


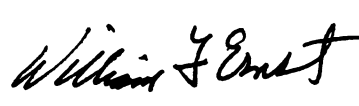

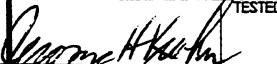
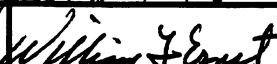
LOADING AND BRACING (TL & LTL) ON FLATBED TRAILERS OF CHARGE, DEMOLITION, LINEAR, HE M58, M58A1 & M58A2, AND INERT M68 & M68A1, IN METAL SHIPPING AND STORAGE CONTAINER

INDEX

| <u>ITEM</u> | <u>PAGE(S)</u> |
|---|----------------|
| GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - - | 2 |
| PALLET UNIT DETAIL - - - - - | 3 |
| 14-UNIT LOAD ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER (STEEL STRAP TIEDOWN METHOD) - - - - - | 4,5 |
| 14-UNIT LOAD ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER (CHAIN TIEDOWN METHOD) - - - - - | 8,9 |
| 14-UNIT LOAD ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER (WEB STRAP TIEDOWN METHOD) - - - - - | 10,11 |
| DETAILS - - - - - | 6,7 |
| PROVISIONS FOR THE USE OF FIRE HOSE - - - - - | 12-15 16 |

● CAUTION: THE OUTLOADING 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 | MELVIN DAEUMER | DO NOT SCALE | | | |
| | | REV. | MICHAEL SARDONE | WEBSITE: HTTP://WWW.DAC.ARMY.MIL | | | |
| | TECHNICIAN | BASIC | | OCTOBER 1988 | | | |
| | | REV. | | REVISION NO. 1 DECEMBER 1996 | | | |
| APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  DEFENSE AMMUNITION CENTER | TRANSPORTATION ENGINEERING DIVISION | |  | SEE THE REVISION LISTING ON PAGE 2 | | | |
| | VALIDATION ENGINEERING DIVISION | |  TESTED | CLASS | DIVISION | DRAWING | FILE |
| | LOGISTICS ENGINEERING OFFICE | |  | 19 | 48 | 4225 | 11J1007 |
| | | | | | | | |

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF LINEAR DEMOLITION CHARGES, HE M58, M58A1, AND M58A2 AND INERT M68 AND M68A1, IN METAL SHIPPING AND STORAGE CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE SHIPPING AND STORAGE CONTAINER WITH CONTENTS. SEE PAGE 3 FOR DETAIL OF THE CONTAINER.

- C. CONTAINER DIMENSIONS - - - 7'-10-3/4" LONG X 54" WIDE X 25" HIGH.

GROSS WEIGHT (APPROX)

WITH HE COMP C4, M58 CHARGE, DODIC M025 - - - - 3,000 LBS
 WITH HE COMP C4, M58A1 CHARGE, DODIC, M025 - - 3,000 LBS
 WITH HE COMP C54, M58A1 CHARGE, DODIC M913 - - 3,000 LBS
 WITH HE COMP C4, M58A2 CHARGE, DODIC M913 - - - 3,000 LBS
 WITH INERT, M68 CHARGE, DODIC M051 - - - - - 3,000 LBS
 WITH INERT, M68A1 CHARGE, DODIC M051 - - - - - 3,000 LBS

CUBE - - - - - 74.0 CUBIC FEET

- D. THE LOADS AS SHOWN HEREIN ARE BASED ON 40'-0" LONG BY 8'-0" WIDE, FLATBED TRAILERS. TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED. TRAILERS MUST HAVE WOOD OR WOOD AND METAL FLOORS. TRAILERS HAVING ALL-METAL FLOORS CANNOT BE USED. CAUTION: IF THE TRAILER FLOOR IS EQUIPPED WITH EXPOSED METAL DECKING ABOVE THE BOGIE ASSEMBLY, OR ELSEWHERE, FIELD MEASUREMENTS SHOULD BE MADE TO ENSURE THAT THE METAL DECKING DOES NOT INTERFERE WITH THE PROPER POSITIONING AND NAILING OF THE DUNNAGE AS SPECIFIED BY THE PROCEDURES SHOWN HEREIN.
- E. SELECTION OF A VEHICLE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- F. 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.
- G. NOTICE: A SHIPMENT WILL BE POSITIONED ON A TRAILER CONSISTENT WITH STATE WEIGHT LAWS.
- 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.

(CONTINUED AT RIGHT)

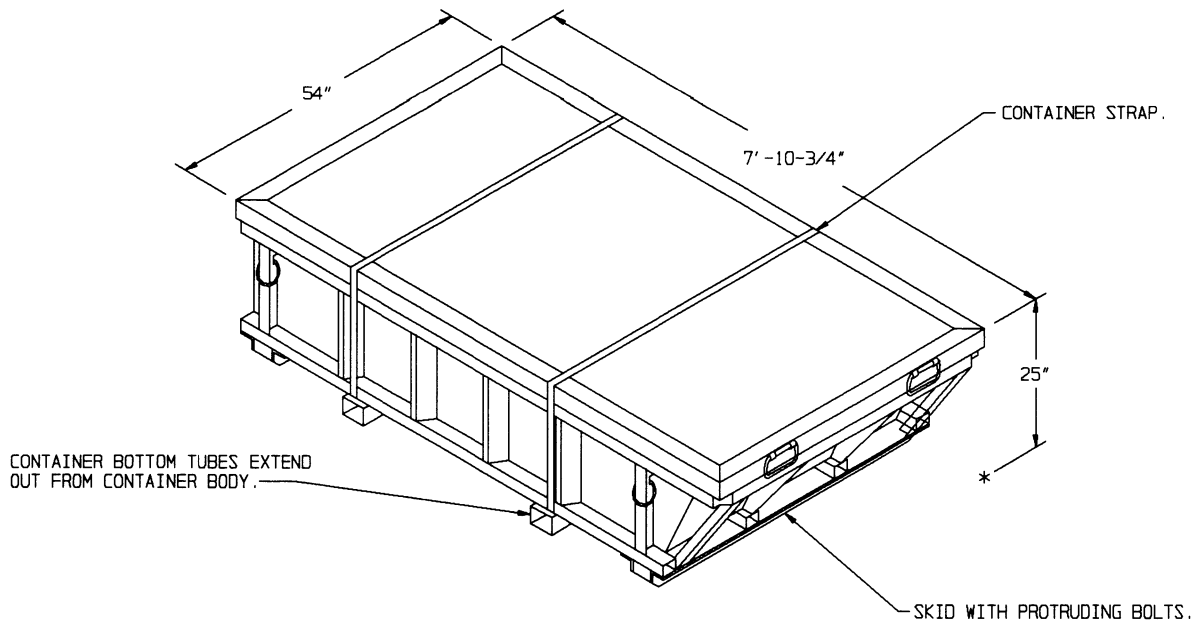
MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- STRAP, WEB - - - - - : WEB SLING AND TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWNS, FIRST PUBLISHED IN 1991.
- 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.
- STAPLE, STRAP - - - - : COMMERCIAL GRADE.
- STAKE POCKET PROTECTOR - - - : COMMERCIAL GRADE.
- ANTI-CHAFING MATERIAL - - - - - : MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
- CHAIN - - - - - : NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.
- LOAD BINDER - - - - - : FED SPEC GGG-B-325.

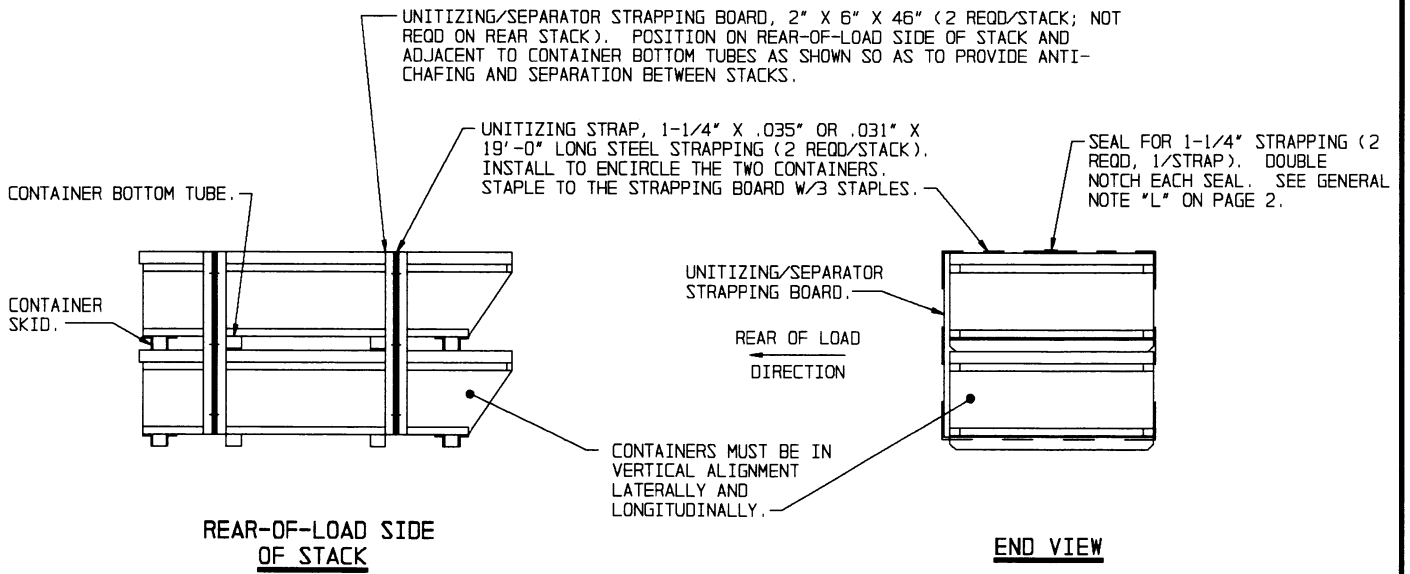
- J. CAUTION: REGARDLESS OF THE TYPE OF TRAILER INVOLVED, ONLY THOSE TRAILERS HAVING TIEDOWN ANCHORING FACILITIES WHICH PROVIDE HOLDING STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE HOLD-DOWN STRAPS OR CHAINS AND WHICH ALIGN NEAR THE INDICATED LOCATIONS FOR THE HOLD-DOWN STRAPS OR CHAINS SHOULD BE USED. IF THE TRAILER ANCHOR DEVICES ARE NOT PROPERLY POSITIONED TO RECEIVE STRAPPING OR CHAINS, AS SHOWN, OR IF THE ANCHOR DEVICES ARE NOT EQUAL TO OR GREATER THAN THE STRENGTH OF THE TIEDOWN STRAPS OR CHAINS, STEEL STRAPS MAY BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED. CAUTION: AVOID TRAILER WHEELS, FIFTH WHEEL PLATE CONTROLS AND OTHER APPURTENANCES. USE EDGE PROTECTORS OR PADS ON ALL SHARP EDGES. NEITHER CHAINS NOR WEB STRAPS WILL BE APPLIED TO FORM A COMPLETE LOOP WHICH ENCOMPASSES BOTH THE LADING AND THE TRAILER FRAME AND/OR BED.
- K. 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.
- L. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 15 FOR GUIDANCE.
- M. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE TIEDOWN CHAINS AND LOAD BINDERS DURING TRANSIT AND TIGHTEN IF NECESSARY.
- N. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED. THE APPROVED METHODS SHOWN HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING AND STAYING OF THE DESIGNATED ITEM.
- O. 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.
- P. 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.
- Q. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO A DEPICTED OUTLOADING METHOD.

REVISION

- REVISION NO. 1, DATED DECEMBER 1996, CONSISTS OF:
1. ADDITION OF WEB STRAP TIEDOWN PROCEDURES.
 2. ADDITION OF PROVISION FOR USE OF FIRE HOSE.
 3. UPDATING DRAWING FORMAT.

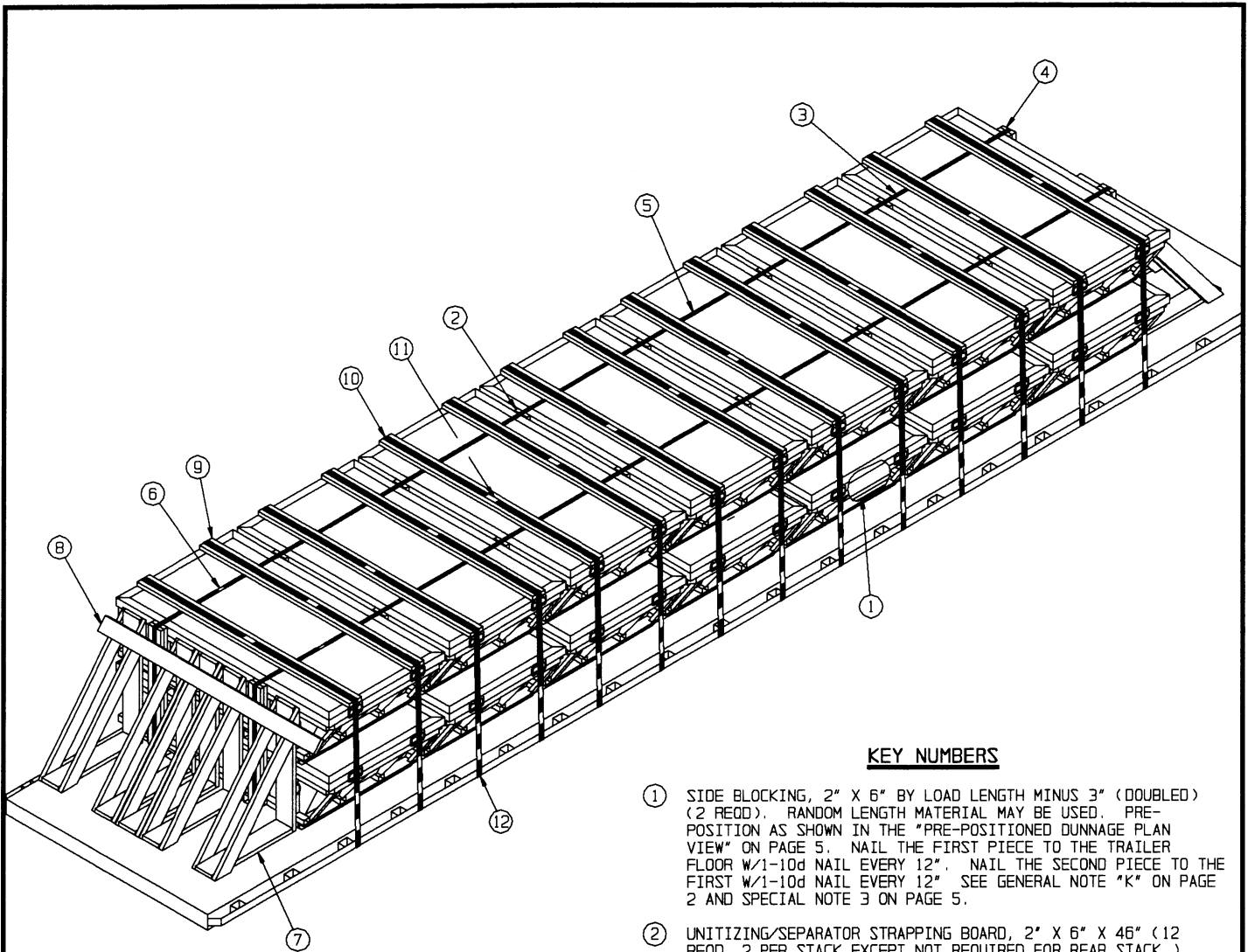


CONTAINER DETAIL



STACK UNITIZING DETAILS

DETAILS



ISOMETRIC VIEW

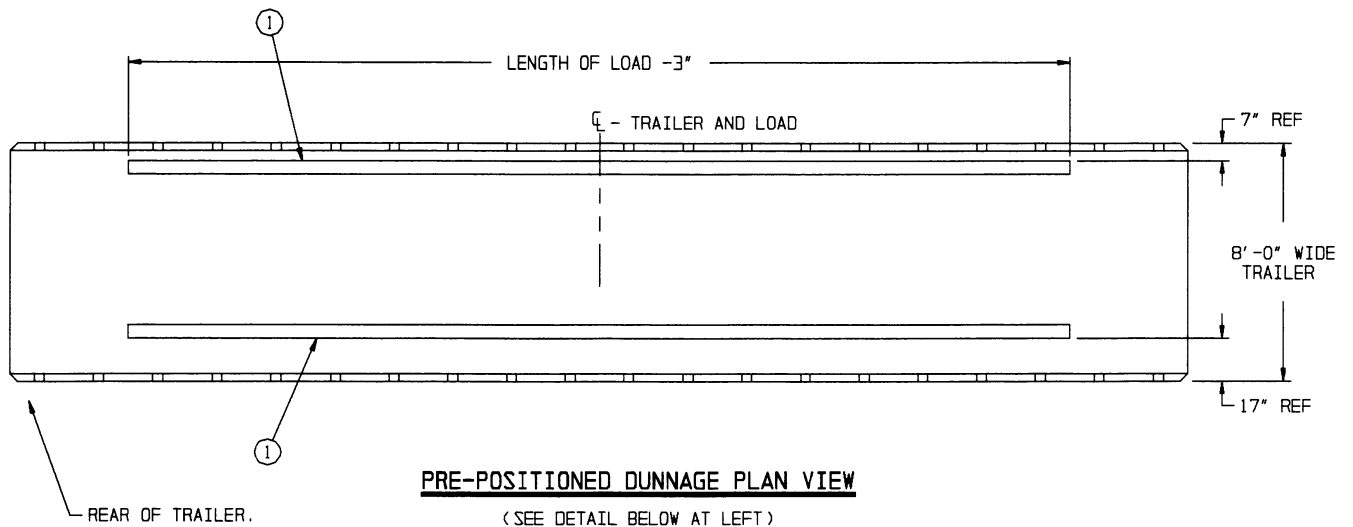
(KEY NUMBERS CONTINUED)

- ⑩ HOLD DOWN STRAP, 2" X .050" X 26'-0" LONG STEEL STRAPPING (14 REQD). INSTALL EACH STRAP FROM TWO 13'-0" LONG PIECES. STAPLE TO STRAPPING BOARD, PIECE MARKED ⑨, W/2 STAPLES. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑪ SEAL FOR 2" STEEL STRAPPING (70 REQD, 5 PER STRAP). DOUBLE NOTCH EACH SEAL EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑫. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ⑫ PAD, 2" X .050" X 18" LONG STEEL STRAPPING (28 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD DOWN STRAP, PIECE MARKED ⑩. ALT: STAKE POCKET PROTECTOR (56 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 15.

KEY NUMBERS

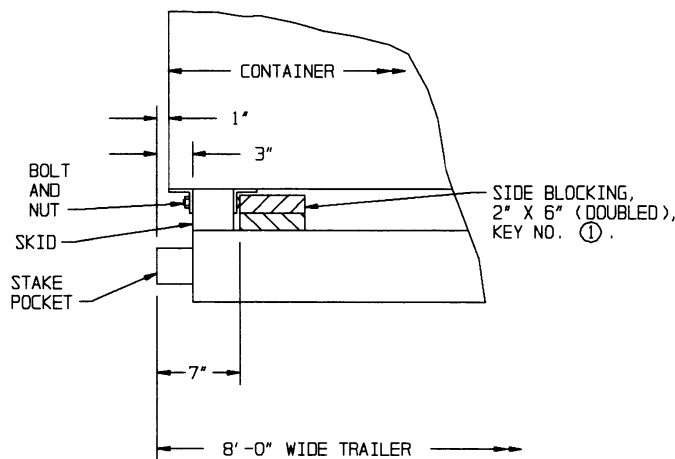
- ① SIDE BLOCKING, 2" X 6" BY LOAD LENGTH MINUS 3" (DOUBLED) (2 REQD). RANDOM LENGTH MATERIAL MAY BE USED. PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12". SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 5.
- ② UNITIZING/SEPARATOR STRAPPING BOARD, 2" X 6" X 46" (12 REQD, 2 PER STACK EXCEPT NOT REQUIRED FOR REAR STACK.) SEE THE "STACK UNITIZING DETAIL ON PAGE 3.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (14 REQD, 2 PER STACK). INSTALL TO ENCIRCLE THE TWO CONTAINERS AND, WHERE APPLICABLE, THE STRAPPING BOARD PIECE MARKED ②. STAPLE TO THE STRAPPING BOARD W/3 STAPLES. SEE THE "STACK UNITIZING DETAILS" ON PAGE 3.
- ④ END-OF-LOAD STRAPPING BOARD, 2" X 6" X 46" (DOUBLED) (4 REQD, 2 AT EACH END OF LOAD). LAMINATE W/1-10d NAIL EVERY 8". POSITION ADJACENT TO CONTAINER BOTTOM TUBES. SEE THE "LOAD BUNDLING STRAP INSTALLATION DETAILS" ON PAGE 6.
- ⑤ LOAD BUNDLING STRAP, 1-1/4" X .035" OR .031" X 76'-0" LONG STEEL STRAPPING (2 REQD). PRE-POSITION ON TRAILER FLOOR AS LOADING OPERATIONS PROGRESS. INSTALL TO ENCIRCLE THE ENTIRE LOAD OF CONTAINERS AND END-OF-LOAD STRAPPING BOARDS, PIECES MARKED ④. AFTER TENSIONING, STAPLE TO PIECES MARKED ④ W/5 STAPLES EACH. SEE THE DETAIL ON PAGE 6. NOTE THAT THE STRAP IS TO BE INSTALLED ON TOP OF THE UNITIZING STRAPS, PIECES MARKED ③.
- ⑥ SEAL FOR 1-1/4" STRAPPING (16 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑦ KNEE BRACE (10 REQD). SEE THE "KNEE BRACE A" DETAIL ON PAGE 7. POSITION AS SHOWN IN THE "KNEE BRACE PLACEMENT DETAILS" ON PAGE 6. NAIL TO THE TRAILER FLOOR W/12-10d NAILS EACH.
- ⑧ TIE PIECE, 2" X 6" X 8'-0" (2 REQD). POSITION NEAR THE TOP OF KNEE BRACES AND NAIL TO EACH DIAGONAL PIECE OF THE KNEE BRACES W/2-10d NAILS AT EACH JOINT.
- ⑨ HOLD DOWN STRAPPING BOARD, 2" X 6" X LENGTH TO SPAN THE CONTAINER COVER (14 REQD).

(CONTINUED AT LEFT)



SPECIAL NOTES:

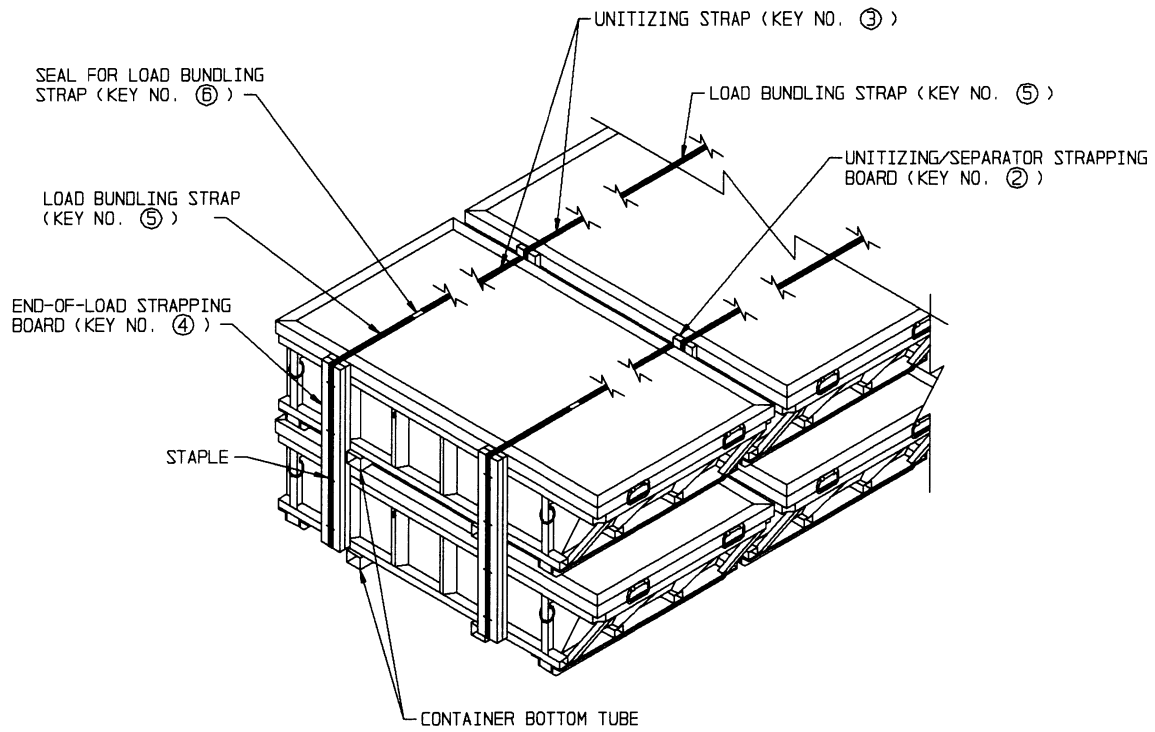
1. A 14-CONTAINER LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER. SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 14-CONTAINER LOAD.
2. THE PROCEDURES DEPICTED ON PAGES 4 AND 5 CAN BE USED FOR ANY LOADS HAVING LESSER EVEN QUANTITIES OF CONTAINERS. FOR LOADS HAVING UNEVEN QUANTITIES OF CONTAINERS, SEE THE PROCEDURES ON PAGE 13.
3. THE DIMENSIONS OF 7" AND 17" FOR LOCATING THE SIDE BLOCKING, PIECES MARKED ①, FROM THE EDGE (RUB RAIL) OF THE TRAILER SHOULD BE VERIFIED WHEN LOADING DUE TO THE PROTRUSION OF THE BOLTS AND/OR NUTS WHICH SECURE THE SKIDS TO THE CONTAINERS. IT SHOULD BE NOTED THAT BOLTS AND NUTS MAY BE INSTALLED OPPOSITE HAND ON SOME CONTAINERS, AND IF SO, AS LOADING PROGRESSES, IT MAY BECOME NECESSARY TO ADJUST THE LOCATION OF SOME SECTIONS OF THE SIDE BLOCKING TO ASSURE THAT EACH STACK IS BLOCKED AGAINST LATERAL MOVEMENT.
4. IF DESIRED, AND THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS AND STRAPPING BOARDS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.



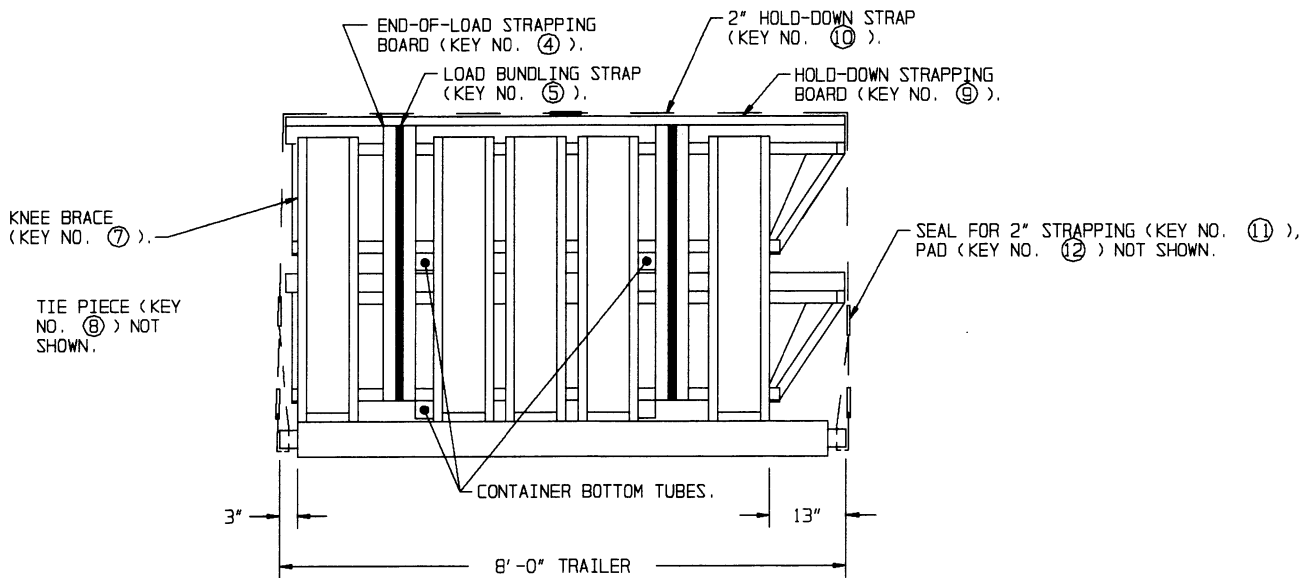
| BILL OF MATERIAL | | |
|--|-------------|------------|
| LUMBER | LINEAR FEET | BOARD FEET |
| 2" X 6" | 433 | 433 |
| 2" X 8" | 70 | 94 |
| NAILS | NO. REQD | POUNDS |
| 10d (3") | 432 | 6-3/4 |
| 16d (3-1/2") | 30 | 3/4 |
| STEEL STRAPPING, 1-1/4" -- 411' REQD -- 58-3/4 LBS | | |
| STEEL STRAPPING, 2" --- 406' REQD --- 135-1/2 LBS | | |
| SEAL FOR 1-1/4" STRAPPING -- 16 REQD --- 3/4 LB | | |
| SEAL FOR 2" STRAPPING -- 70 REQD --- 14 LBS | | |
| STAPLE FOR 1-1/4" STRAPPING - 56 REQD - - - 1/2 LB | | |
| STAPLE FOR 2" STRAPPING - - 28 REQD - - - 1/2 LB | | |

LOAD AS SHOWN

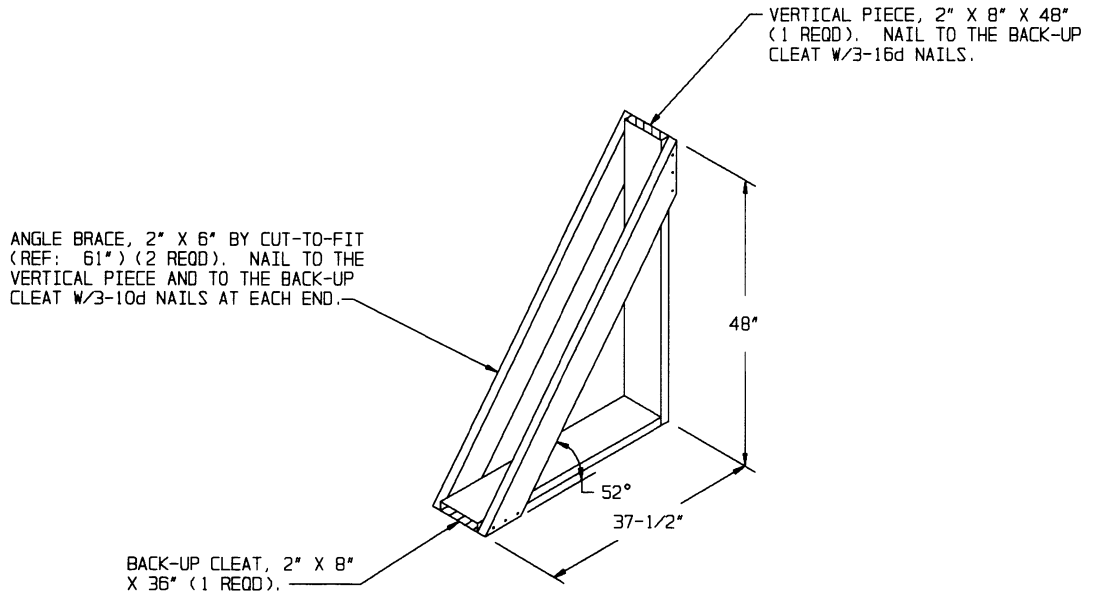
| ITEM | QUANTITY | WEIGHT (APPROX) |
|------------------------|--------------|---------------------|
| CONTAINER - - - - - | 14 - - - - - | 42,000 LBS |
| DUNNAGE - - - - - | - - - - - | 1,272 LBS |
| TOTAL WEIGHT - - - - - | | 43,272 LBS (APPROX) |



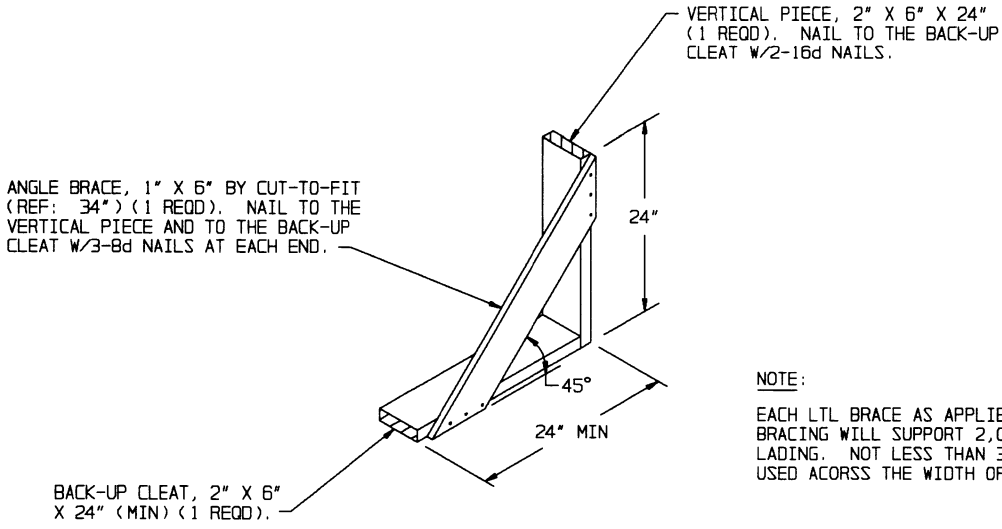
LOAD BUNDLING STRAP INSTALLATION DETAILS



KNEE BRACE PLACEMENT DETAILS



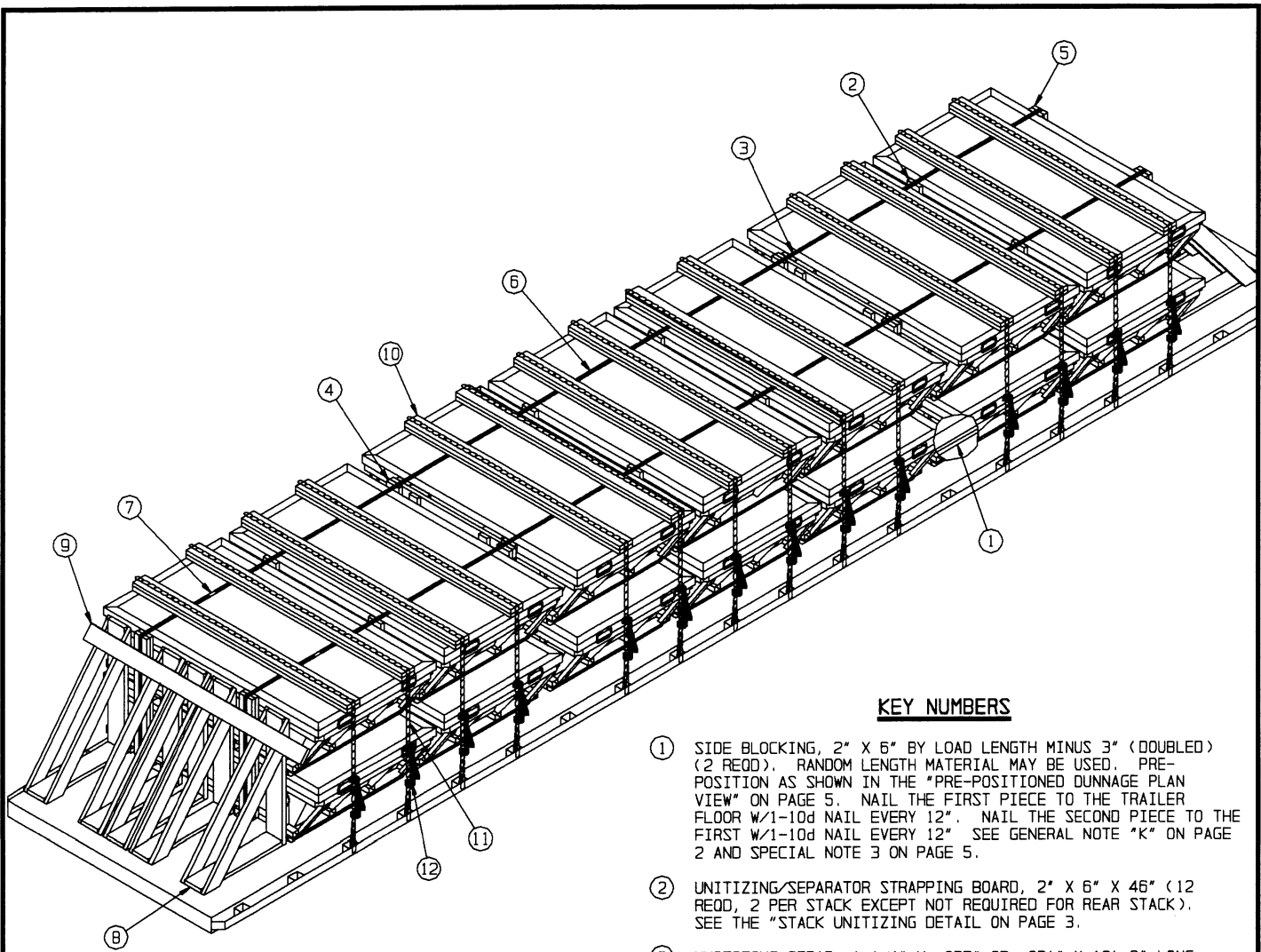
KNEE BRACE A



NOTE:
EACH LTL BRACE AS APPLIED FOR LONGITUDINAL
BRACING WILL SUPPORT 2,000 POUNDS OF
LOADING. NOT LESS THAN 3 LTL BRACES WILL BE
USED ACROSS THE WIDTH OF THE TRAILER.

LTL BRACE

DETAILS



ISOMETRIC VIEW

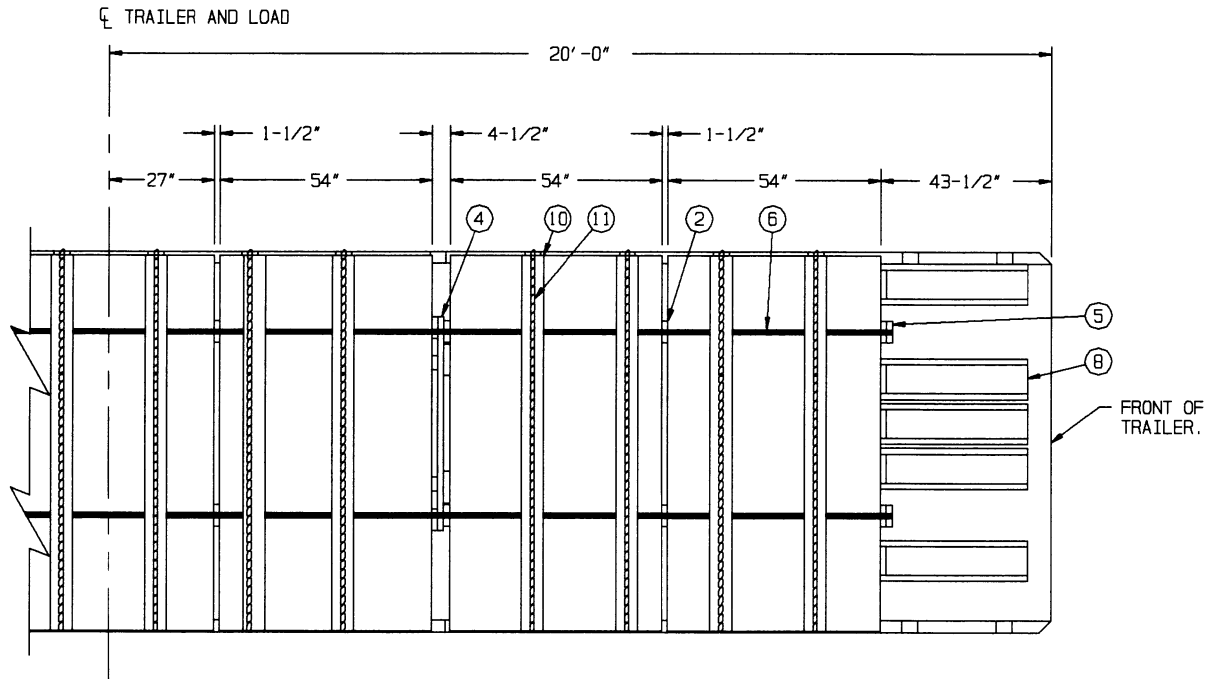
(KEY NUMBERS CONTINUED)

- ⑩ CHAIN BOARD, 2" X 6" BY LENGTH TO SPAN THE CONTAINER COVER (DOUBLED) (14 REQD). LAMINATE W/1-10d NAIL EVERY 8". POSITION IN ALIGNMENT WITH A STAKE POCKET OF THE TRAILER.
- ⑪ CHAIN, BINDING, 5/16" GRADE 70 BY A LENGTH TO SUIT (14 REQD). POSITION AS SHOWN ABOVE, FASTENING THE CHAIN GRABHOOKS TO THE TRAILER STAKE POCKETS. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 16.
- ⑫ LOAD BINDER, 5/16" OVERCENTER TYPE (14 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. FASTEN THE TENSIONED CHAIN, PIECE MARKED ⑪, TO THE STRAPPING BOARD, PIECE MARKED ⑩, W/1-20d NAIL AT EACH END, BENDING OVER TO FORM A LOOP AROUND THE CHAIN LINK. SEE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 16.

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY LOAD LENGTH MINUS 3" (DOUBLED) (2 REQD). RANDOM LENGTH MATERIAL MAY BE USED. PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12". SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 5.
- ② UNITIZING/SEPARATOR STRAPPING BOARD, 2" X 6" X 46" (12 REQD, 2 PER STACK EXCEPT NOT REQUIRED FOR REAR STACK). SEE THE "STACK UNITIZING DETAIL ON PAGE 3.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (14 REQD, 2 PER STACK). INSTALL TO ENCIRCLE THE TWO CONTAINERS AND, WHERE APPLICABLE, THE STRAPPING BOARD PIECE MARKED ②. STAPLE TO THE STRAPPING BOARD W/3 STAPLES. SEE THE "STACK UNITIZING DETAILS" ON PAGE 3.
- ④ SPACER ASSEMBLY (2 REQD). LOCATE WHERE SHOWN. POSITION EACH ASSEMBLY SO THAT THE STOP BLOCKS ARE FACING THE FORWARD END OF THE TRAILER AND ARE ADJACENT TO THE UNITIZING/SEPARATOR STRAPPING BOARDS, PIECES MARKED ②, ON THE STACK AHEAD. SEE THE "SPACER ASSEMBLY" DETAIL ON PAGE 12 AND SPECIAL NOTE 3 ON PAGE 9.
- ⑤ END-OF-LOAD STRAPPING BOARD, 2" X 6" X 46" (DOUBLED) (4 REQD, 2 AT EACH END OF LOAD). LAMINATE W/1-10d NAIL EVERY 8". POSITION ADJACENT TO CONTAINER BOTTOM TUBES. SEE THE "LOAD BUNDLING STRAP INSTALLATION DETAILS" ON PAGE 6.
- ⑥ LOAD BUNDLING STRAP, 1-1/4" X .035" OR .031" X 76'-0" LONG STEEL STRAPPING (2 REQD). PRE-POSITION ON TRAILER FLOOR AS LOADING OPERATIONS PROGRESS. INSTALL TO ENCIRCLE THE ENTIRE LOAD OF CONTAINERS AND END-OF-LOAD STRAPPING BOARDS, PIECES MARKED ④. AFTER TENSIONING, STAPLE TO PIECES MARKED ④ W/5 STAPLES EACH. SEE THE DETAIL ON PAGE 6. NOTE THAT THE STRAP IS TO BE INSTALLED ON TOP OF THE UNITIZING STRAPS, PIECES MARKED ③.
- ⑦ SEAL FOR 1-1/4" STRAPPING (16 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑧ KNEE BRACE (10 REQD). SEE THE "KNEE BRACE A" DETAIL ON PAGE 7. POSITION AS SHOWN IN THE "KNEE BRACE PLACEMENT DETAILS" ON PAGE 6. NAIL TO THE TRAILER FLOOR W/12-10d NAILS EACH.
- ⑨ TIE PIECE, 2" X 6" X 8'-0" (2 REQD). POSITION NEAR THE TOP OF KNEE BRACES AND NAIL TO EACH DIAGONAL PIECE OF THE KNEE BRACES W/2-10d NAILS AT EACH JOINT.

(CONTINUED AT LEFT)



HALF-PLAN VIEW

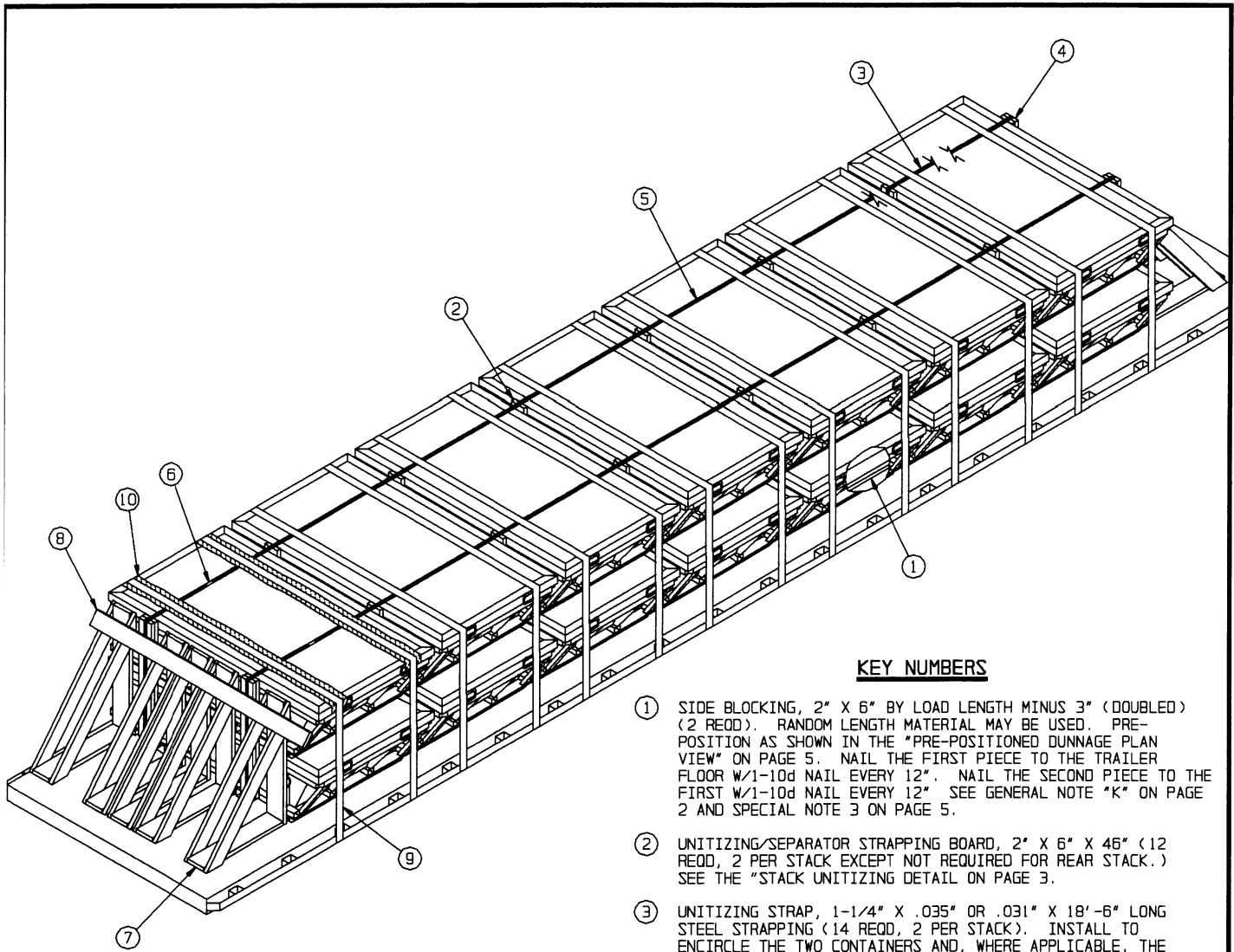
SPECIAL NOTES:

1. A 14-CONTAINER LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER. SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 14-CONTAINER LOAD. SEE NOTE 3 BELOW.
2. THE PROCEDURES DEPICTED ON PAGES 8 AND 9 CAN BE USED FOR ANY LOADS HAVING LESSER EVEN QUANTITIES OF CONTAINERS. NOTE: THE CHAINS MUST BE ATTACHED TO THE TRAILER STAKE POCKETS AND BE VERTICALLY IN LINE WITH THE CHAIN BOARDS. THE CHAIN BOARDS CAN BE SHIFTED LEFT OR RIGHT BUT MUST NOT BE POSITIONED CLOSER THAN 6" FROM THE EDGE OF THE CONTAINER COVER TO PROVIDE FOR VERTICAL ALIGNMENT. IT MAY BE NECESSARY IN SOME LOADS TO SHIFT THE CONTAINERS WITH DUNNAGE TO COMPLY WITH THIS LOADING REQUIREMENT. SEE GENERAL NOTE "M" ON PAGE 2. FOR LOADS HAVING UNEVEN QUANTITIES OF CONTAINERS, SEE THE PROCEDURES SPECIFIED ON PAGE 11.
3. NOTE THAT TWO SPACER ASSEMBLIES, PIECES MARKED ④, ARE NECESSARY SO AS TO PROPERLY LOCATE IN RELATION TO THE STAKE POCKETS OF THE TRAILER TO ASSURE COMPLIANCE WITH THE REQUIREMENTS OF NOTE 2 ABOVE AS PERTAINS TO VERTICAL ALIGNMENT OF CHAINS, CHAIN BOARDS, AND TRAILER STAKE POCKETS. THE SPACER ASSEMBLIES MUST BE POSITIONED IN THE LOAD AS SHOWN.
4. IF DESIRED, AND IF THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS AND STRAPPING BOARDS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.

| BILL OF MATERIAL | | |
|--|-------------|------------|
| LUMBER | LINEAR FEET | BOARD FEET |
| 2" X 4" | 38 | 26 |
| 2" X 6" | 572 | 572 |
| 2" X 8" | 70 | 94 |
| NAILS | NO. REQD | POUNDS |
| 10d (3") | 680 | 10-1/2 |
| 16d (3-1/2") | 30 | 3/4 |
| 20d (4") | 28 | 1 |
| STEEL STRAPPING, 1-1/4" -- 413' REQD ----- 59 LBS | | |
| SEAL FOR 1-1/4" STRAPPING -- 16 REQD ----- 3/4 LB | | |
| CHAIN, BINDING, 5/16" --- 280' REQD ----- 336 LBS | | |
| LOAD BINDER ----- 14 REQD ----- 84 LBS | | |
| STAPLE FOR 1-1/4" STRAPPING - 62 REQD ----- 1/2 LB | | |

LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT (APPROX) |
|---------------------|----------|----------------------------|
| CONTAINER | 14 | 42,000 LBS |
| DUNNAGE | | 1,877 LBS |
| TOTAL WEIGHT | | 43,877 LBS (APPROX) |



ISOMETRIC VIEW

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY LOAD LENGTH MINUS 3" (DOUBLED) (2 REOD). RANDOM LENGTH MATERIAL MAY BE USED. PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12". SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 ON PAGE 5.
- ② UNITIZING/SEPARATOR STRAPPING BOARD, 2" X 6" X 46" (12 REOD, 2 PER STACK EXCEPT NOT REQUIRED FOR REAR STACK.) SEE THE "STACK UNITIZING DETAIL ON PAGE 3.
- ③ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 18'-6" LONG STEEL STRAPPING (14 REOD, 2 PER STACK). INSTALL TO ENCIRCLE THE TWO CONTAINERS AND, WHERE APPLICABLE, THE STRAPPING BOARD PIECE MARKED ②. STAPLE TO THE STRAPPING BOARD W/3 STAPLES. SEE THE "STACK UNITIZING DETAILS" ON PAGE 3.
- ④ END-OF-LOAD STRAPPING BOARD, 2" X 6" X 46" (DOUBLED) (4 REOD, 2 AT EACH END OF LOAD). LAMINATE W/1-10d NAIL EVERY 8". POSITION ADJACENT TO CONTAINER BOTTOM TUBES. SEE THE "LOAD BUNDLING STRAP INSTALLATION DETAILS" ON PAGE 6.
- ⑤ LOAD BUNDLING STRAP, 1-1/4" X .035" OR .031" X 76'-0" LONG STEEL STRAPPING (2 REOD). PRE-POSITION ON TRAILER FLOOR AS LOADING OPERATIONS PROGRESS. INSTALL TO ENCIRCLE THE ENTIRE LOAD OF CONTAINERS AND END-OF-LOAD STRAPPING BOARDS, PIECES MARKED ④. AFTER TENSIONING, STAPLE TO PIECES MARKED ④ W/5 STAPLES EACH. SEE THE DETAIL ON PAGE 6. NOTE THAT THE STRAP IS TO BE INSTALLED ON TOP OF THE UNITIZING STRAPS, PIECES MARKED ③.
- ⑥ SEAL FOR 1-1/4" STRAPPING (16 REOD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑦ KNEE BRACE (10 REOD). SEE THE "KNEE BRACE A" DETAIL ON PAGE 7. POSITION AS SHOWN IN THE "KNEE BRACE PLACEMENT DETAILS" ON PAGE 6. NAIL TO THE TRAILER FLOOR W/12-10d NAILS EACH.
- ⑧ TIE PIECE, 2" X 6" X 8'-0" (2 REOD). POSITION NEAR THE TOP OF KNEE BRACES AND NAIL TO EACH DIAGONAL PIECE OF THE KNEE BRACES W/2-10d NAILS AT EACH JOINT.
- ⑨ WEB STRAP ASSEMBLY (14 REOD, 2 PER LOAD UNIT). POSITION TO EXTEND FROM A WINCH ON ONE SIDE OF THE TRAILER, OVER THE CONTAINERS, TO AN ATTACHMENT POINT ON THE OPPOSITE SIDE. SEE THE "SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN" ON PAGE 13.
- ⑩ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL (AS REOD). PLACE UNDER WEB STRAPPING AT ALL POINTS OF CONTACT WITH THE CONTAINER.

SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN

LADING MAY BE SECURED TO A FLATBED TRAILER BY WEB STRAP ASSEMBLIES IN LIEU OF STEEL STRAPPING OR CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET.

1. ONLY WEB STRAPS OF GOOD QUALITY WILL BE USED. ALL WEB STRAPS AND ASSOCIATED HARDWARE SHALL CONFORM TO THE WEB SLING & TIEDOWN ASSOCIATION RECOMMENDED STANDARD SPECIFICATION FOR SYNTHETIC WEB TIEDOWNS, FIRST PUBLISHED IN 1991.
2. ALL WEB STRAP TIEDOWN ASSEMBLIES SHALL BE PERMANENTLY LABELED WITHIN 18" OF ONE END TO SHOW:
 - A. NAME OR TRADEMARK OF MANUFACTURER
 - B. WORKING LOAD LIMIT (WLL)
 - C. DATE OF MANUFACTURE (MONTH AND YEAR)
3. WEB STRAP ASSEMBLY MINIMUM BREAKING STRENGTH WILL BE AT LEAST THREE TIMES THE WLL MARKED ON THE STRAP.
4. THE TOTAL MINIMUM BREAKING STRENGTH (MBS) OF THE STRAPS USED TO RESTRAIN AMMUNITION ITEMS WILL BE AT LEAST 1-1/2 TIMES THE TOTAL WEIGHT OF THE ITEMS, WITH A MINIMUM OF TWO STRAPS POSITIONED OVER EACH LOAD UNIT ON A TRAILER. WRITTEN PROOF OF THE MBS OF THE STRAPS SHALL BE PROVIDED BY THE CARRIER TO THE SHIPPING ACTIVITY IF REQUESTED.
5. CARRIERS MUST COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS APPLICABLE TO CARGO RESTRAINT USING WEB STRAPS.
6. WHEN USING STRAPS AND WINCHES FOR CARGO RESTRAINT, THE STRAPS WILL BE TENSIONED UNTIL TIGHT WITHOUT CAUSING DAMAGE TO THE CARGO. ONLY WINCH BARS WILL BE USED FOR OPERATING THE STRAP WINCHES.
7. BEFORE AND DURING INSTALLATION, THE WEB STRAP ASSEMBLIES SHALL BE INSPECTED FOR DEFECTS. STRAPS HAVING ANY OF THE FOLLOWING DEFECTS WILL NOT BE USED FOR THE RESTRAINT OF ANY AMMUNITION LOAD, WITH THE EXCEPTION OF ONE WITH FRAYED ENDS. A STRAP HAVING FRAYED ENDS CAN BE USED IF THE FRAYED END IS TRIMMED AND MELTED WITH HEAT OR FLAME UNTIL ALL STRANDS ARE SEIZED.
 - A. STRAP ASSEMBLY HARDWARE: SHALL BE INSPECTED FOR BENT HOOKS, GOUGES, CORROSION, SIGNS OF REPAIR, BENT RATCHETS OR WINCHES, WEAR, OR ANY OTHER NOTICEABLE DEFECTS.
 - B. STRAP WEBBING: SHALL BE INSPECTED FOR KNOTS, EXCESSIVE ABRASIVE WEAR, TEARS, PUNCTURES, CUTS, ACID OR CAUSTIC BURNS, BROKEN STITCHES, FRAYED ENDS, OIL OR GREASE SPOTS EXCEEDING 6 SQUARE INCHES, BLEACHING OF COLOR, INCREASED STIFFNESS, SPLICES, VISIBLE WEAR INDICATOR THREADS, OR ANY OTHER NOTICEABLE DEFECTS.
8. RATCHET HANDLES MUST BE IN THE LOCKED POSITION AND/OR WINCH LOCKING DEVICES MUST BE FULLY SEATED IN THE TEETH OF THE WINCH.
9. IF THE WINCHES BEING USED ARE THE REMOVABLE TYPE HAVING BOLTS FOR ATTACHMENT TO THE TRAILER, CARE MUST BE EXERCISED WHEN ATTACHING THE WINCHES TO THE TRAILER. IF EXCESSIVE FORCE IS EXERTED ON THE BOLT DURING TENSIONING, DEFORMATION OF THE WINCH BRACKET MAY OCCUR, AND SUBSEQUENTLY CAUSE FAILURE OF THE WINCH BRACKET DURING TRANSPORT. WINCHES MUST BE FASTENED TO THE TRAILER WITH A MINIMUM OF TWO BOLTS.

(CONTINUED AT RIGHT)

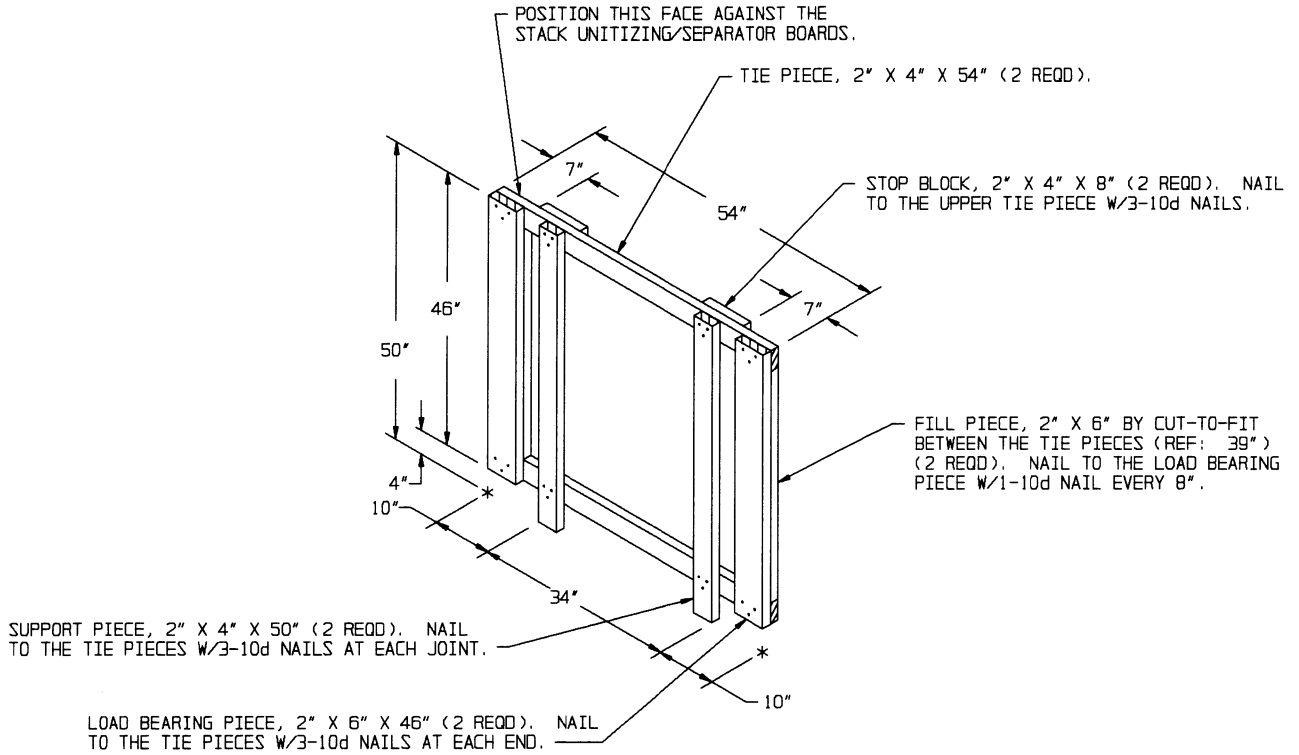
| BILL OF MATERIAL | | |
|---|-------------|------------|
| LUMBER | LINEAR FEET | BOARD FEET |
| 2" X 6" | 307 | 307 |
| 2" X 8" | 70 | 94 |
| NAILS | NO. REQD | POUNDS |
| 10d (3") | 432 | 6-3/4 |
| 16d (3-1/2") | 30 | 3/4 |
| STEEL STRAPPING, 1-1/4" -- 413' REQD ----- 59 LBS | | |
| SEAL FOR 1-1/4" STRAPPING -- 16 REQD ----- 3/4 LB | | |
| STAPLE FOR 1-1/4" STRAPPING -- 62 REQD ----- 1/2 LB | | |
| WEB STRAP ASSEMBLIES ----- 14 REQD | | |
| ANTI-CHAFING MATERIAL ----- AS REQD ----- NIL | | |

SPECIAL NOTES:

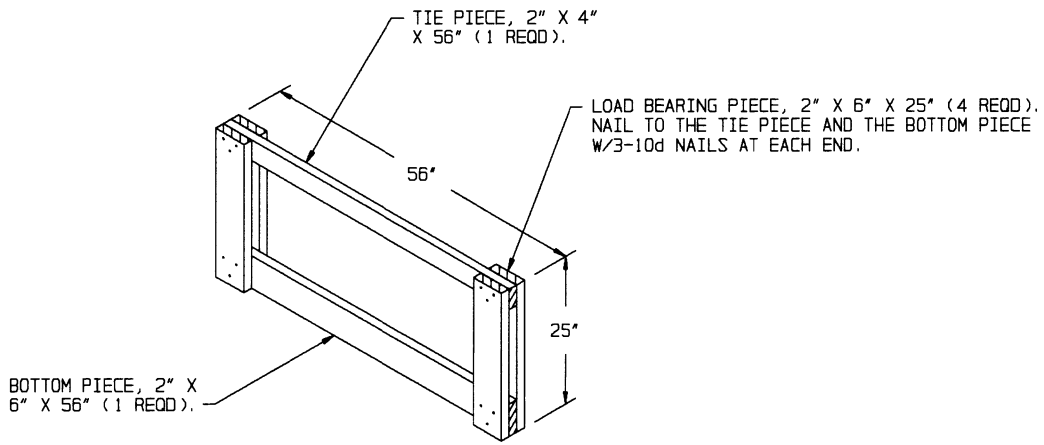
1. A 14-CONTAINER LOAD IS SHOWN ON A 40'-0" LONG BY 8'-0" WIDE FLATBED TRAILER. SHORTER TRAILERS CANNOT BE USED FOR SHIPMENT OF A 14-CONTAINER LOAD.
 2. THE PROCEDURES DEPICTED ON PAGES 10 AND 11 CAN BE USED FOR ANY LOADS HAVING LESSER EVEN QUANTITIES OF CONTAINERS. FOR LOADS HAVING UNEVEN QUANTITIES OF CONTAINERS, SEE THE PROCEDURES ON PAGE 13.
 3. THE DIMENSIONS OF 7" AND 17" FOR LOCATING THE SIDE BLOCKING, PIECES MARKED ①, FROM THE EDGE (RUB RAIL) OF THE TRAILER SHOULD BE VERIFIED WHEN LOADING DUE TO THE PROTRUSION OF THE BOLTS AND/OR NUTS WHICH SECURE THE SKIDS TO THE CONTAINERS. IT SHOULD BE NOTED THAT BOLTS AND NUTS MAY BE INSTALLED OPPOSITE HAND ON SOME CONTAINERS, AND IF SO, AS LOADING PROGRESSES, IT MAY BECOME NECESSARY TO ADJUST THE LOCATION OF SOME SECTIONS OF THE SIDE BLOCKING TO ASSURE THAT EACH STACK IS BLOCKED AGAINST LATERAL MOVEMENT.
 4. IF DESIRED, AND THE CAPACITY OF THE MHE PERMITS, TWO CONTAINERS MAY BE STACKED AND UNITIZED WITH TWO STEEL STRAPS AND STRAPPING BOARDS, AS SPECIFIED, PRIOR TO PLACEMENT ON THE TRAILER.
- (SPECIAL PROVISIONS FOR WEB STRAP TIEDOWN CONTINUED)
10. DRIVERS MUST BE INSTRUCTED TO PERIODICALLY CHECK THE TIGHTNESS OF THE WEB STRAP ASSEMBLIES AND RE-TIGHTEN, IF NECESSARY.
 11. IF PROVIDED ON OR WITH THE WEB STRAP ASSEMBLIES, SCUFF SLEEVES/WEB PROTECTORS WILL BE USED WHEREVER THE STRAP PASSES OVER A SHARP CORNER OR IRREGULAR SURFACE. IF NOT PROVIDED, ANTI-CHAFING MATERIAL OF A SUITABLE THICKNESS WILL BE USED TO INSURE THAT THE STRAP WEBBING IS NOT DAMAGED DURING TRANSPORT OF THE LOAD.
 12. THE HARDWARE FITTING OF THE TIEDOWN ASSEMBLIES MUST BE ATTACHED TO THE TRAILER IN SUCH A MANNER THAT THEY WILL REMAIN IN PLACE IF SLACK DEVELOPS IN THE STRAP DURING TRANSPORT.

LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT (APPROX) |
|---------------------|----------|----------------------------|
| CONTAINER | 14 | 42,000 LBS |
| DUNNAGE | | 870 LBS |
| TOTAL WEIGHT | | 42,870 LBS (APPROX) |

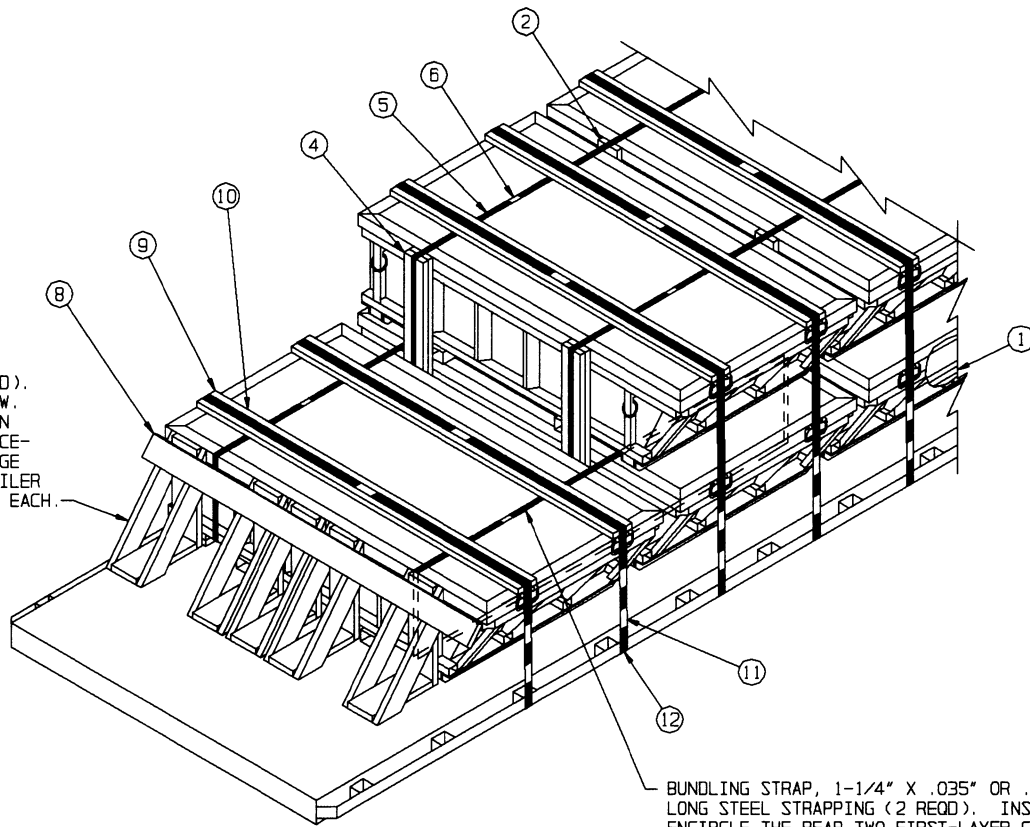


SPACER ASSEMBLY



SEPARATOR GATE

DETAILS

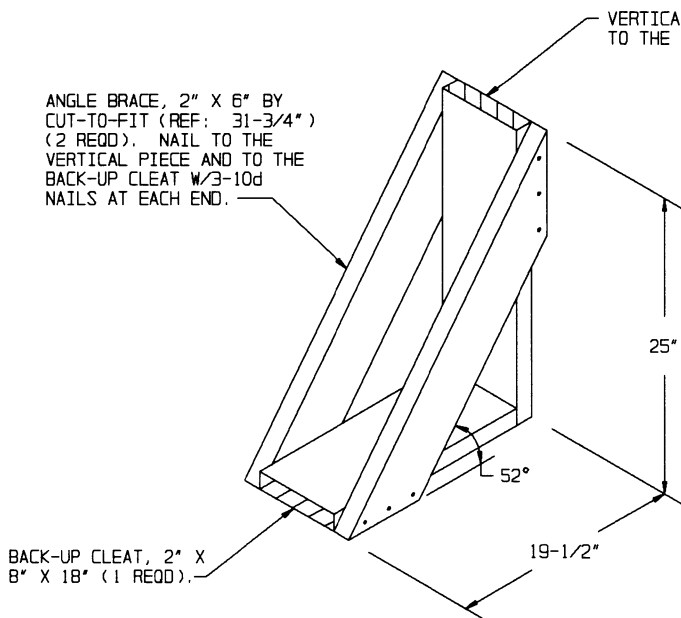


KNEE BRACE-B (5 REQD).
SEE THE DETAIL BELOW.
POSITION AS SHOWN IN
THE "KNEE BRACE PLACE-
MENT DETAILS" ON PAGE
6. NAIL TO THE TRAILER
FLOOR W/7-10d NAILS EACH.

BUNDLING STRAP, 1-1/4" X .035" OR .031" X 23'-6"
LONG STEEL STRAPPING (2 REQD). INSTALL TO
ENCIRCLE THE REAR TWO FIRST-LAYER CONTAINERS AND
SEAL WITH 1 SEAL EACH. DOUBLE NOTCH EACH SEAL.
SEE GENERAL NOTE "L" ON PAGE 2. PRE-POSITION
STRAPS AS LOADING PROGRESSES.

PARTIAL ISOMETRIC VIEW

(FOR KEY NUMBERS, SEE PAGES 4 AND 5.)



ANGLE BRACE, 2" X 6" BY
CUT-TO-FIT (REF: 31-3/4")
(2 REQD). NAIL TO THE
VERTICAL PIECE AND TO THE
BACK-UP CLEAT W/3-10d
NAILS AT EACH END.

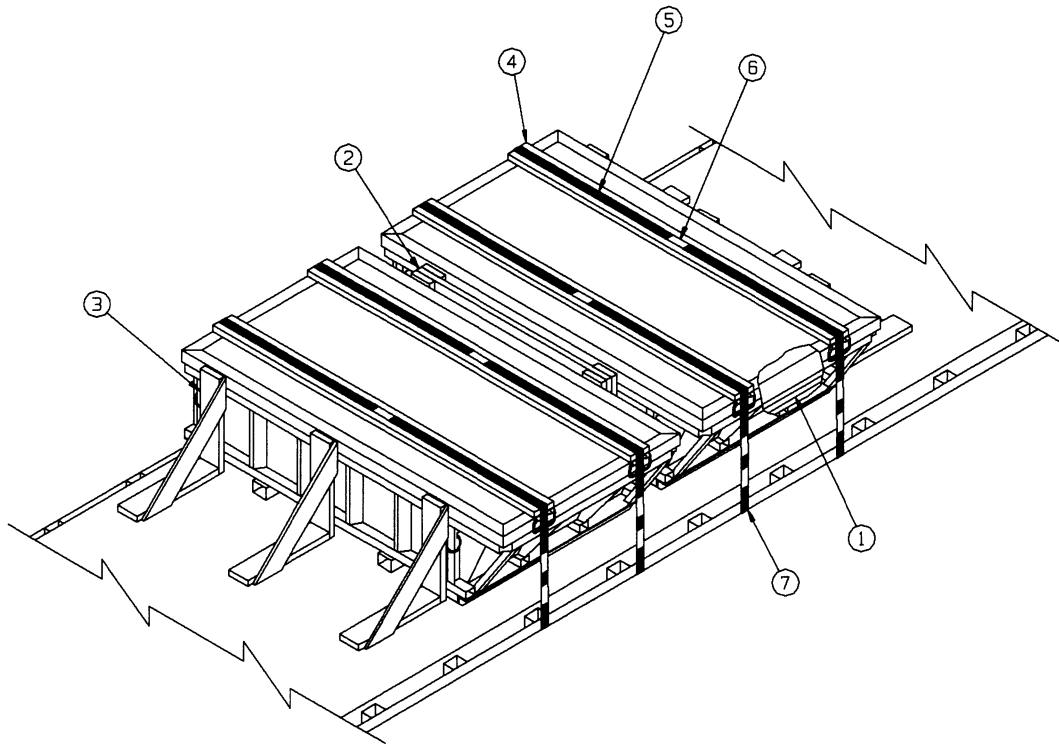
VERTICAL PIECE, 2" X 8" X 25" (1 REQD). NAIL
TO THE BACK-UP CLEAT W/3-16d NAILS.

BACK-UP CLEAT, 2" X
8" X 18" (1 REQD).

KNEE BRACE B

SPECIAL NOTES:

1. THE PROCEDURES SPECIFIED ON THIS PAGE
PERTAIN TO A LOAD OF AN UNEVEN QUANTITY
OF CONTAINERS BY PROVIDING FOR A ONE-
LAYER STACK AT THE REAR OF ANY TWO LAYER
LOAD. THE KEY NUMBERS SHOWN RELATE TO
THE LOAD DEPICTED ON PAGES 4 AND 5.
2. THESE PROCEDURES CAN ALSO BE ADAPTED TO
THE LOADS DEPICTED ON PAGES 8 AND 9 USING
THE CHAIN TIEDOWN PROCEDURES, OR THE LOAD
ON PAGES 10 AND 11 USING WEB STRAPS IN
LIEU OF STEEL TIEDOWN STRAPS.



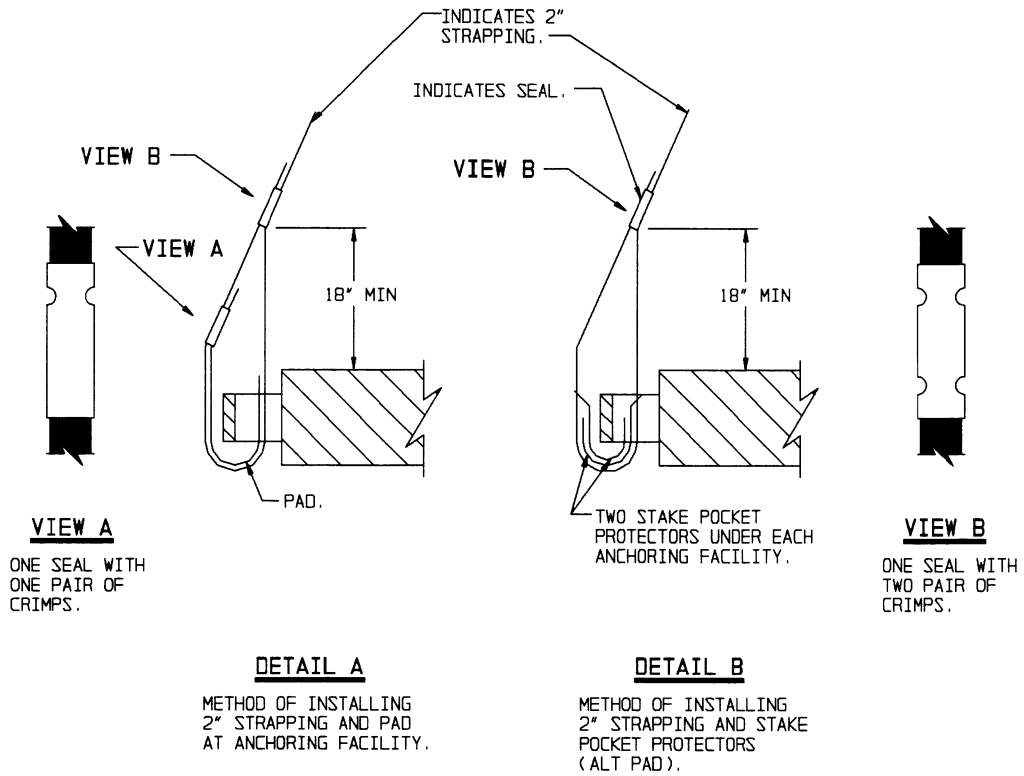
ISOMETRIC VIEW

SPECIAL NOTES:

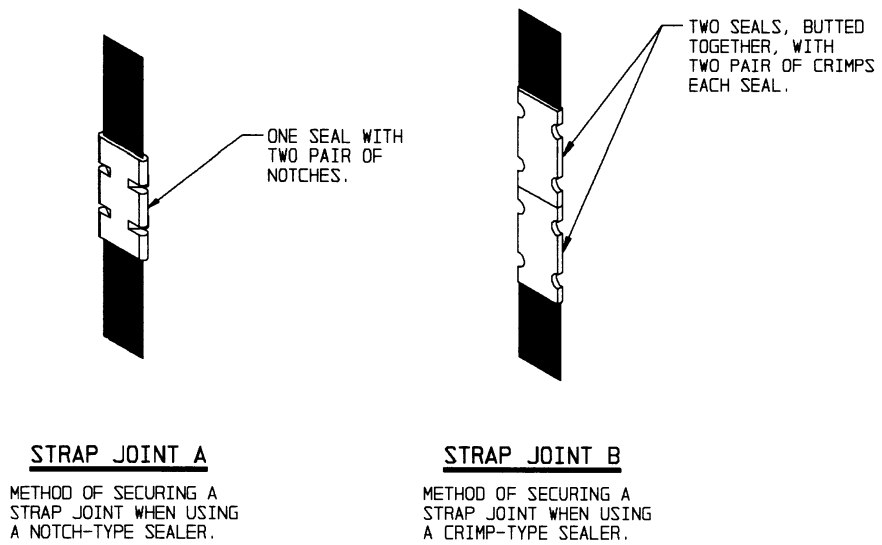
1. A 2-CONTAINER LOAD IS SHOWN REQUIRING A TOTAL OF 6 LTL BRACES. FOR A 3-CONTAINER LOAD A TOTAL OF 10 LTL BRACES MUST BE USED.
2. EACH LTL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING, HOWEVER, DUE TO THE LENGTH OF THE CONTAINER, NOT LESS THAN THREE LTL BRACES WILL BE USED ACROSS THE WIDTH OF THE TRAILER.

KEY NUMBERS

- ① SIDE BLOCKING, 2" X 6" BY LOAD LENGTH MINUS 3" (DOUBLED) (2 REQD). RANDOM LENGTH MATERIAL MAY BE USED. PRE-POSITION AS SHOWN IN THE "PRE-POSITIONED DUNNAGE PLAN VIEW" ON PAGE 5. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-10d NAIL EVERY 12". NAIL THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 12". SEE GENERAL NOTE "K" ON PAGE 2.
- ② SEPARATOR GATE (1 REQD). SEE THE DETAIL ON PAGE 12.
- ③ LTL BRACE (6 BRACE). AS APPLICABLE, ALIGN WITH SKIDS OF THE CONTAINER AND NAIL TO THE TRAILER FLOOR W/10-10d NAILS. SEE THE DETAIL ON PAGE 7.
- ④ STRAPPING BOARD, 2" X 6" BY LENGTH OF THE CONTAINER COVER (4 REQD).
- ⑤ HOLD-DOWN STRAP, 2" X .050" OR .044" X 22'-0" LONG STEEL STRAPPING (4 REQD). INSTALL EACH STRAP FROM TWO 11'-0" LONG PIECES. STAPLE TO THE STRAPPING BOARD, PIECE MARKED ④, W/2 STAPLES. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑥ SEAL FOR 2" STEEL STRAPPING (20 REQD, 5 PER STRAP). DOUBLE NOTCH EACH SEAL, EXCEPT THOSE USED TO SECURE THE PADS, PIECES MARKED ⑦. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" AND "END-OVER-END LAP JOINT DETAILS" ON PAGE 15.
- ⑦ PAD, 2" X .050" OR .044" X 18" LONG STEEL STRAPPING (8 REQD). POSITION UNDER ANCHORING FACILITY AND SEAL TO HOLD-DOWN STRAP, PIECE MARKED ⑤. ALT: STAKE POCKET PROTECTOR (16 REQD). USE TWO UNDER EACH ANCHORING FACILITY WITH A HOLD-DOWN STRAP. SEE "HOLD-DOWN STRAP ANCHORING DETAILS" ON PAGE 15.



HOLD-DOWN STRAP ANCHORING DETAILS



END-OVER-END LAP JOINT DETAILS

PROVISIONS FOR THE USE OF FIRE HOSE IN LIEU OF CHAIN BOARDS OR STRAPPING BOARDS

FIRE HOSE THAT IS NO LONGER SUITABLE FOR USE IN FIRE FIGHTING APPLICATIONS CAN BE SUBSTITUTED FOR THE DOUBLED 2" BY 6" WOODEN CHAIN BOARDS OR SINGLE 2" BY 6" STRAPPING BOARDS, AS SPECIFIED HEREIN, PROVIDED THE FOLLOWING CONDITIONS ARE MET.

1. SUBSTITUTION AND APPLICATION GUIDANCE

- A. FIRE HOSE MAY BE USED WHEREVER A CHAIN OR STRAPPING BOARD CONTACTS A RIGID SURFACE OF THE LOAD PROVIDED GOUGING, SCRATCHING, CRACKING, BENDING, CRUSHING, OR OTHER VISIBLE DAMAGE DOES NOT OCCUR TO THE LOAD.
- B. ONE OR MORE SEGMENTS OF FIRE HOSE MAY BE USED TO REPLACE EACH CHAIN OR STRAPPING BOARD PROVIDING LOAD PROTECTION DURING TENSIONING OF TIEDOWNS AND LOAD SHIPMENT; I.E., A CHAIN BOARD NEED NOT BE REPLACED BY A SINGLE SEGMENT OF HOSE, MULTIPLE SEGMENTS MAY BE USED INSTEAD, AS LONG AS THEY ARE SECURELY FASTENED TO THE TIEDOWN. REGARDLESS OF THE NUMBER OF SEGMENTS USED, THE HOSE LENGTH WILL BE SUCH THAT IT EXTENDS AT LEAST 6" BEYOND THE EDGE OF THE LOAD.
- C. FIRE HOSE CANNOT BE USED IN PLACE OF A PURCHASE BOARD ON A LOAD CONSISTING OF MORE THAN TWO PALLETS OR CONTAINERS ACROSS THE WIDTH OF THE TRAILER. THE FIRE HOSE CAN BE APPLIED TO THE OUTER STACKS, HOWEVER, A PURCHASE BOARD ASSEMBLY WILL STILL BE REQUIRED TO PROVIDE VERTICAL HOLD-DOWN ON THE CENTER STACK(S).

2. ACCEPTABLE FIRE HOSE

- A. FIRE HOSE TO BE USED WILL BE A RUBBER LINED SINGLE OR DOUBLE JACKETED TYPE; I.E., IT MUST HAVE A RUBBER LINING INSIDE A SINGLE OR DOUBLED FABRIC (COTTON, LINEN, ETC.) JACKET.
- B. THE COLLAPSED WIDTH OF THE HOSE MUST BE A MINIMUM OF 2-1/2".
- C. THE HOSE SEGMENTS USED MUST NOT CONTAIN DEFECTS THAT WILL ALLOW DIRECT CONTACT OF THE CHAIN OR LOAD BINDER WITH THE LOAD. THE HOSE THICKNESS MUST ALSO BE OF SUCH A THICKNESS THAT DENTING OR DAMAGE TO THE LOAD DOES NOT OCCUR DURING CHAIN OR STRAP TENSIONING.

4. SECUREMENT TO CHAINS OR STRAPS

- A. THE SEGMENTS OF HOSE USED UNDER EACH CHAIN OR STRAP WILL BE SECURED TO THE CHAIN OR STRAP WITH ONE FASTENER EVERY 12", WITH A MINIMUM OF TWO FASTENERS REQUIRED PER HOSE SEGMENT.
- B. FASTENERS CAN CONSIST OF PLASTIC ELECTRICAL TIES, NO. 14 GAGE WIRE, OR TAPE. REGARDLESS OF THE TYPE OF FASTENING USED, IT MUST PROVIDE A POSITIVE MEANS OF SECUREMENT OF THE HOSE TO THE CHAIN OR STRAP AND MUST NOT DAMAGE THE SURFACE OF THE CONTAINER, PALLET, OR ITEM IT CONTACTS.

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

LADING MAY BE SECURED TO THE FLATBED TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRAPPING, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGES 8 AND 9 ARE FOLLOWED.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY WILL BE USED. ALL CHAINS AND LOAD BINDERS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975.
2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 1975. AT LEAST ONE LINK IN EVERY 36 LINKS SHALL CARRY THE MANUFACTURER'S PERMANENT AND DISTINCTIVE MARK IDENTIFYING THE GRADE OF CHAIN. CHAINS NOT MARKED IN THIS MANNER SHALL NOT BE USED. IN ADDITION TO THE GRADE MARKING, THE CHAIN MAY ALSO CARRY LETTER MARKINGS OR SYMBOLS IDENTIFYING THE CHAIN MANUFACTURER. THE PRESENCE OF THE MANUFACTURER'S IDENTIFICATION MARKING IS NOT MANDATORY.
3. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. CAUTION: EXTREME CARE MUST BE EXERCISED WHEN TENSIONING CHAINS TO PREVENT DAMAGE OR PERMANENT DEFORMATION TO THE LADING.
4. CHAIN SIZES AND GRADES APPROVED FOR USE WITH FLATBED TRAILER LOADS ARE AS FOLLOWS:
 - A. 3/8", GRADE 43 HIGH TEST CHAIN
 - B. 5/16", GRADE 70 BINDING CHAIN
 - C. 3/8", GRADE 70 BINDING CHAIN
 - D. 5/16", GRADE 80 ALLOY STEEL CHAIN
 - E. 3/8", GRADE 80 ALLOY STEEL CHAIN
5. THE GRABHOOKS ON THE ENDS OF THE CHAIN MAY BE OF THE FOLLOWING TYPES WITH GRADE MARKINGS AS INDICATED.
 - A. CLEVIS GRABHOOKS, 3/8" SIZE, DO NOT REQUIRE GRADE MARKING. ALLOY GRABHOOKS, 5/16" SIZE, SHALL CARRY THE MANUFACTURER'S GRADE MARK OF 7, 70, OR 700. THE HOOKS SHALL BE USED ON THE APPROPRIATE SIZE CHAIN.
 - B. CLOSED EYE GRABHOOKS, 3/8" AND 5/16" SIZE, MAY BE USED ON THE APPROPRIATE SIZE CHAIN IF THEY ARE A PART OF A CHAIN ASSEMBLY WHICH WAS PROVIDED BY A CHAIN MANUFACTURER, AND THE CHAIN ASSEMBLY CARRIES THE CORRECT GRADE IDENTIFICATION MARKING AS PREVIOUSLY STATED. CLOSED EYE GRABHOOKS THAT FORM A PART OF THE CHAIN ASSEMBLY ARE EXEMPT FROM GRADE MARKINGS.
6. CONNECTING LINKS USED FOR CHAIN REPAIR MUST BE CORRECTLY MARKED AND BE EQUAL TO OR GREATER IN STRENGTH THAN THE CHAIN THEY ARE REPAIRING. CHAINS WITH UNMARKED CONNECTING LINKS SHALL NOT BE USED.
7. CHAIN AND FITTING OF A HIGHER GRADE MAY BE SUBSTITUTED FOR THE GRADES SPECIFIED IN NOTE 4 ABOVE.
8. LOAD BINDERS SHALL BE 5/16" TO 3/8" SIZE AND HAVE A MINIMUM BREAKING STRENGTH OF 16,200 POUNDS (WORKING LOAD LIMIT OF 5,400 POUNDS). OVERCENTER TYPE LOAD BINDERS SHALL BE SAFETY WIRED TO PREVENT ACCIDENTAL OPENING DURING TRANSPORT. LOAD BINDER SIZE SHALL BE COMPATIBLE WITH THE SIZE OF THE CHAIN BEING USED.