

APPROVED BY
 BUREAU OF EXPLOSIVES
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LOADING AND BRACING IN A VEHICLE EQUIPPED WITH A MECHANICAL BRACING SYSTEM, OF CBU ITEMS PACKED IN THE CNU-104/E CONTAINER FOR CONTAINER/TRAILER-ON-FLAT-CAR (C/TOFC) SHIPMENT

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DO NOT SCALE

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THIS PROCEDURAL DRAWING IS APPLICABLE TO A TRAILER OR CONTAINER WHICH IS EQUIPPED WITH A MECHANICAL LOAD BRACING SYSTEM AS SPECIFIED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C AND APPENDICES THERETO. SUBSEQUENT REFERENCE TO A TRAILER THROUGHOUT THIS DOCUMENT MEANS A TRAILER OR CONTAINER. FOR TOFC AND/OR COFC SHIPMENTS, ONLY RAILCARS WHICH ARE SPECIFIED BY THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C, OR THE AFORE MENTIONED APPENDICES, WILL BE USED.
- C. THE LOAD AS SHOWN IS BASED ON A TRAILER WHICH IS 28'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) WITH A WOOD OR A WOOD AND METAL, OR A METAL FLOOR. THE DELINEATED OUTLOADING PROCEDURES ARE ALSO APPLICABLE TO LONGER TRAILERS AND TO TRAILERS WHICH ARE EIGHTY-NINE INCHES (89") THROUGH NINETY-THREE INCHES (93") IN WIDTH.
- D. THE HEIGHT LOCATION SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS IS IDENTICAL TO THAT RECOMMENDED IN THE BUREAU OF EXPLOSIVES PAMPHLET NO. 6C AND APPENDICES THERETO. **CAUTION:** TRAILERS EQUIPPED WITH FACILITIES WHICH DO NOT MEET THE LOCATION REQUIREMENT SPECIFIED HEREIN MUST NOT BE USED.
1. VOIDS WITHIN THE LENGTH OF A LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. ALSO, EACH CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM THE END OF THE TRAILER).
 2. CROSS MEMBERS IN EMPTY TRAILERS AND THOSE NOT USED IN LOADED TRAILERS MUST BE SECURED FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH TRAILER MUST REMAIN THERewith EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
 3. A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN WITHIN THE LOAD.
- E. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO CBU ITEMS WHEN PACKED IN THE CNU-104/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-104/E CONTAINER WITH CONTENTS. STACKING OF CONTAINERS IS RESTRICTED TO TWO (2) LAYERS HIGH.
- F. FOR DETAILS OF THE CNU-104/E CONTAINER SEE DRAWING NO 67E10255.
- CONTAINER SIMENSIONS ---- 154-1/2" LONG X 24-1/4" WIDE X 30-1/2" HIGH.
GROSS WEIGHT ----- 1,155 POUNDS (APPROX).
TARE WEIGHT ----- 185 POUNDS (APPROX).
- G. 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. NOTICE: A SHIPMENT WILL BE POSITIONED IN A TRAILER CONSISTENT WITH THE WEIGHT LAWS OF THE STATES THROUGH WHICH THE TRAILER WILL BE TRANSPORTED BY HIGHWAY (MOTOR CARRIER).
- H. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS SHOWN HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEM.
- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED INTO TRAILERS WHICH ARE PARTIALLY LOADED WITH THE DEPICTED 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.

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(GENERAL NOTES CONTINUED)

- K. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH EMPTY DISPENSERS OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEMS DESIGNATED WITHIN THE DRAWING TITLE.
- L. ONE AND ONE-QUARTER INCH (1-1/4") STEEL STRAPPING WILL BE USED TO UNITIZE STACKED CONTAINERS AS SHOWN ON PAGE 3, AND AS SPECIFIED BY THE APPLICABLE OUTLOADING METHODS DEPICTED HEREIN. IF THE CAPACITY OF THE MATERIAL HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD THE TRAILER PERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT WITHIN THE TRAILER. NOTICE: IN SOME INSTANCES, CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED STACKS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED.
- M. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT AS SHOWN, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. **CAUTION:** EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO CONTAINERS.
- N. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE.
- P. DO NOT NAIL BLOCKING SHOWN HEREIN TO THE TRAILER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- Q. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES.
- R. PORTIONS OF THE TRAILER BODY DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- S. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.

MATERIAL SPECIFICATIONS

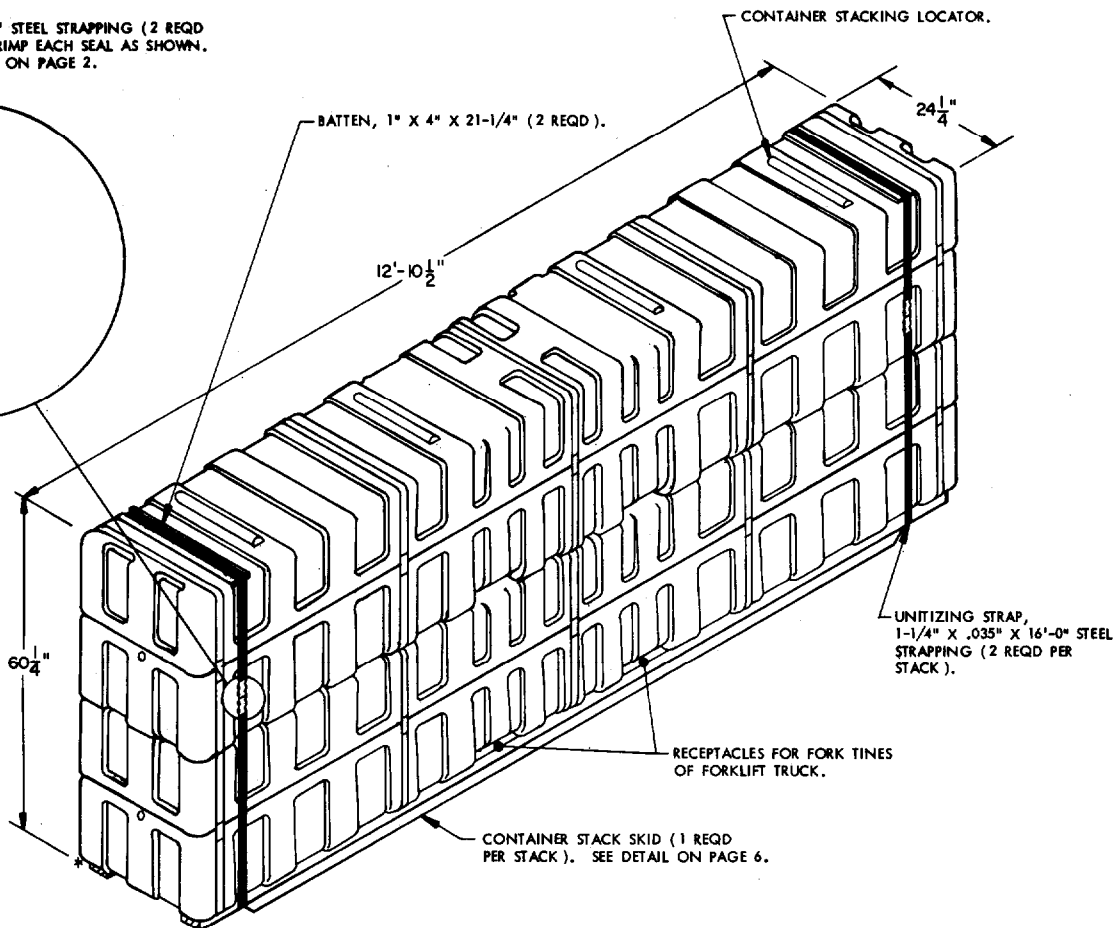
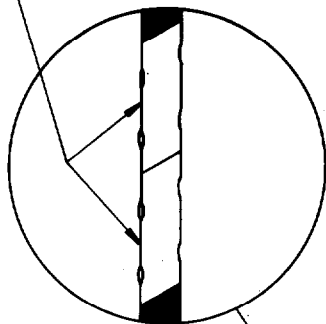
LUMBER ----- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.

NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED,
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.

STRAPPING, STEEL: TYPE I OR IV, CLASS A OR B OR C, FED SPEC QQ-5-781.

STRAP SEAL ---- : COMMERCIAL GRADE.

SEAL FOR 1-1/4" X .035" STEEL STRAPPING (2 REQD PER STRAP). DOUBLE CRIMP EACH SEAL AS SHOWN. SEE GENERAL NOTE "M" ON PAGE 2.



STACK DETAIL

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

1. STACKING CONTAINERS FOR UNITIZING.

- A. THE BOTTOM CONTAINER WILL BE ALIGNED WITH AND POSITIONED ON A "CONTAINER STACK SKID".
- B. THE TOP CONTAINER WILL BE FULLY SEATED ON THE CONTAINER STACKING LOCATORS OF THE BOTTOM CONTAINER AND AS NEARLY AS POSSIBLE IN VERTICAL ALIGNMENT. STACKING OF CONTAINERS IS RESTRICTED TO TWO (2) LAYERS HIGH.

2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTES "L" AND "M" ON PAGE 2.

- A. THE UNITIZING STRAP SHOULD BE POSITIONED AROUND THE CONTAINERS AND SKID AS SHOWN, AND PLACED SO THAT THE STRAPPING LAYS STRAIGHT AND FLAT WITH THE BODY SURFACE OF THE CONTAINERS; I.E., VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE STACK.
- B. PLACE THE BATTEN (1" X 4" X 21-1/4") UNDER THE STRAPPING ACROSS THE TOP OF THE STACK TO PREVENT STRAPPING FROM DAMAGING THE TOP CONTAINER.
- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE-CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINT WILL BE MADE ALONG THE SIDE OF THE STACK SO THAT THE SEALS WILL NOT BE IN CONTACT WITH THE CONTAINERS. 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.

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(UNITIZING AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

3. CONTAINER OR CONTAINER STACK HANDLING.

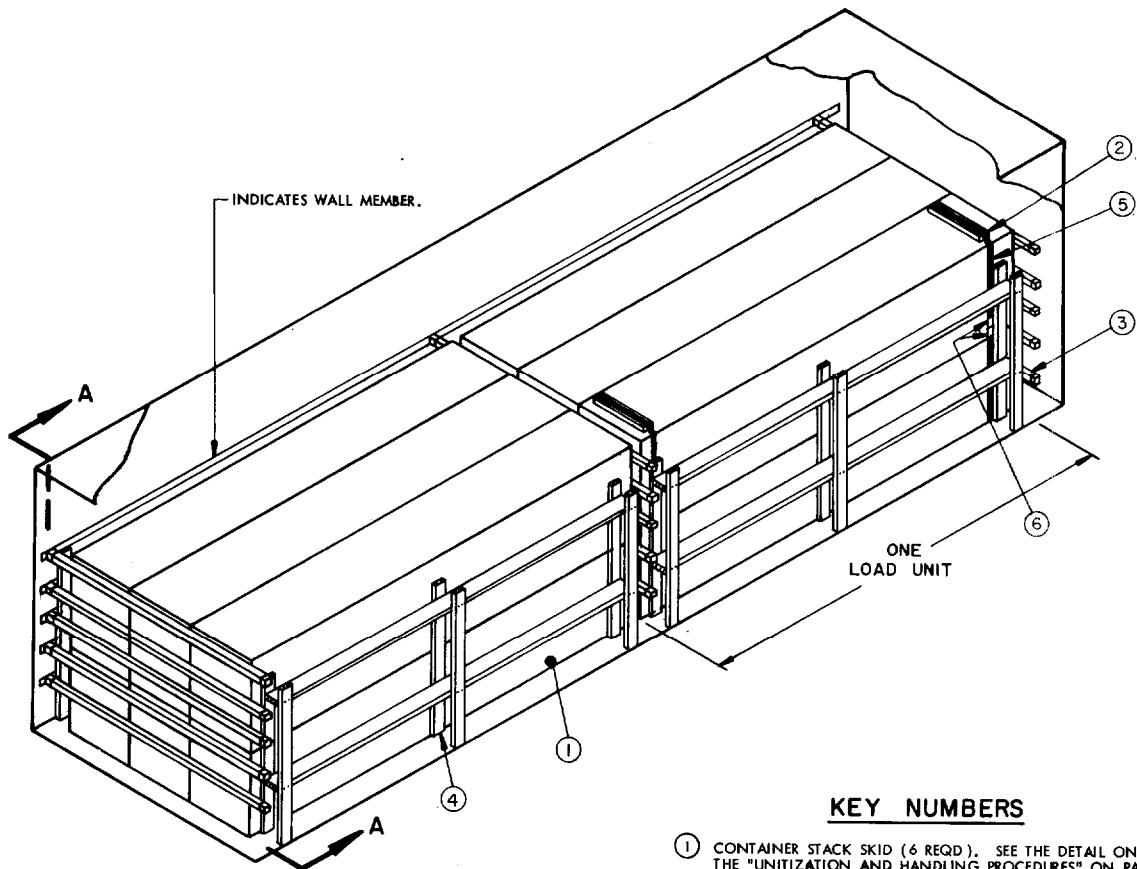
CAUTION: EXTREME CARE MUST BE EXERCISED DURING OUTLOADING OPERATIONS TO PREVENT DAMAGE TO THE EXPOSED PLASTIC AREA OF THE CONTAINER.

NOTES: (1) APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC) IS SPECIFIED ELSEWHERE THAN HEREIN.

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

A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.

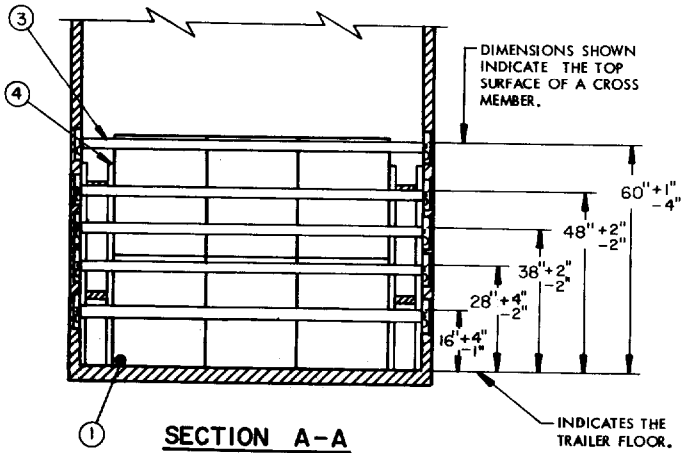
B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION WHENEVER POSSIBLE. IF DESIRED, STACKS MAY BE HANDLED BY CAREFULLY PLACING FORKLIFT TINES IN THE SIDE OPENINGS PROVIDED THEREFOR UNDER THE UPPER CONTAINER. **CAUTION:** THE USUALLY APPLIED END-HANDLING IS NOT PERMITTED; HOWEVER, FORK TINES MAY BE PLACED UNDER THE "CONTAINER STACK SKID" FROM AN END DIRECTION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER OR WITHDRAWING FORKS FROM UNDER THE "CONTAINER STACK SKID", TO PREVENT DAMAGE TO THE CONTAINERS BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.



ISOMETRIC VIEW

KEY NUMBERS

- ① CONTAINER STACK SKID (6 REQD.). SEE THE DETAIL ON PAGE 6 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3. ALSO, SEE GENERAL NOTE "Q" ON PAGE 2.
- ② BATTEN, 1" X 4" X 21-1/4" (12 REQD.). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
- ③ CROSS MEMBER (15 REQD.). POSITION AT THE HEIGHTS SHOWN IN THE "SECTION VIEW" BELOW. SEE GENERAL NOTE "D" ON PAGE 2.
- ④ SIDE BLOCKING (4 REQD.). SEE THE "SIDE ASSEMBLY A" DETAIL ON PAGE 6 AND SPECIAL NOTE 4 ON PAGE 5.
- ⑤ UNITIZING STRAP, 1-1/4" X .035" X 16'-0" STEEL STRAPPING (12 REQD.). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3, AND GENERAL NOTE "M" ON PAGE 2.
- ⑥ SEAL FOR 1-1/4" STRAPPING (24 REQD.; 2 PER STRAP JOINT).



SECTION A-A

SPECIAL NOTES:

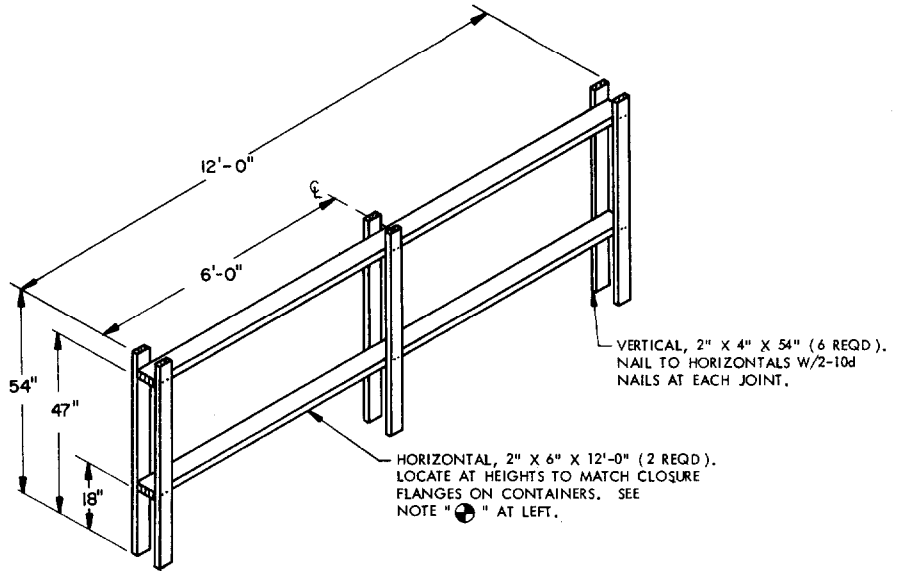
1. A 12-UNIT LOAD IS SHOWN IN A 28'-0" LONG BY 7'-6" WIDE (INSIDE DIMENSION) TRAILER WHICH IS EQUIPPED WITH A MECHANICAL LOAD BLOCKING SYSTEM THAT HAS A SYSTEM LENGTH OF NOT LESS THAN 26'-9", AND CONTAINS AT LEAST FIFTEEN (15) CROSS MEMBERS.
2. THE DEPICTED LOAD MAY BE SHIPPED IN A TRAILER WHICH IS LONGER THAN THAT SHOWN. HOWEVER, THE LADING WILL BE POSITIONED IN THE TRAILER CONSISTENT WITH THE WEIGHT LAWS OF THE STATES THROUGH WHICH THE TRAILER WILL BE TRANSPORTED BY HIGHWAY (MOTOR CARRIER). IN SOME INSTANCES, THE POSITIONING OF THE LOAD UNITS WILL REQUIRE THE USE OF FIVE (5) ADDITIONAL CROSS MEMBERS TO PROVIDE FOR BLOCKING AT BOTH ENDS OF EACH LOAD UNIT. THE ADDITIONAL CROSS MEMBERS WILL BE LOCATED AT THE HEIGHTS SPECIFIED IN THE "SECTION A-A" VIEW ON PAGE 4. ALSO, THE TRAILER MUST BE EQUIPPED WITH A MECHANICAL LOAD BLOCKING SYSTEM THAT HAS A SYSTEM LENGTH SUFFICIENT TO PERMIT INSTALLATION OF ALL CROSS MEMBERS SPECIFIED.
3. IF A TRAILER BEING LOADED IS EQUIPPED WITH A MECHANICAL LOAD BLOCKING SYSTEM THAT IS AT LEAST 39'-8" LONG AS MEASURED FROM THE FRONT END OF THE SYSTEM TO THE REAR END OF THE SYSTEM, AND CONTAINS NOT LESS THAN TWENTY (20) CROSS MEMBERS, THREE (3) LOAD UNITS (AN 18-UNIT LOAD) MAY BE SHIPPED USING PROCEDURES DEPICTED ON PAGE 4. SEE GENERAL NOTE "D-3" ON PAGE 2.
4. WIDER OR NARROWER TRAILERS MAY BE USED FOR SHIPMENT OF THE DEPICTED LOAD BY ADJUSTING THE THICKNESS OF THE SIDE BLOCKING ASSEMBLIES.
5. IF ONE (1) CONTAINER IS TO BE OMITTED FROM THE LOAD AS SHOWN, OMIT A TOP CONTAINER OF A CENTER STACK WITHIN ANY LOAD UNIT.
6. IF IT IS NECESSARY TO OMIT TWO (2) CONTAINERS TO SATISFY THE QUANTITY TO BE SHIPPED, THE TOP CONTAINER OF EACH STACK WHICH IS ADJACENT TO A SIDE WALL OF THE TRAILER, AND WITHIN ONE LOAD UNIT, MAY BE OMITTED. SIDE BLOCKING, AS SHOWN IN THE "SIDE ASSEMBLY B" DETAIL ON PAGE 6, MAY BE USED BETWEEN THE 1-LAYER STACKS AND THE SIDE WALLS OF THE TRAILER IN LIEU OF THE SIDE BLOCKING DEPICTED IN THE ISOMETRIC VIEW.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	22	8
1" X 6"	45	23
2" X 4"	396	262
2" X 6"	126	126
NAILS	NO. REQD	POUNDS
6d (2")	264	1-3/4
10d (3")	372	5-3/4
STEEL STRAPPING, 1-1/4" X .035" ----- 192' REQD -----		27 LBS
SEAL FOR 1-1/4" STRAPPING ----- 24 REQD -----		1 LB

LOAD AS SHOWN

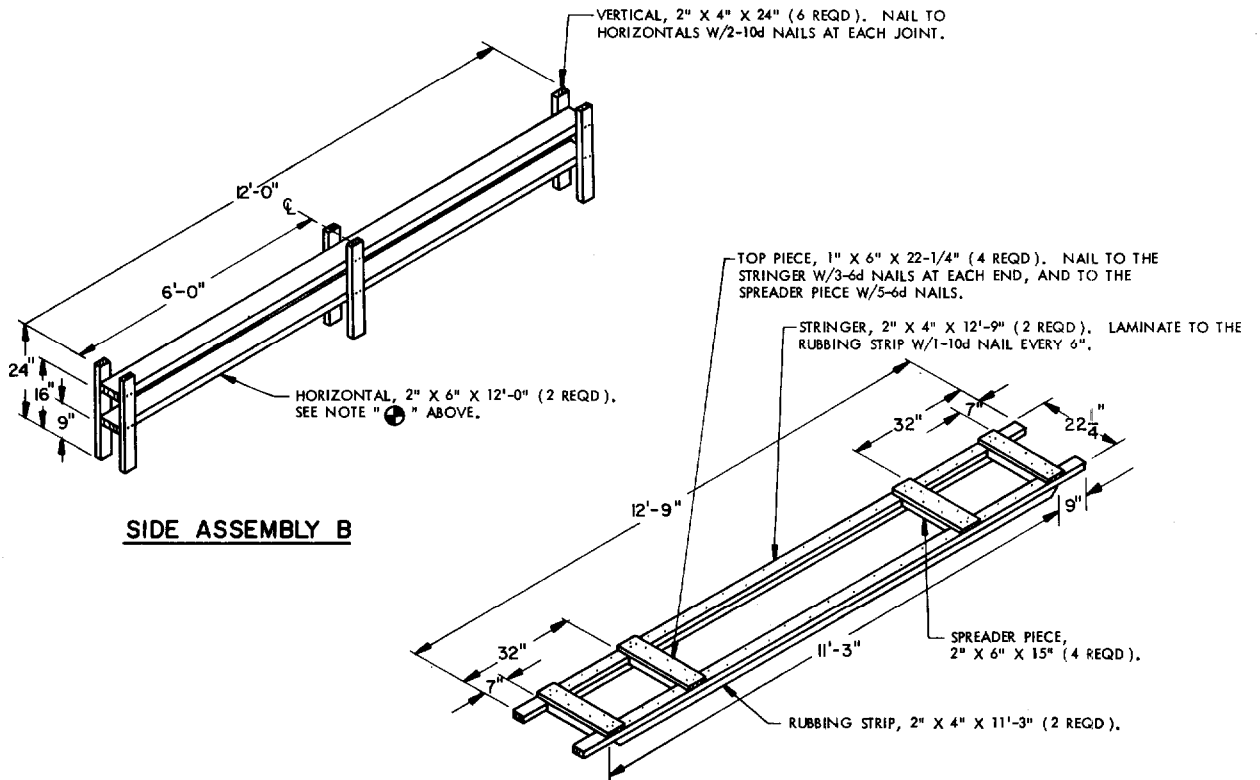
<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
CNU-104/E CONTAINER		
(W/CONTENTS) ----- 12 -----		13,860 LBS
DUNNAGE -----		1,084 LBS
TOTAL WEIGHT -----		14,944 LBS



SIDE ASSEMBLY A

NOTE A:

THE WIDTH OF THE HORIZONTAL PIECES MAY BE ADJUSTED TO PROVIDE A "SNUG" FIT ACROSS THE WIDTH OF THE TRAILER.



CONTAINER STACK SKID

FOR APPLICATION OF SKID, SEE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.