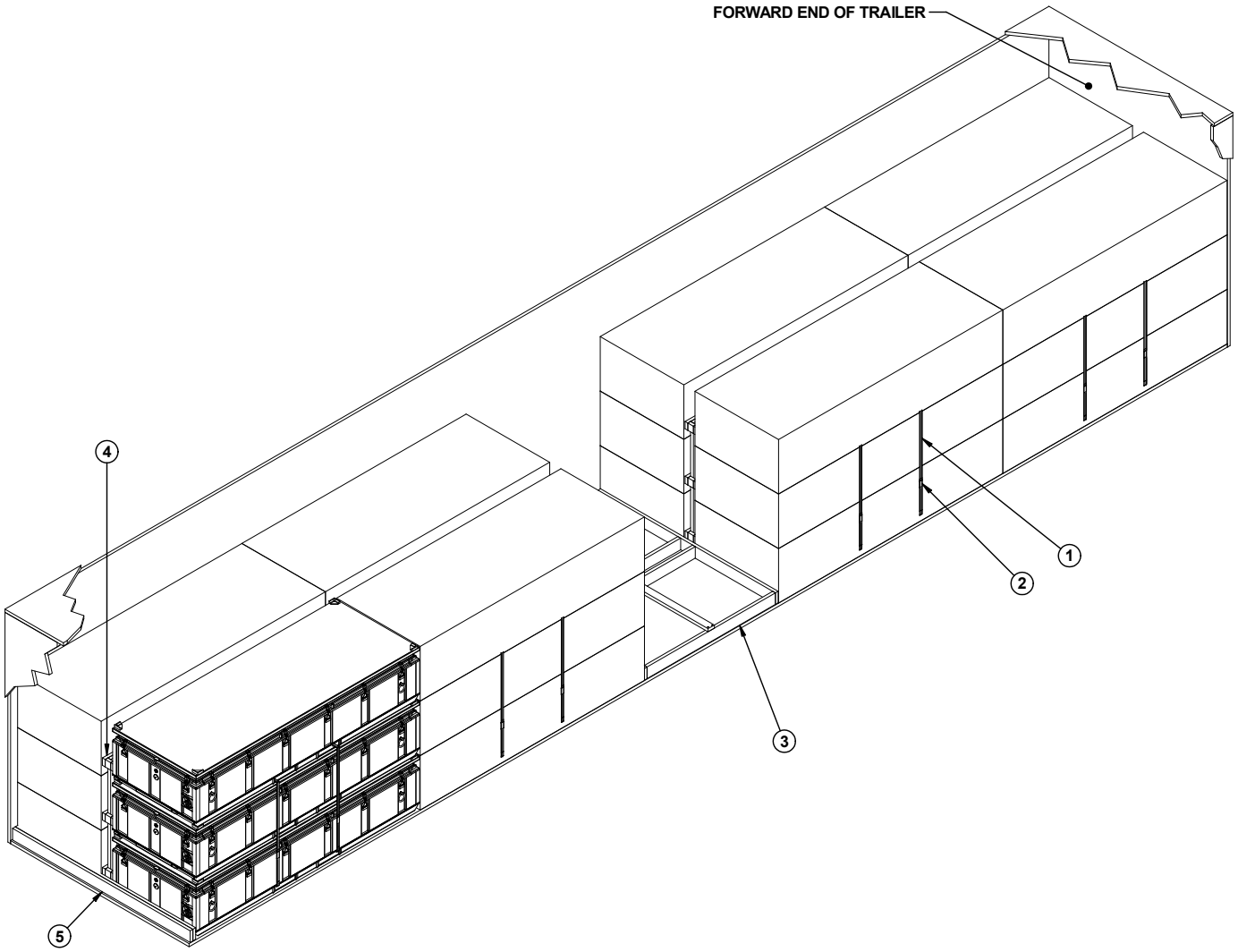
ITEM	QUANTITY	WEIGHT (APPROX)
CNU-683	28	33,180 LBS
DUNNAGE		659 LBS
	TOTAL WEIGHT	33,839 LBS (APPROX)

28 UNIT LOAD IN A 53'-0" LONG BY 8'-5" WIDE VAN TRAILER

SPECIAL NOTES:

1. **A 53'-0" LONG BY 8'-5" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.**
2. **A TRAILER EQUIPPED WITH ROUNDED FRONT CORNERS IS SHOWN. IF THE TRAILER TO BE LOADED HAS A SQUARE FRONT, OMIT THE FORWARD BLOCKING ASSEMBLY.**
3. **CENTER BLOCKING ASSEMBLIES ARE NOT REQUIRED IF THE TOTAL VOID ACROSS THE WIDTH OF THE LOAD IS 6" OR LESS.**
4. **CONTAINERS MUST BE UNITIZED INTO STACKS OF THREE OR TWO PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.**
5. **IF THE SPACE AT THE REAR OF THE LOAD IS MORE THAN 9", THE REAR BLOCKING ASSEMBLY "B" WILL BE USED IN LIEU OF THE DEPICTED REAR BLOCKING ASSEMBLY. SEE DETAIL ON PAGE 13. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. NOTE: THE REAR BLOCKING ASSEMBLY MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE NAILED HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE.**
6. **THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. IF OMITTING ONE CONTAINER, A THIRD LAYER CONTAINER IN A FORWARD THREE LAYER LOAD UNIT SHOULD BE LEFT OUT. ADDITIONAL CONTAINERS CAN BE OMITTED AS DESIRED. ADJUST THE LENGTH OF THE UNITIZING STRAPS APPROPRIATELY.**

28 UNIT LOAD IN A 53'-0" LONG BY 8'-5" WIDE VAN TRAILER



ISOMETRIC VIEW

KEY NUMBERS

① STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-2" LONG STEEL STRAPPING (16 REQD, 2 PER STACK). INSTALL THROUGH FORKLIFT OPENINGS, AS FAR APART AS ALLOWABLE.

② SEAL FOR 1-1/4" STEEL STRAPPING (16 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.

③ SPACER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 14.

④ CENTER BLOCKING ASSEMBLY (4 REQD.) SEE DETAIL ON PAGE 13.

⑤ REAR BLOCKING ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 12.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4" 2" X 6"	336 56	224 56
NAILS	NO. REQD	POUNDS
10d (3")	320	5
STEEL STRAPPING, 1-1/4" - 275' REQD - - - 39 LBS SEAL FOR 1-1/4" STRAPPING - 16 REQD - - 3/4 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-683	24	28,440 LBS
DUNNAGE		606 LBS
	TOTAL WEIGHT	29,046 LBS (APPROX)

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

SPECIAL NOTES:

1. A 48'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.

2. A TRAILER EQUIPPED WITH A SQUARE FRONT IS SHOWN. IF THE TRAILER TO BE LOADED HAS ROUNDED FRONT CORNERS, ADD THE FORWARD BLOCKING ASSEMBLY.

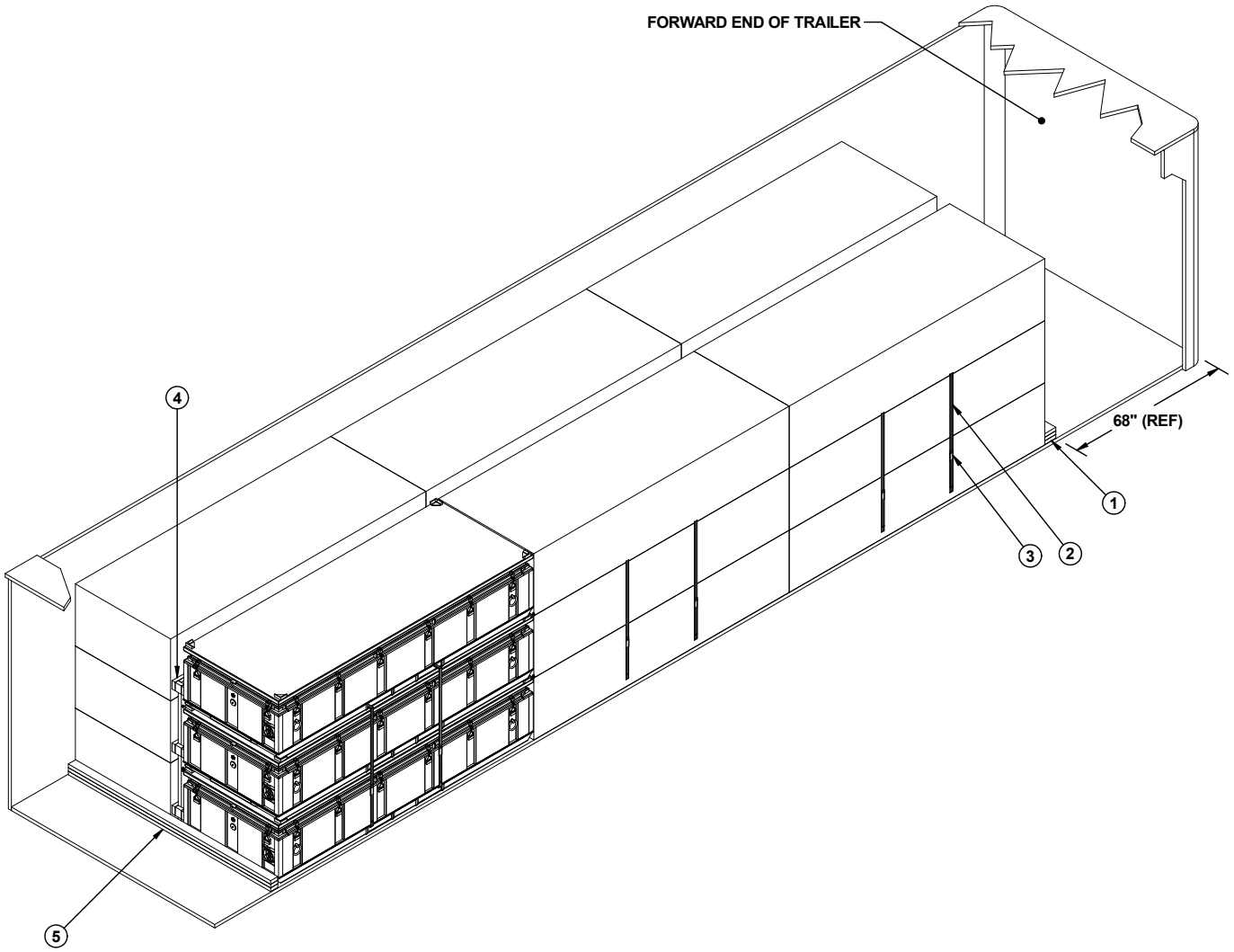
3. CENTER BLOCKING ASSEMBLIES ARE NOT REQUIRED IF THE TOTAL VOID ACROSS THE WIDTH OF THE LOAD IS 6" OR LESS.

4. CONTAINERS MUST BE UNITIZED INTO STACKS OF THREE PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.

5. IF THE SPACE AT THE REAR OF THE LOAD IS MORE THAN 9", THE REAR BLOCKING ASSEMBLY "B" WILL BE USED IN LIEU OF THE DEPICTED REAR BLOCKING ASSEMBLY. SEE DETAIL ON PAGE 13. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED. NOTE: THE REAR BLOCKING ASSEMBLY MAY BE REPLACED WITH NAILED HEADERS AT THE REAR OF THE LOAD, PROVIDED THE TRAILER IS CONFIGURED SUCH AS TO ALLOW NAILING IN THE AREA IN QUESTION. REFER TO THE NAILED HEADER ON PAGE 8 AND THE HEADER NAILING CHARTS ON PAGE 9 FOR GUIDANCE.

6. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. IF OMITTING ONE CONTAINER, A THIRD LAYER CONTAINER IN A FORWARD LOAD UNIT SHOULD BE LEFT OUT. ADDITIONAL CONTAINERS CAN BE OMITTED AS DESIRED. ADJUST THE LENGTH OF THE UNITIZING STRAPS APPROPRIATELY.

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



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (TRIPLED) (1 REQD). POSITION AS SHOWN, TIGHT AGAINST FORWARD CNU-683 CONTAINERS, AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST AND THE THIRD PIECE TO THE SECOND W/6-20d NAILS EACH. SEE THE HEADER NAILING CHARTS ON PAGE 9.

② STACK UNITIZING STRAP, 1-1/4" X .035" OR .031" X 17'-2" LONG STEEL STRAPPING (12 REQD, 2 PER STACK). INSTALL THROUGH FORKLIFT OPENINGS, AS FAR APART AS ALLOWABLE.

③ SEAL FOR 1-1/4" STEEL STRAPPING (12 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.

④ CENTER BLOCKING ASSEMBLY (3 REQD.) SEE DETAIL ON PAGE 13.

⑤ REAR HEADER, 2" X 4" BY TRAILER WIDTH MINUS 1/2" (TRIPLED) (1 REQD). POSITION AS SHOWN, TIGHT AGAINST REAR CNU-683 CONTAINERS, AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/9-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST AND THE THIRD PIECE TO THE SECOND W/9-10d NAILS EACH. SEE THE HEADER NAILING CHARTS ON PAGE 9.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4" 2" X 6"	276 24	184 24
NAILS	NO. REQD	POUNDS
10d (3") 20d (4")	249 12	3-3/4 1/2
STEEL STRAPPING, 1-1/4" - 206' REQD - 29-1/2 LBS SEAL FOR 1-1/4" STRAPPING - 12 REQD - - 1/2 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-683	18	21,330 LBS
DUNNAGE		450 LBS
	TOTAL WEIGHT	21,780 LBS (APPROX)

18 UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE 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 TRIPLED 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, THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-20d NAILS, AND THE THIRD BOARD IS LAMINATED TO THE SECOND W/8-20d NAILS, FOR A TOTAL OF 8-10d AND 16-20d NAILS PER HEADER. A MINIMUM OF 6 PAIRS OF NAILS WILL BE USED FOR TRAILER WIDTH HEADERS.

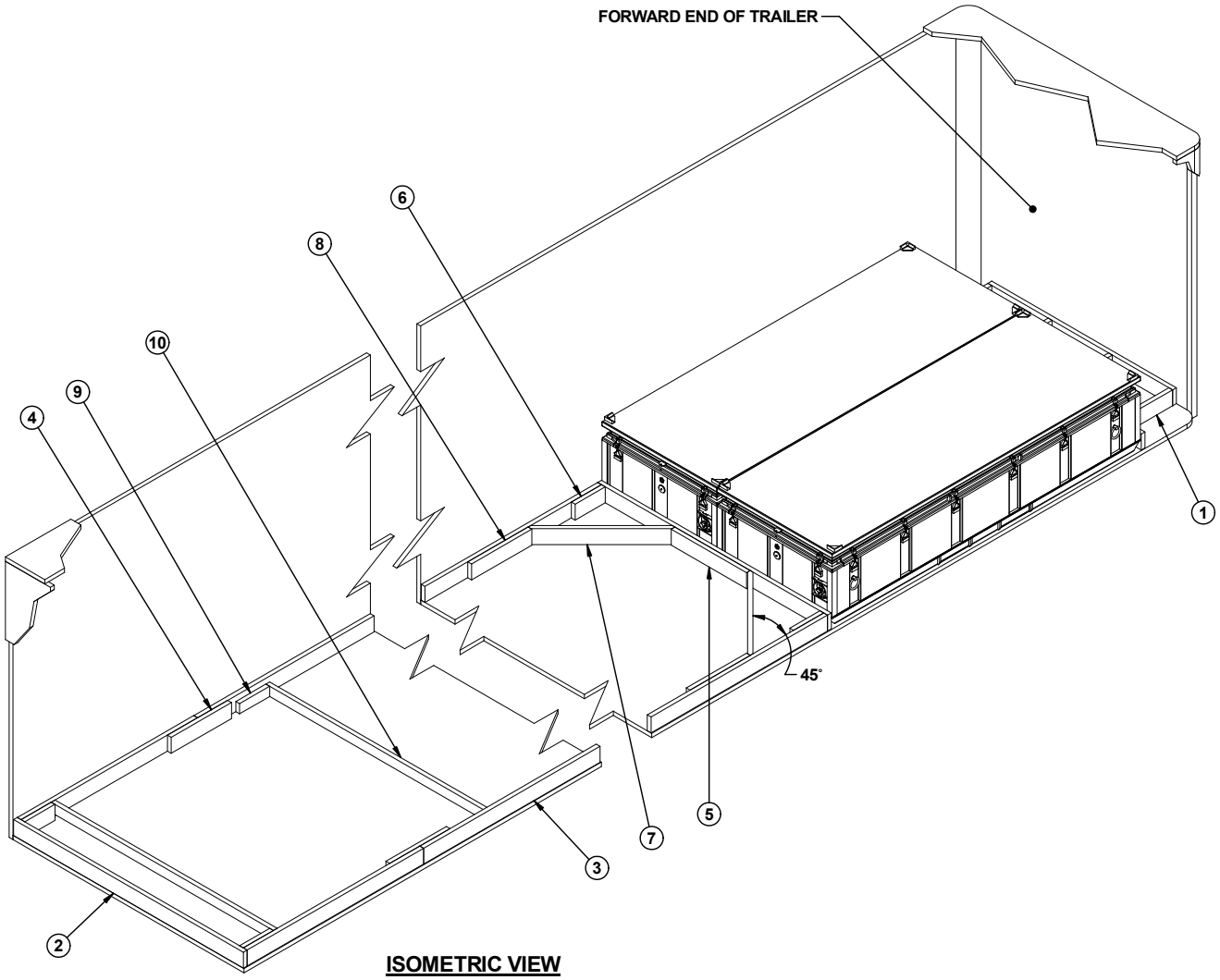
REAR HEADER NAILING CHART^	
# NAILS	MAX. LOAD WEIGHT (LBS)
6	15,000
7	17,500
8	20,000
9	22,500
10	25,000
11	27,500
12	30,000
13	32,500
14	35,000
15	37,500
16	40,000
17	42,500
18	45,000

^HEADERS AT THE REAR OF A FULL LOAD OR AT THE REAR END OF A DIVIDED LOAD WILL BE TRIPLED 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, THE SECOND BOARD IS LAMINATED TO THE FIRST W/8-10d NAILS, AND THE THIRD BOARD IS LAMINATED TO THE SECOND W/8-10d NAILS, FOR A TOTAL OF 24-10d NAILS. A MINIMUM OF 6 PAIRS OF NAILS WILL BE USED FOR TRAILER WIDTH HEADERS. 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 40'-0" LONG BY 8'-2" WIDE (INSIDE DIMENSION) CONVENTIONAL VAN TRAILER IS SHOWN. TRAILERS OF OTHER DIMENSIONS CAN BE USED.
2. THE NAILED FORWARD HEADER MAY BE REPLACED WITH THE FORWARD BLOCKING ASSEMBLY. SEE DETAIL ON PAGE 12.
3. A TRAILER EQUIPPED WITH ROUNDED FRONT CORNERS IS SHOWN. IF THE TRAILER TO BE LOADED HAS A SQUARE FRONT, OMIT THE FORWARD HEADER OR FORWARD BLOCKING ASSEMBLY.
4. CENTER BLOCKING ASSEMBLIES ARE NOT REQUIRED IF THE TOTAL VOID ACROSS THE WIDTH OF THE LOAD IS 6" OR LESS.
5. CONTAINERS MUST BE UNITIZED INTO STACKS OF THREE OR TWO PRIOR TO LOADING INTO THE VAN TRAILER. THE STACKS WILL BE FORMED AT THE REAR OF THE TRAILER BY POSITIONING THE CONTAINERS WITH ONE END RESTING JUST INSIDE THE REAR OF THE TRAILER. ONE CONTAINER WILL BE POSITIONED ON TOP OF ANOTHER UNTIL THE DESIRED STACK HEIGHT IS REACHED. THE UNITIZING STRAPS WILL BE INSTALLED AND THE STACK CAN THEN BE PARTIALLY LIFTED FROM THE REAR AND PUSHED INTO THE TRAILER. USE CAUTION SO AS NOT TO DAMAGE THE CONTAINERS.
6. THE NAILED REAR HEADER MAY BE REPLACED WITH A REAR BLOCKING ASSEMBLY. IF THE SPACE AT THE REAR OF THE LOAD IS MORE THAN 9", THE REAR BLOCKING ASSEMBLY "B" WILL BE USED. SEE DETAIL ON PAGE 13. IF THE SPACE AT THE REAR OF THE LOAD IS LESS THAN 9", THE REAR BLOCKING ASSEMBLY "A" WILL BE USED. SEE DETAIL ON PAGE 12. IF THE SPACE AT THE REAR OF THE LOAD IS 1-1/2" OR LESS, REAR BLOCKING IS NOT REQUIRED.
7. THE DEPICTED LOAD CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED, OR TO SUIT THE WEIGHT OF THE UNIT BEING LOADED. IF OMITTING ONE CONTAINER, A THIRD LAYER CONTAINER IN A FORWARD LOAD UNIT SHOULD BE LEFT OUT. ADDITIONAL CONTAINERS CAN BE OMITTED AS DESIRED. ADJUST THE LENGTH OF THE UNITIZING STRAPS APPROPRIATELY.

18 UNIT LOAD IN A 40'-0" LONG BY 8'-2" WIDE VAN TRAILER



ISOMETRIC VIEW

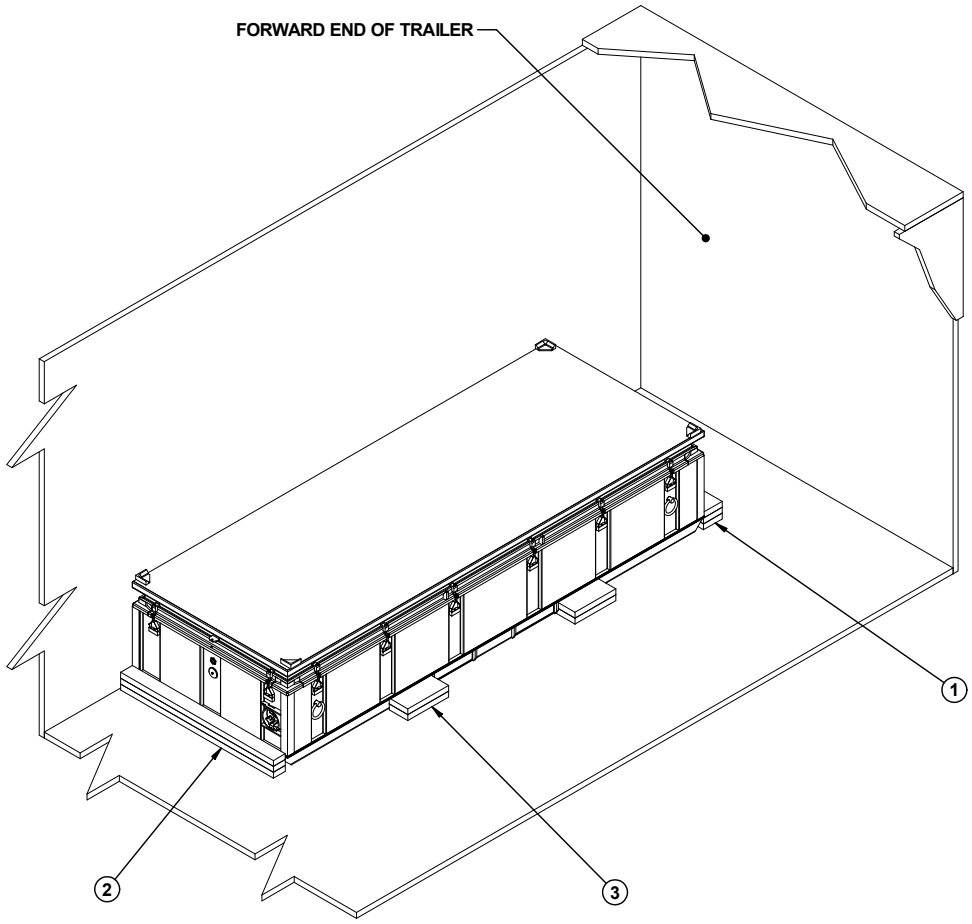
SPECIAL NOTES:

1. A 7'-8" WIDE (INSIDE DIMENSION) VAN TRAILER IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. A TRAILER EQUIPPED WITH ROUNDED FRONT CORNERS IS SHOWN. IF THE TRAILER TO BE LOADED HAS A SQUARE FRONT, OMIT THE FORWARD BLOCKING ASSEMBLY.
3. CENTER BLOCKING ASSEMBLIES ARE REQUIRED IF THE TOTAL UNBLOCKED SPACE ACROSS THE WIDTH OF THE LOAD EXCEEDS 6". SEE THE LOAD ON PAGE 4 FOR DETAILS.
4. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF SUCH IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 6" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10d NAILS AT EACH END. IF DESIRED, THE STRUT BRACE PIECE(S) MAY BE NAILED TO THE SPLICE PIECES IN LIEU OF USING ADDITIONAL STRUT BRACE CLEATS.
5. ALL LTL LOADS, REGARDLESS OF THEIR SIZE, REQUIRE ONE STRUT BRACE POSITIONED AT THE REAR OF THE TRAILER AND NAILED TO THE POCKET CLEAT. IF THE SIDE STRUTS ARE LONGER THAN 7'-0", AN ADDITIONAL STRUT BRACE AND TWO STRUT BRACE CLEATS MUST BE APPLIED FOR EVERY 7'-0" OF SIDE STRUT LENGTH.
6. THE "K-BRACE" BLOCKING IS ADEQUATE FOR RETAINING A MAXIMUM LTL LOAD OF 20,000 POUNDS.
7. TRAILERS EQUIPPED WITH ROLL-UP TYPE DOORS MAY BE USED; HOWEVER, THE NAILED-HEADER METHOD OF REAR BLOCKING MUST BE INSTALLED IN LIEU OF THE "K-BRACE" TYPE BLOCKING. REFER TO THE LOAD ON PAGE 8 FOR GUIDANCE. NOTE THAT THE NAILED-HEADER METHOD OF REAR BLOCKING MAY ALSO BE USED IN TRAILERS EQUIPPED WITH HINGED DOORS AND NAILABLE FLOORS, AND MAY BE USED IN LIEU OF THE "K-BRACE" PIECES WHICH APPLY TO TRAILERS HAVING NON-NAILABLE FLOORS.

KEY NUMBERS

1. FORWARD BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 12.
2. HEADER, 2" X 6" BY TRAILER WIDTH MINUS 1/2" (2 REQD).
3. SIDE STRUT, 2" X 6" BY CUT TO FIT BETWEEN THE FORWARD AND REAR HEADERS (2 REQD). SEE SPECIAL NOTE 4 AT LEFT.
4. SPLICE PIECE, 2" X 6" X 24" (AS REQD). CENTER ON THE JOINT OF THE SIDE STRUTS AND NAIL W/4-10d NAILS AT EACH END. SEE SPECIAL NOTE 4 AT LEFT.
5. CENTER CLEAT, 2" X 6" X 30" (1 REQD). NAIL TO THE FORWARD HEADER W/6-10d NAILS.
6. POCKET CLEAT, 2" X 6" X 12" (4 REQD). NAIL TO A SIDE STRUT W/5-10d NAILS AND TOENAIL TO THE HEADER W/3-12d NAILS.
7. DIAGONAL BRACE, 2" X 6" BY CUT TO FIT (2 REQD). DOUBLE BEVEL EACH END WITH 45º CUTS. INSTALL AS SHOWN AND TOENAIL TO THE HEADER AND THE SIDE STRUT W/2-16d NAILS AT EACH END.
8. BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). POSITION ON THE SIDE STRUT TO HOLD THE DIAGONAL BRACE IN PLACE AND NAIL TO THE SIDE STRUT W/8-10d NAILS.
9. STRUT BRACE CLEAT, 2" X 4" X 12" (AS REQD). NAIL TO THE SIDE STRUT W/3-10d NAILS. SEE SPECIAL NOTE 5 AT LEFT.
10. STRUT BRACE, 2" X 4" BY TRAILER WIDTH MINUS 3" (CUT TO FIT) (MINIMUM OF ONE REQD). NAIL TO THE POCKET CLEATS AND/OR STRUT BRACE CLEATS W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 5 AT LEFT.

TYPICAL LTL (2 UNIT)



ISOMETRIC VIEW

SPECIAL NOTES:

1. AN 8'-2" WIDE (INSIDE DIMENSION) VAN TRAILER WHICH HAS A NAILABLE FLOOR IS SHOWN. TRAILERS OF OTHER WIDTHS CAN BE USED.
2. MORE THAN ONE CONTAINER CAN BE SHIPPED. THE LOAD SHOULD BE FORMED IN ROWS, WITH THE CONTAINERS POSITIONED ADJACENT TO EACH OTHER. IF TWO CONTAINERS ARE SHIPPED, AN OPTION WOULD BE TO POSITION THE CONTAINERS AGAINST OPPOSITE SIDEWALLS, AND THE SIDE BLOCKING ASSEMBLY A COULD BE USED AS A CENTER BLOCKING ASSEMBLY IF DESIRED, WITH THE STRUTS CUT-TO-FIT.
3. THE HEADER AS APPLIED ABOVE FOR LONGITUDINAL BRACING WILL SUPPORT 10,000 POUNDS OF LADING; A TRAILER WIDTH HEADER WILL SUPPORT UP TO A FULL TRAILER LOAD OF CONTAINERS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

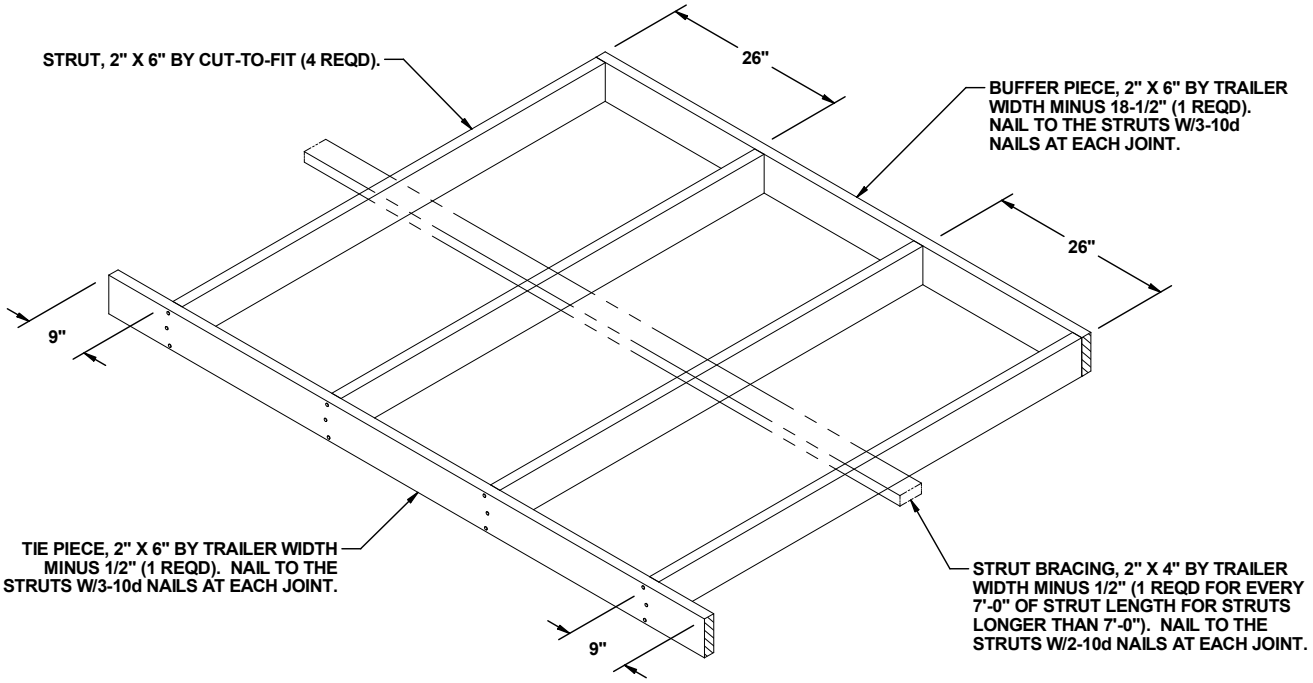
KEY NUMBERS

① FORWARD HEADER, 2" X 6" X 45" (TRIPLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL EACH ADDITIONAL PIECE TO PREVIOUS PIECE W/3-20d NAILS. SEE THE HEADER NAILING CHARTS ON PAGE 9.

② REAR HEADER, 2" X 4" X 45" (TRIPLED) (1 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/6-10d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER. SEE THE HEADER NAILING CHARTS ON PAGE 9.

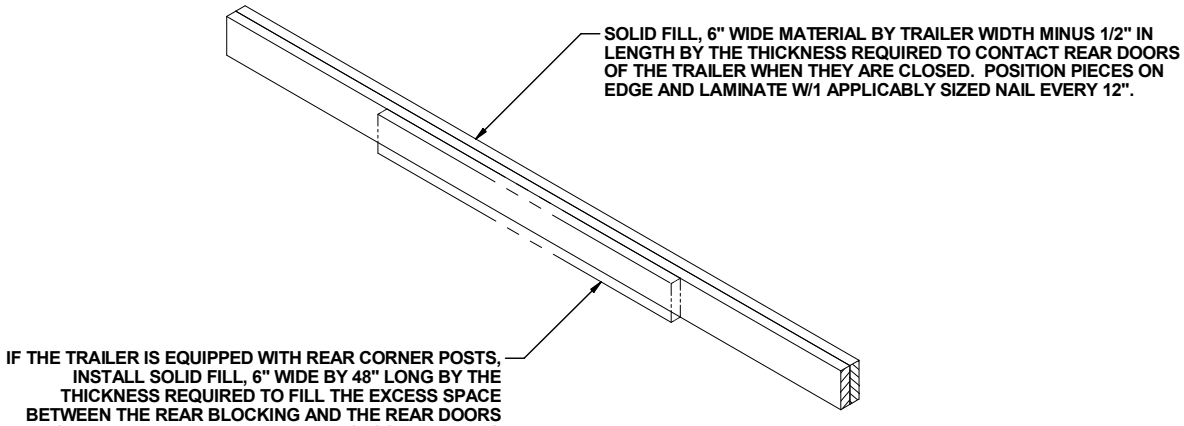
③ SIDE BLOCKING, 2" X 6" X 12" (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST PIECE IN A LIKE MANNER.

TYPICAL LTL (1 UNIT)

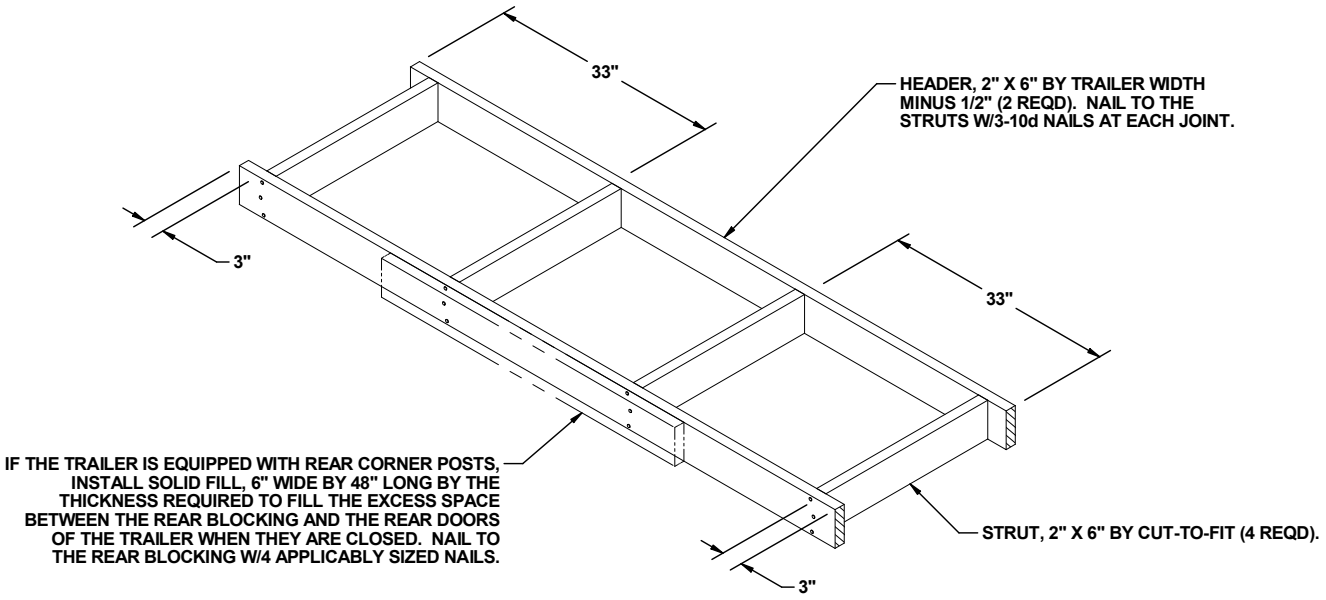


FORWARD BLOCKING ASSEMBLY

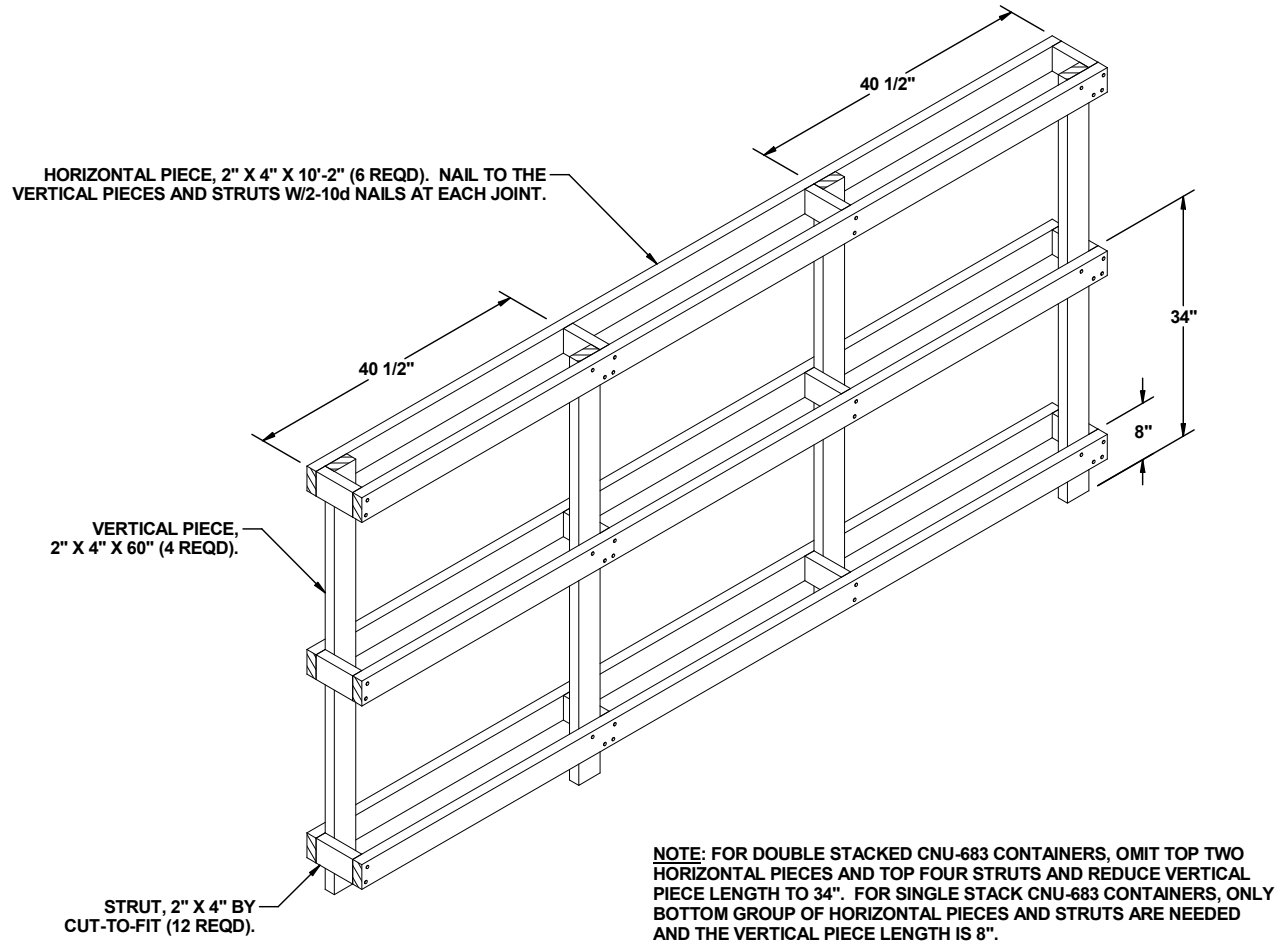
NOTE: IF THE TRAILER TO BE LOADED HAS SQUARE INSIDE FRONT CORNERS, INCREASE THE BUFFER PIECE LENGTH TO "INSIDE TRAILER WIDTH MINUS 1/2 INCH". INSTALL THE OUTER STRUTS 3" FROM THE ENDS OF THE BUFFER AND TIE PIECES AND INCREASE THE DISTANCE BETWEEN INNER AND OUTER STRUTS FROM 26" TO 32".



REAR BLOCKING ASSEMBLY A

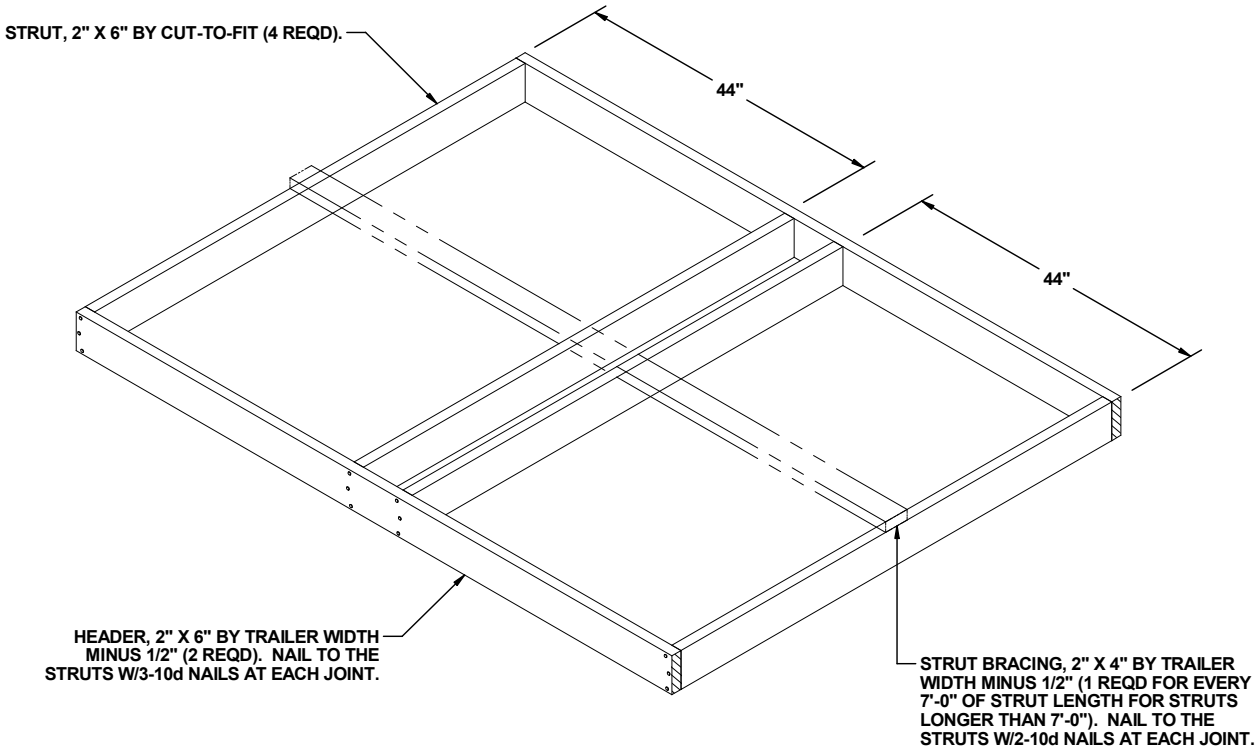


REAR BLOCKING ASSEMBLY B

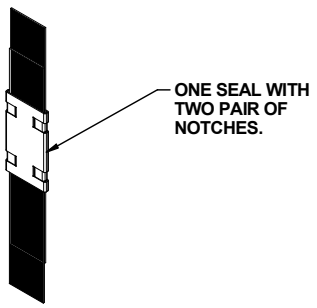


NOTE: FOR DOUBLE STACKED CNU-683 CONTAINERS, OMIT TOP TWO HORIZONTAL PIECES AND TOP FOUR STRUTS AND REDUCE VERTICAL PIECE LENGTH TO 34". FOR SINGLE STACK CNU-683 CONTAINERS, ONLY BOTTOM GROUP OF HORIZONTAL PIECES AND STRUTS ARE NEEDED AND THE VERTICAL PIECE LENGTH IS 8".

CENTER BLOCKING ASSEMBLY

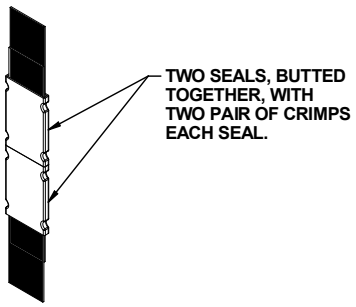


SPACER ASSEMBLY



STRAP JOINT A

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



STRAP JOINT B

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

END-OVER-END LAP JOINT DETAILS