| APPROVED BY | APPROVED BY |
|---|---|
| US COAST GUARD<br>N.S. Schuring CAPT USCG<br>DATE 4-25-73 | BUREAU OF EXPLOSIVES<br>A. F. Grassmuck<br>MILITARY ASSISTANT<br>DATE 4/4/73 |
| REVISION NO 1<br>SIGNED [illegible]<br>DATE [illegible] | REVISION NO 1<br>SIGNED A. F. Grassmuck<br>DATE 3/7/74 |
| REVISION NO 2<br>SIGNED N.S. Schuring CAPT USCG<br>DATE 10-29-74 | REVISION NO 2<br>SIGNED A. F. Grassmuck<br>DATE 10/15/74 |

# SHILLELAGH

# LOADING AND BRACING◑ IN MILVAN CONTAINERS⊕ OF GUIDED MISSILE, PACKED IN THE M555 CONTAINER, UNPALLETIZED AND PALLETIZED, FOR SHIPMENT BY T/COFC CARRIER

◑ LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLAT-CAR ( T/COFC ) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER OR AIR CARRIERS. SEE GENERAL NOTE "R" ON PAGE 2.

⊕ ONLY MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD-BRACING SYSTEM THAT SATISFIES THE REQUIREMENTS OF THE BUREAU OF EXPLOSIVES PAMPHLET 6C WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE. CAUTION: OTHER REQUIREMENTS OF PAMPHLET 6C ALSO APPLY.

INDEX



| REVISIONS | | | | DRAFTSMAN DKP Alec | PROJ ENG DIW/MW | AMSMI-SP Fleet Reed |
|---|---|---|---|---|---|---|
| | | | | CHECKER WOH/GWP | LOG ENGRG OFFICE John Byrd | |
| 1 | JAN 74 | MW/DIW | Wesley P. Gilleland | APPROVED | | |
| | | DIW | John L Byrd | Wesley P. Gilleland | | |
| 2 | AUG 74 | MW/DIW | David Anderson | U. S. ARMY MISSILE COMMAND | | |
| | | DIW | A J Ehringer | APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND<br>A J Ehringer<br>USAMC AMMO CENTER | | |
| | | | | U.S. ARMY MATERIEL COMMAND | | |
| | | | | MAY 1973 | | |
| | | | | CLASS | DIVISION | DRAWING | FILE |
| | | | | 19 | 48 | 5931 | GM 15SHI |

DO NOT SCALE

PROJECT GM 657-72

## 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. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO THE SHILLELAGH GUIDED MISSILE WHEN PACKED IN THE M555 CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE COMPONENTS.

C. FOR DETAIL OF THE M555 CONTAINER, SEE DRAWING NO. 8034969 AND "CONTAINER" DETAIL ON PAGE 3.

CONTAINER DIMENSIONS --- 52-1/2" LONG X 14-3/4" WIDE X 14-3/4" HIGH.
GROSS WEIGHT ---------- 116 POUNDS ( APPROX ).
CUBE ---------- 6.8 CUBIC FEET

D. FOR DETAIL OF THE PALLET UNIT, SEE U. S. ARMY MATERIEL COMMAND DRAWING NO. 19-48-5225-GM 20P2 AND "PALLET UNIT" DETAIL ON PAGE 3.

PALLET UNIT DIMENSIONS --- 52-1/2" LONG X 45" WIDE X 51-1/2" HIGH.
GROSS WEIGHT ---------- 1,167 POUNDS ( APPROX ).
CUBE---------- 70.5 CUBIC FEET.

E. THIS ITEM IS A DOT CLASS "A" EXPLOSIVE, AND A COAST GUARD CLASS X-C. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.

F. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN THE MILVAN CONTAINERS WHICH ARE PARTIALLY LOADED WITH THE DESIGNATED ITEMS, 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.

G. THE LOADS AS SHOWN ARE BASED ON A 20' LONG BY 8' WIDE BY 8' HIGH MILVAN CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 87" HIGH. THE LOADS ARE DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR SERVICE.

H. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED WITHIN BUREAU OF EXPLOSIVES PAMPHLET 6C. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. THE HEIGHT DIMENSIONS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS CONFORM WITH BUREAU OF EXPLOSIVES PAMPHLET 6C, WITH THE EXCEPTION THAT TWO ( 2 ) ADDITIONAL BELT RAILS HAVE BEEN SHOWN; ONE AT 72" AND ONE AT 83" HEIGHT FROM THE CONTAINER FLOOR. VOIDS LENGTHWISE WITHIN THE 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. 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 CONTAINER ). CROSS MEMBERS IN EMPTY CONTAINERS AND THOSE NOT USED IN LOADED CONTAINERS MUST BE FASTENED INTO BELT RAILS FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH CONTAINER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. SEE THE "FILL DETAIL" ON PAGE 7 FOR THE DUNNAGING METHOD REQUIRED TO ELIMINATE AN EXCESSIVE LENGTHWISE VOID WITHIN A LOAD. SEE GENERAL NOTE "S".

J. VOIDS BETWEEN THE LADING OR THE FILL MATERIAL AND CROSS MEMBERS MUST NOT EXCEED ONE-HALF INCH ( 1/2" ). ADDITIONAL MATERIAL MAY BE ADDED TO THE CROSS MEMBER OR THINNER MATERIAL MAY BE USED TO ACHIEVE THE PROPER THICKNESS AS REQUIRED.

K. DUNNAGE LUMBER SPECIFIED IS OF A NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" OR 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-5/8" THICK BY 5-5/8" WIDE OR 1-1/2" THICK BY 5-1/2" WIDE.

L. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.

M. A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMINATING DUNNAGE. 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 ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

N. PORTIONS OF THE CONTAINERS DEPICTED WITHIN THIS DRAWING SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

( CONTINUED AT RIGHT )

( GENERAL NOTES CONTINUED FROM LEFT )

O. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, TWO ( 2 ) SEALS, BUTTED TOGETHER, WITH TWO ( 2 ) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. WHEN ANY STRAP IS INSTALLED AROUND A BELT RAIL WITH A LAP-BACK-ON-SELF JONT, ONE ( 1 ) SEAL WITH TWO ( 2 ) PAIR OF CRIMPS WILL BE USED.

P. MAXIMUM LOAD WEIGHT CRITERIA:

BECAUSE OF THE LIGHT WEIGHT OF THE AMMUNITION, A LOAD WEIGHT WILL NEVER EXCEED ANY WEIGHT RESTRICTION CRITERIA.

SEE THE SPECIAL NOTE SECTION OPPOSITE THE BASIC LOADS FOR INSTRUCTIONS WHICH MUST BE APPLIED IF A CONTAINER IS TO BE LOADED WITH LESS UNITS THAN SHOWN IN THE BASIC LOADS ON PAGES 4, 8, AND 10.

R. SPECIAL T/COFC NOTES:

1. CAUTION: LOADED CONTAINERS MUST BE ON CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE; REGARDLESS OF LOAD WEIGHT WITHIN THE CONTAINER.

2. LOAD LIMITS OF T/COFC RAIL CARS MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

3. CHASSIS/CONTAINERS COUPLED INTO A 40-FOOT TRAILER CONFIGURATION MUST BE PLACED AT THE B-END OF A TOFC RAIL CAR. THE REAR END OF THE 40-FOOT UNIT WILL OVER-HANG THE END OF THE CAR IF IT IS PLACED AT THE A-END. TWENTY-FOOT AND 40-FOOT UNITS CAN BE LOADED ON THE SAME CAR.

S. THE LOAD BLOCKING COMPONENT DESIGNATED AS "CROSS MEMBER" HEREIN, IS IDENTIFIED AS "BEAM ASSEMBLY" WITHIN TM 55-8115-200-24, DATED SEPTEMBER 1972. THE BEAM ASSEMBLY IS FURTHER IDENTIFIED AS NSN 8115-00-165-6623 ( FSN 8115-165-6623 ).

T. SHIPMENTS OF MIXED LOADS OF PALLETIZED AND UNPALLETIZED CONTAINERS ARE PERMITTED BY SPECIFICATIONS DELINEATED ON PAGES 10 THRU 12. THESE LOADS ARE ESPECIALLY APPLICABLE WHEN SHIPMENTS ARE BEING MADE FROM PALLETIZED STOCKS AND/OR THE LADING ITEMS HAVE TO BE HANDLED IN A PALLETIZED CONFIGURATION AFTER THEY REACH THEIR DESTINATION.

U. NOTICE: THREE BASIC LOAD ARRANGEMENTS ARE SPECIFIED WITHIN THIS DRAWING; AN UNPALLETIZED LOAD, A PALLETIZED LOAD AND A MIXED LOAD OF UNPALLETIZED AND PALLETIZED MISSILES. IF IT BEST SUITS A SHIPMENT, LOADING AND BRACING METHODS CAN BE SELECTED FROM TWO OR MORE OF THE BASIC LOADS AND USED TO BUILD A COMBINATION LOAD. WHEN A COMBINATION LOAD IS CONSTRUCTED, EACH PORTION OF THE LOAD MUST BE LOADED AND BRACED IN ACCORDANCE WITH THE SPECIFICATIONS WHICH ARE APPLICABLE TO THE BASIC LOAD FROM WHICH THE LOAD PORTION WAS SELECTED. FOR EXAMPLE, IF SIX PALLET UNITS AND 30 UNPALLETIZED MISSILES ARE TO BE SHIPPED IN ONE MILVAN, THE SIX PALLET UNITS COULD BE LOADED IN THE FORWARD END OF THE MILVAN AND BLOCKED WITH FOUR CROSS MEMBERS AT EACH END OF THE LOAD, AND THE 30 UNPALLETIZED MISSILES COULD BE LOADED INTO ONE STACK AT THE REAR OF THE MILVAN AND BLOCKED AND BRACED WITH CROSS MEMBERS AND WOODEN DUNNAGE IN ACCORDANCE WITH SPECIFICATIONS DELINEATED FOR THE LOAD DEPICTED ON PAGE 4. NOTE THAT TWO ADDITIONAL CROSS MEMBERS WOULD BE REQUIRED AT THE FORWARD END OF THE UNPALLETIZED STACK TO BRACE THE FIFTH AND SIXTH LAYER MISSILES.

## 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 THE SAME SIZE.

WIRE ----------: FED SPEC QQ-W-461.

STRAPPING, STEEL: TYPE I OR IV, FINISH A OR B, FED SPEC QQ-S-781.

SEAL, STRAP:
STAPLE, STRAP---: COMMERCIAL GRADE.

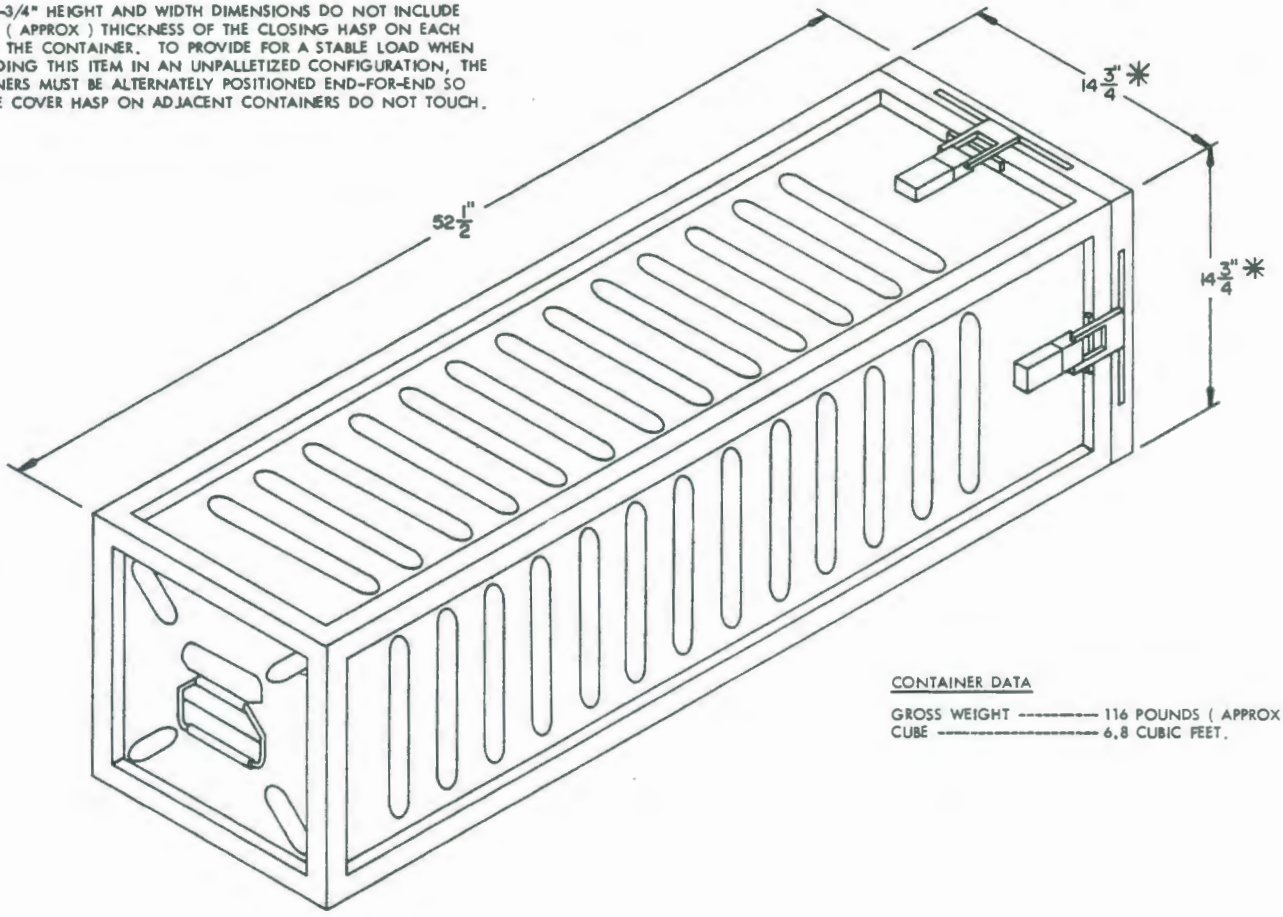
PLYWOOD -------: GROUP B OR C, GRADE C-D ( EXTERIOR ). FED SPEC NN-P-530. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

## REVISIONS

REVISION NO. 1, DATED JANUARY 1974, CONSISTS OF:
1. ADDING A SUPPORT ASSEMBLY TO THE RISER CROSS MEMBERS.
2. INCREASING THE LOAD QUANTITY OF PALLETIZED UNITS.
3. REMOVING THE TOMMING ( HOLD DOWNS ) FROM THE TOP OF THE PALLETIZED LOADS ONLY.

REVISION NO. 2, DATED AUGUST 1974, CONSISTS OF:
1. ADDING A COMBINATION LOAD OF UNPALLETIZED AND PALLETIZED CONTAINERS.

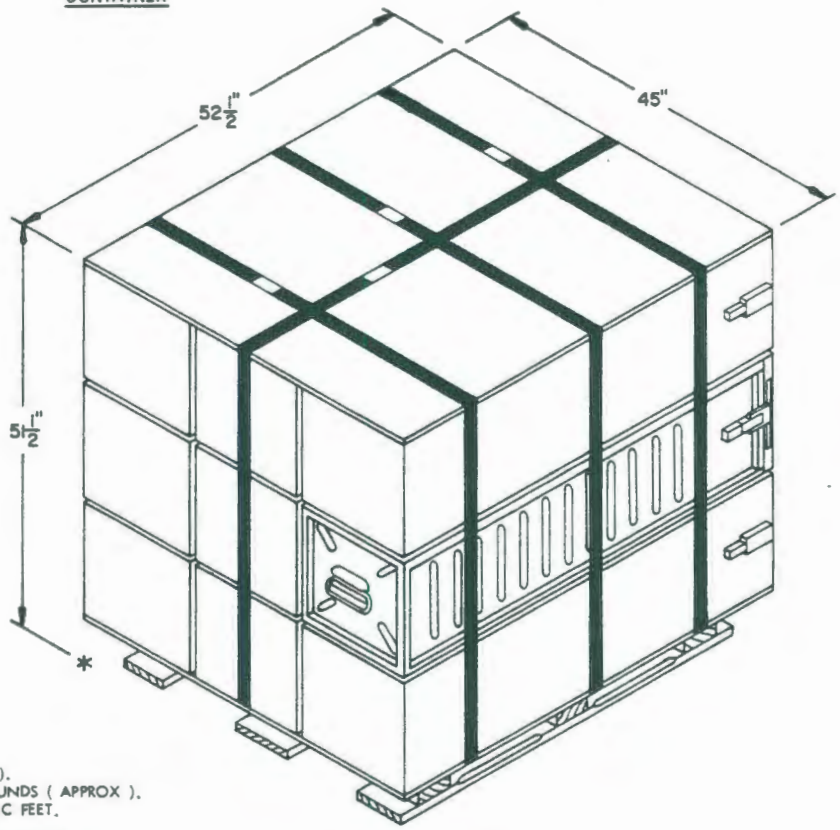
* THESE 14-3/4" HEIGHT AND WIDTH DIMENSIONS DO NOT INCLUDE THE 1/8" ( APPROX ) THICKNESS OF THE CLOSING HASP ON EACH FACE OF THE CONTAINER. TO PROVIDE FOR A STABLE LOAD WHEN OUTLOADING THIS ITEM IN AN UNPALLETIZED CONFIGURATION, THE CONTAINERS MUST BE ALTERNATELY POSITIONED END-FOR-END SO THAT THE COVER HASP ON ADJACENT CONTAINERS DO NOT TOUCH.




CONTAINER DATA

GROSS WEIGHT ---------- 116 POUNDS ( APPROX ).
CUBE ---------- 6.8 CUBIC FEET.

CONTAINER



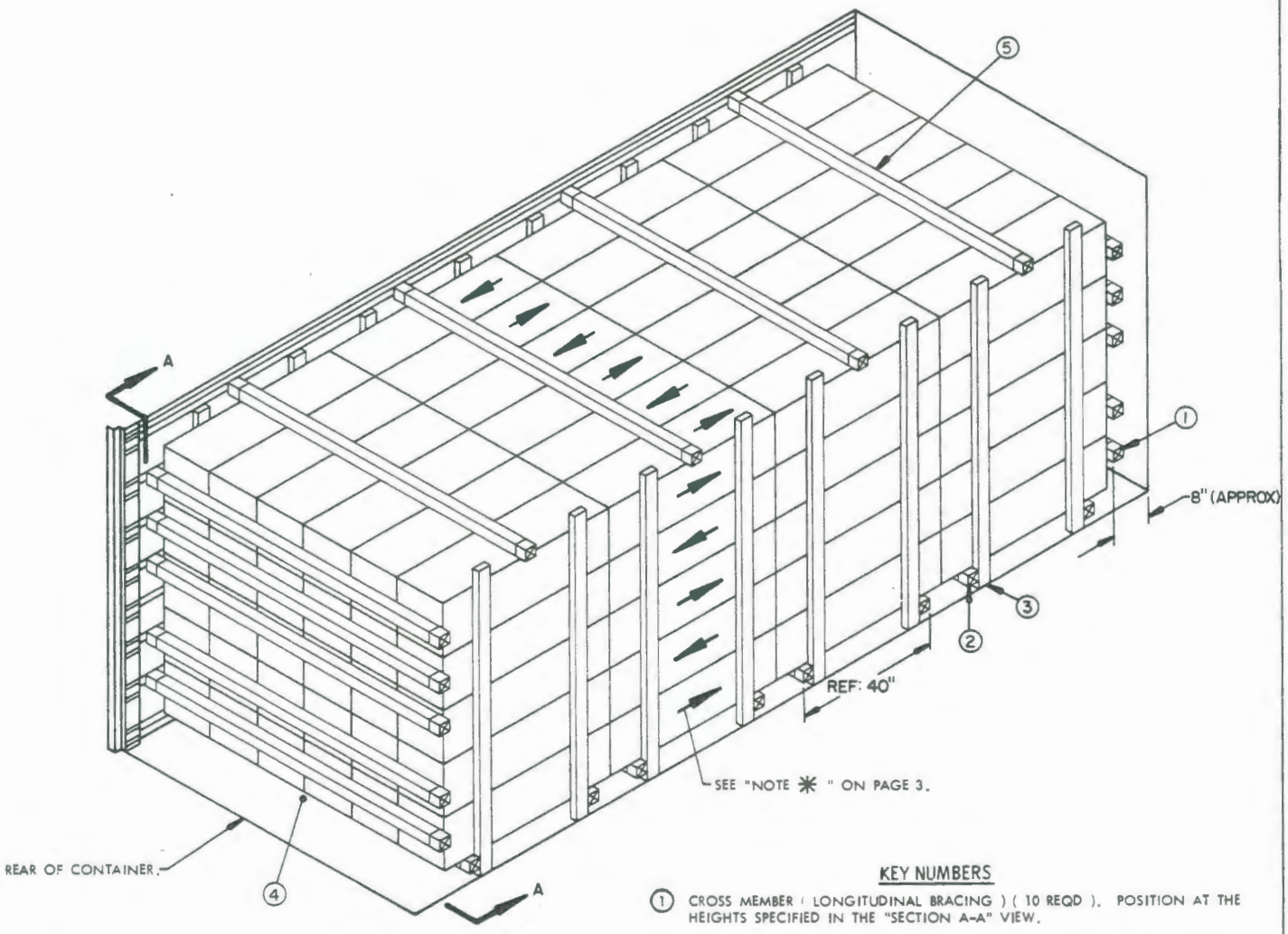

PALLET UNIT DATA

NUMBER OF CONTAINERS ----- NINE ( 9 ).
GROSS WEIGHT ---------- 1,167 POUNDS ( APPROX ).
CUBE ---------- 70.5 CUBIC FEET.

NOTE: THE PALLET UNIT SHOWN HEREON CONFORMS TO REVISION 1 OF DRAWING 19-48-5225-GM20P2. THE LOADING AND BRACING SPECIFICATIONS SET FORTH HEREIN ARE ALSO APPLICABLE TO THE PALLET UNIT DESCRIBED BY THE BASIC ISSUE OF DRAWING 5225.

PALLET UNIT

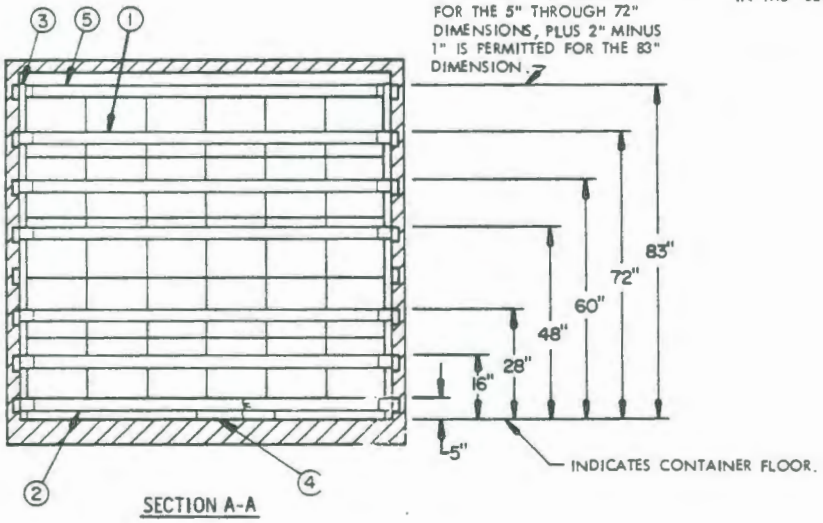
CONTAINER AND PALLET UNIT DETAIL




ISOMETRIC VIEW

## KEY NUMBERS

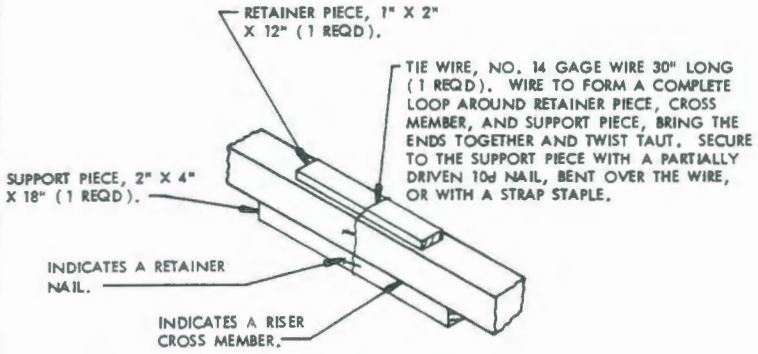
1. CROSS MEMBER ( LONGITUDINAL BRACING ) ( 10 REQD ). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION A-A" VIEW.
2. CROSS MEMBER ( RISER ) ( 8 REQD ). POSITION AT THE HEIGHT SPECIFIED IN THE "SECTION A-A" VIEW.
3. SIDE FILL, 2" X 4" BY LADING HEIGHT ( 16 REQD ). SEE "SIDE FILL SECUREMENT" DETAIL ON PAGE 5.
4. SUPPORT ASSEMBLY ( 8 REQD ). SEE THE "SUPPORT ASSEMBLY" DETAIL ON PAGE 5.
5. CROSS MEMBER ( HOLD DOWN ) ( 8 REQD ). POSITION AT THE HEIGHT SPECIFIED IN THE "SECTION A-A" VIEW.




SECTION A-A

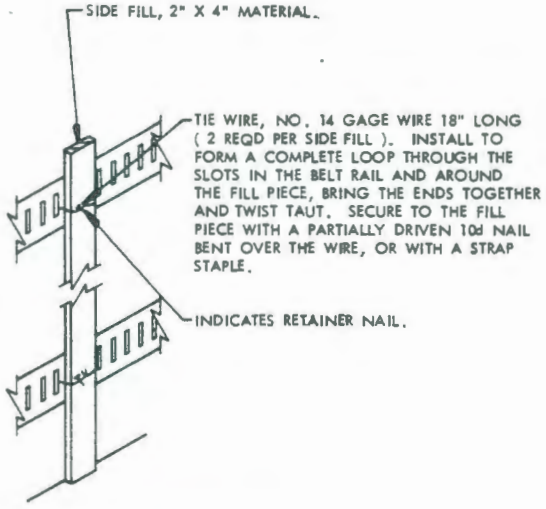


UNPALLETIZED LOAD




## SUPPORT ASSEMBLY

THE RETAINER PIECE MUST BE CENTERED UNDER A CONTAINER SO AS TO FIT INTO THE RECESS ON THE SIDE OF A CONTAINER.




## SIDE FILL SECUREMENT

SEE SPECIAL NOTE "6" AT RIGHT.

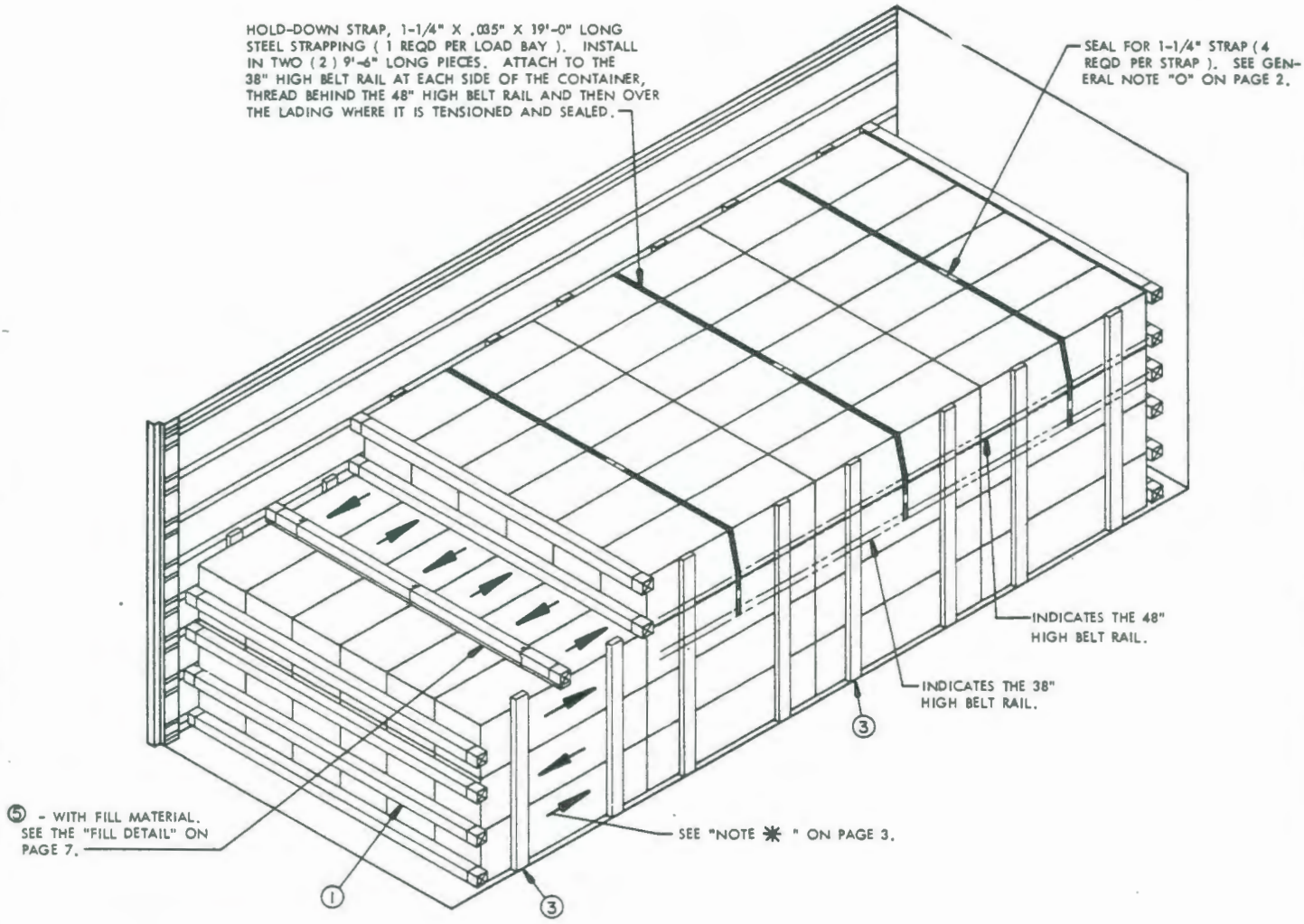
| BILL OF MATERIAL | | |
|---|---|---|
| LUMBER | LINEAR FEET | BOARD FEET |
| 1" X 2"<br>2" X 4" | 8<br>124 | 2<br>83 |
| NAILS | NO. REQD | POUNDS |
| 10d (3") | 40 | 3/4 |
| WIRE, NO. 14 GAGE ------ 64' REQD ---------- 1 LB | | |
| CROSS MEMBER ---------- 22 REQD | | |

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 4 DEPICTS A 120-CONTAINER LOAD IN A MILVAN CONTAINER.
2. IF A MILVAN CONTAINER IS TO BE LOADED WITH LESS CONTAINERS THAN SHOWN IN THE LOAD VIEW ON PAGE 4, THEY SHOULD BE ELIMINATED FROM THE REAR OF THE LOAD.
3. IF A MILVAN CONTAINER IS TO BE LOADED WITH LESS CONTAINERS THAN SHOWN IN THE LOAD VIEW ON PAGE 4, A "FILLER" ASSEMBLY MAY ALSO BE USED TO FILL THE VOID IN A LOAD FOR AN OMITTED CONTAINER. THE FILLER MUST BE USED IN THE TOP LAYER ONLY, AND NEAR THE CENTER OF THE LOAD, IF POSSIBLE. IF A FILLER ASSEMBLY MUST BE USED ADJACENT TO A CROSS MEMBER, CARE SHOULD BE EXERCISED TO INSURE THAT THE CROSS MEMBER CONTACTS THE BUFFER BOARD OF THE FILLER.
4. SEE THE "ALTERNATIVE LOADING PATTERN" AND THE "ALTERNATIVE HOLD-DOWN METHOD" DETAILS ON PAGES 6 AND 7 FOR SHIPPING PARTIAL LAYERS.
5. SPECIFICATIONS FOR THE "BASIC LOAD", FOR THE "ALTERNATIVE LOADING PATTERN", AND FOR THE "ALTERNATIVE HOLD-DOWN METHOD" SHOWN ON PAGES 6 AND 7 WILL BE APPLIED SEPARATELY OR IN COMBINATION TO BLOCK AND BRACE OTHER THAN 120-CONTAINER LOADS.
6. THE THICKNESS OF THE SIDE FILL PIECES MUST BE ADJUSTED AS REQUIRED SO AS TO NOT ALLOW MORE THAN ONE-HALF INCH (1/2") VOID ACROSS THE WIDTH OF A BRACED LOAD.

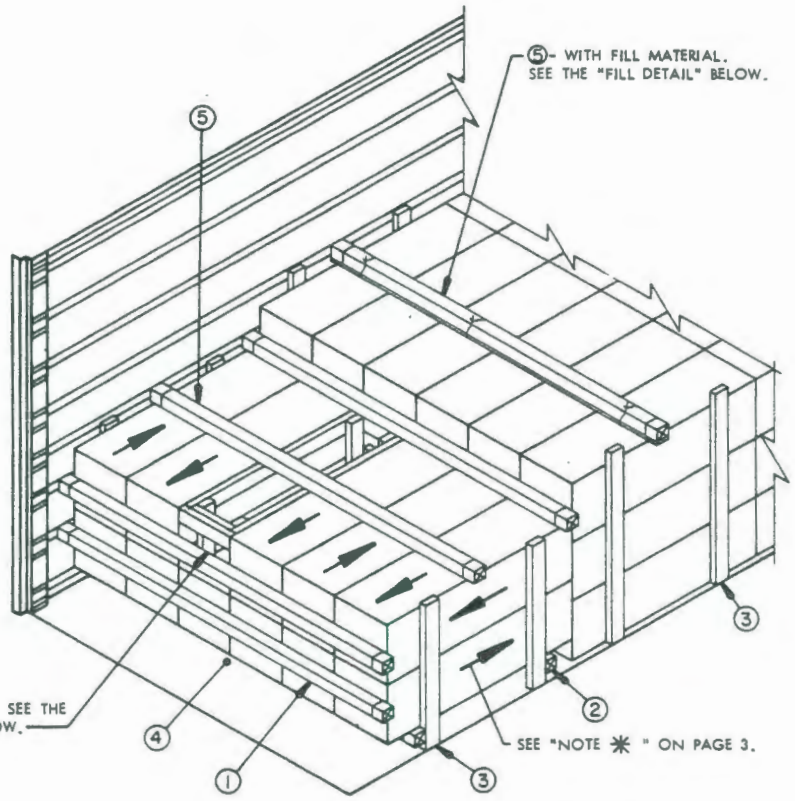
## LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT (APPROX) |
|---|---|---|
| MISSILE CONTAINER | 120 | 13,920 LBS |
| DUNNAGE | | 214 LBS |
| CONTAINER | | 5,700 LBS |
| TOTAL GROSS WEIGHT | | 19,834 LBS |



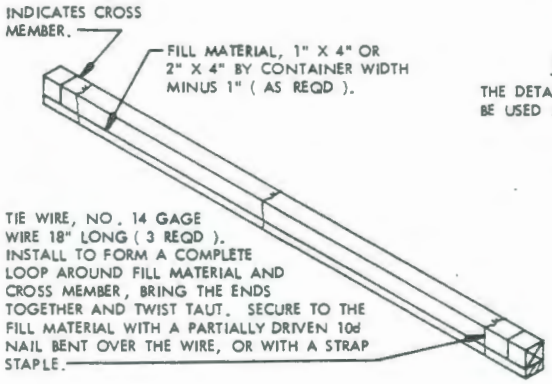

ALTERNATIVE HOLD-DOWN METHOD

THE VIEW ABOVE SPECIFIES A BLOCKING METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD AND AN ALTERNATIVE HOLD-DOWN METHOD.



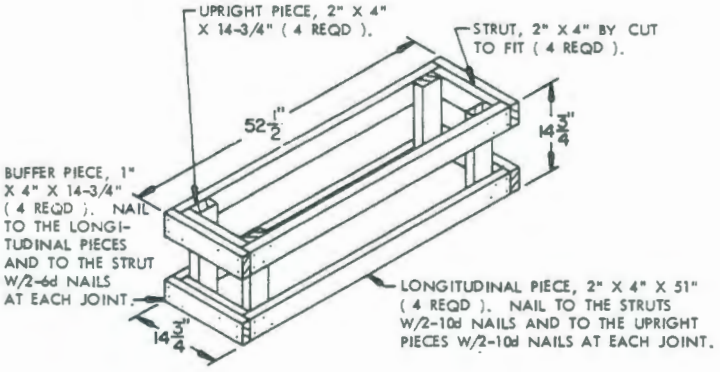

## ALTERNATIVE LOADING PATTERN

THE DETAIL ABOVE SPECIFIES A BLOCKING METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD.




## FILL DETAIL

SEE "NOTE ☒ " AT RIGHT.

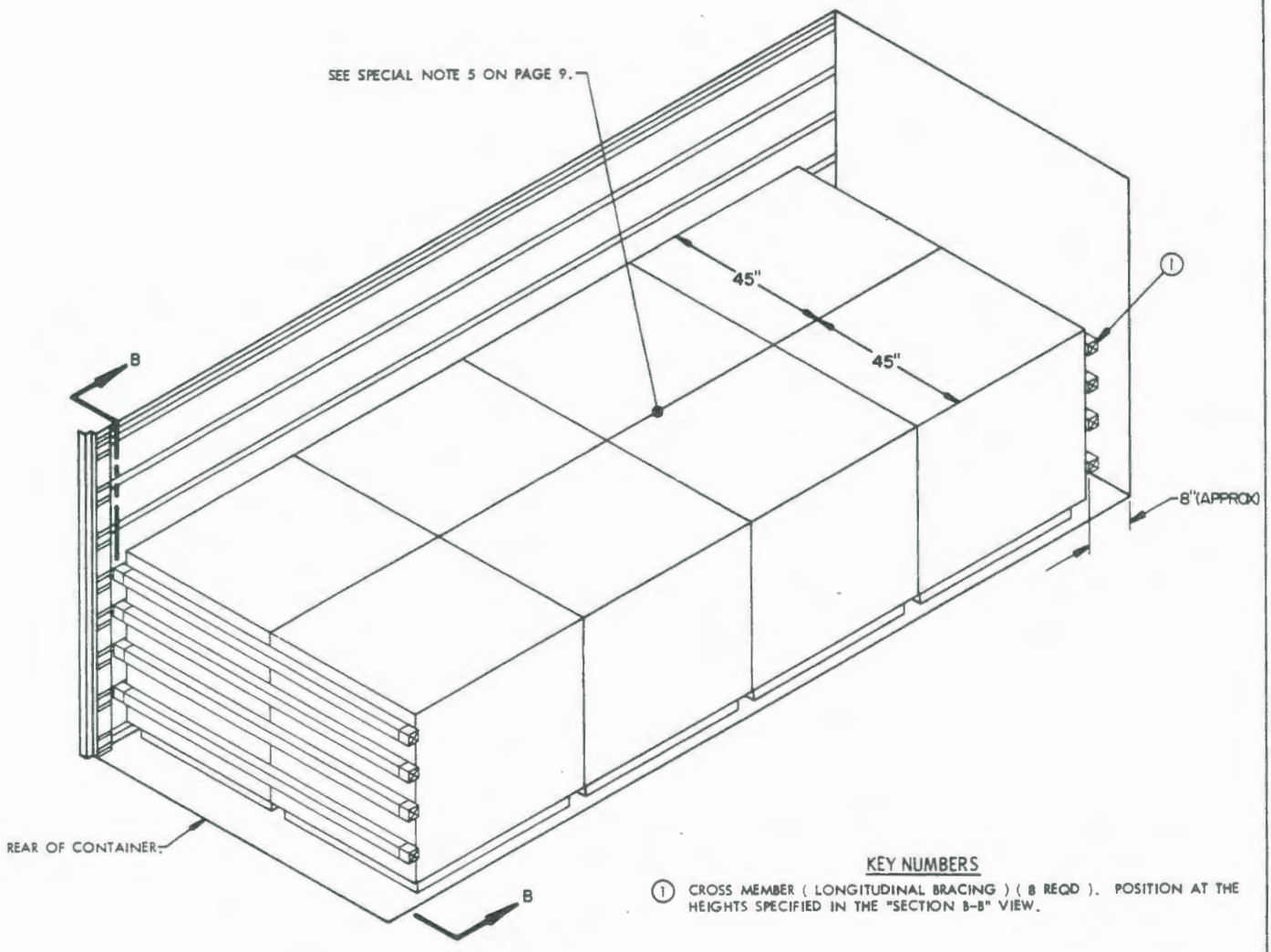



## FILLER

SEE SPECIAL NOTE "3" ON PAGE 5.

NOTE ☒ :

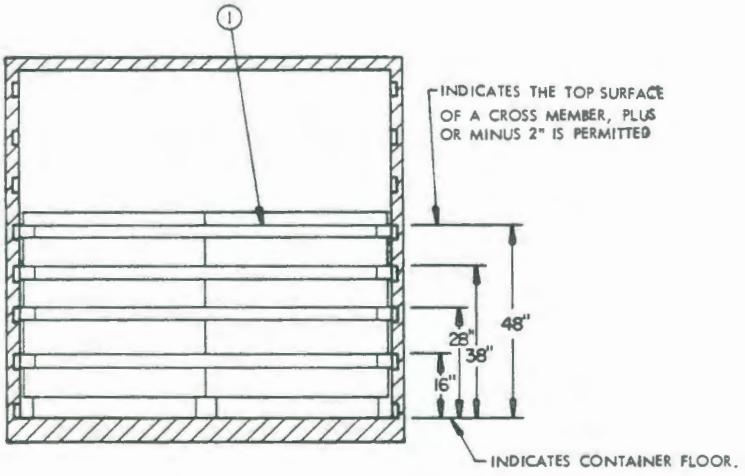
THIS DETAIL DEPICTS METHOD OF POSITIONING FILL MATERIAL BETWEEN CROSS MEMBER AND LADING WHEN THE VOID BETWEEN THE TWO IS GREATER THAN ONE INCH ( 1" ) FOR LONGITUDINAL BRACING OR ONE-HALF INCH ( 1/2" ) FOR VERTICAL BRACING. THIS METHOD CAN BE USED ON THE SIDE OF A LONGITUDINAL-BRACING CROSS MEMBER OR ON THE BOTTOM OF A HOLD-DOWN CROSS MEMBER.




ISOMETRIC VIEW

KEY NUMBERS

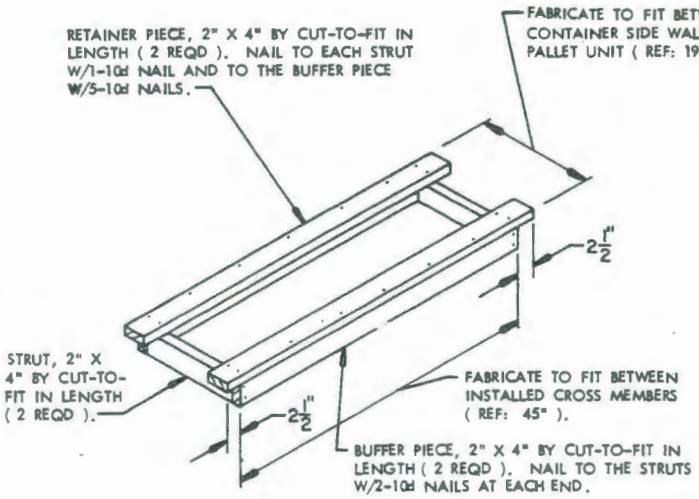
(1) CROSS MEMBER ( LONGITUDINAL BRACING ) ( 8 REQD ). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION B-B" VIEW.




SECTION B-B



PALLETIZED LOAD

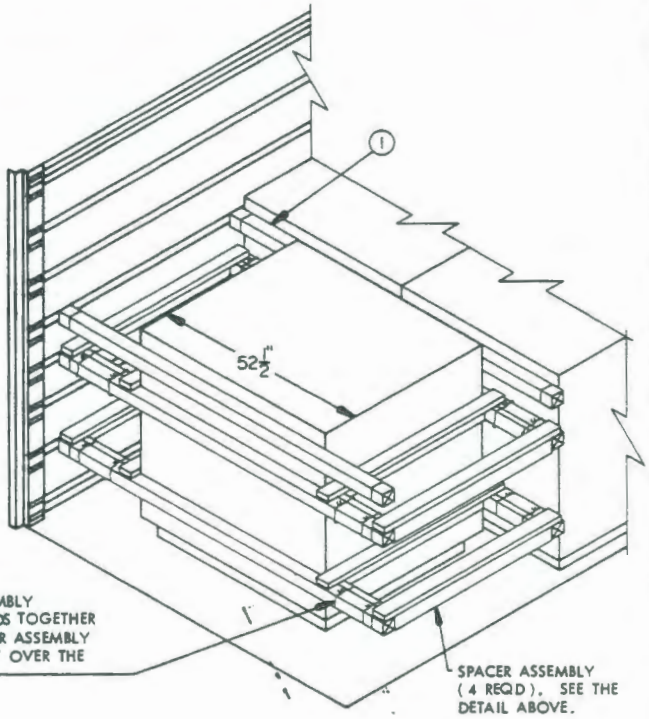



## SPACER ASSEMBLY

SEE SPECIAL NOTE "4" AT RIGHT.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 8 DEPICTS AN EIGHT-PALLET UNIT LOAD IN A MILVAN CONTAINER.
2. IF A MILVAN CONTAINER IS TO BE LOADED WITH LESS PALLET UNITS THAN SHOWN IN THE LOAD VIEW ON PAGE 8, PALLET UNITS SHOULD BE ELIMINATED FROM THE REAR OF THE LOAD. FOR EXAMPLE IF ONLY SEVEN UNITS ARE TO BE LOADED, THE METHOD SPECIFIED BY THE "ALTERNATIVE LOADING PATTERN" SHOWN BELOW MUST BE APPLIED.
3. SPECIFICATIONS FOR THE "BASIC LOAD", AND THE "ALTERNATIVE LOADING PATTERN", SHOWN BELOW WILL BE APPLIED SEPARATELY OR IN COMBINATION TO BLOCK AND BRACE OTHER THAN EIGHT-UNIT LOADS.
4. THE SPACER ASSEMBLY NEED NOT BE FABRICATED FOR A DRIVE FIT. THE ASSEMBLY SHOULD BE FABRICATED SO THAT IT CAN BE EASILY INSTALLED. HOWEVER, IT MUST FIT TIGHT ENOUGH SO AS TO NOT ALLOW MORE THAN ONE-HALF INCH ( 1/2" ) VOID ACROSS THE WIDTH OF A BRACED LOAD.
5. TO MAKE LOADING EASIER, TO HELP ACHIEVE A TIGHT LOAD ACROSS A CONTAINER, AND TO PREVENT UNACCEPTABLE DAMAGE TO LADING UNITS WHEN LOADING A MILVAN, A SLIP-SHEET CAN BE USED EFFECTIVELY AS A "SHOEHORN" TYPE DEVICE. THE SLIP-SHEET WILL PROVIDE A SMOOTH SURFACE THAT WILL PREVENT UNIT STRAPS AND/OR BOX CLEATS FROM INTERLOCKING OR CATCHING ON OTHER PROJECTIONS WHEN LATERALLY ADJACENT LADING UNITS ARE BEING LOADED. A SLIP-SHEET WILL BE USED AFTER ONE-HALF OF A STACK IS LOADED WITH ONE OF ITS SIDES IN TIGHT CONTACT AT ONE SIDE OF THE MILVAN. THE SLIP-SHEET IS TO BE PLACED AGAINST THE OTHER SIDE OF THE HALF-STACK BEFORE THE LAST HALF OF THE STACK IS LOADED. AFTER A STACK IS COMPLETED, THE SLIP-SHEET IS TO BE REMOVED FOR SUBSEQUENT USE WITH THE NEXT STACK. A SLIP-SHEET OF SUITABLE SIZE CAN BE MADE FROM A SHEET OF 1/8" TEMPERED HARDBOARD ( MASONITE ) OR FROM A SHEET OF ANY OTHER MATERIAL THAT WILL SATISFY THE REQUIREMENT. NOTE THAT SOMETIMES IT IS ADVANTAGEOUS TO USE TWO SLIP-SHEETS; ONE BETWEEN LADING UNITS AND ONE AT THE SIDE OF THE MILVAN. BOTH ARE TO BE REMOVED AFTER USE.




| BILL OF MATERIAL | |
|---|---|
| CROSS MEMBER | 8 REQD |

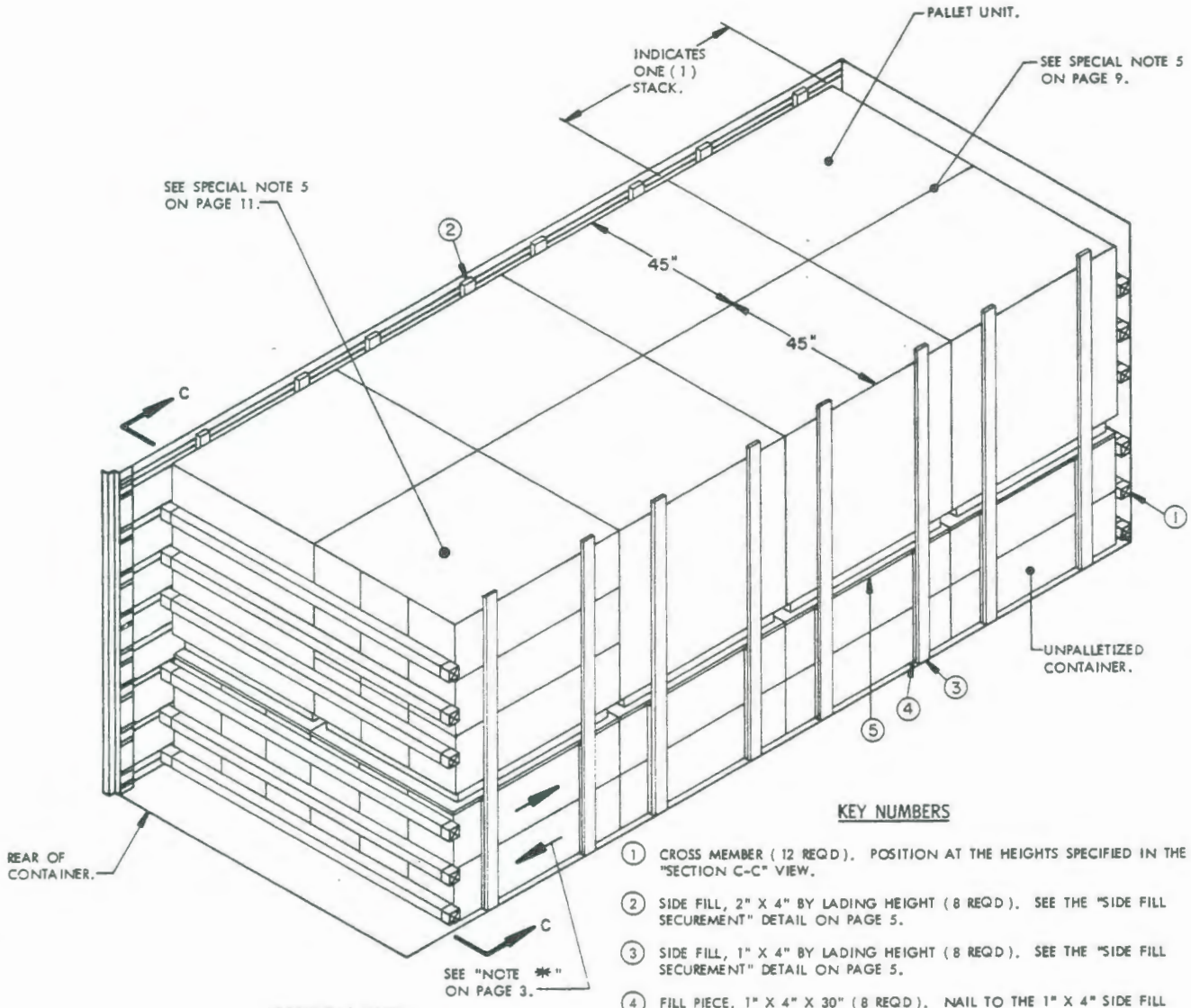
## ALTERNATIVE LOADING PATTERN

THE DETAIL ABOVE SPECIFIES A BLOCKING METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD.

### LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT ( APPROX ) |
|---|---|---|
| PALLET UNIT | 8 | 9,336 LBS |
| DUNNAGE | | NIL LBS |
| CONTAINER | | 5,700 LBS |
| TOTAL GROSS WEIGHT | | 15,036 LBS |

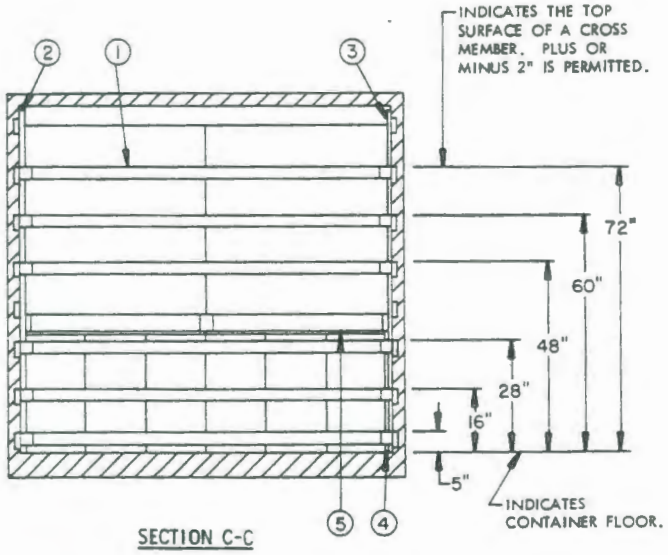
## PALLETIZED LOAD




ISOMETRIC VIEW

KEY NUMBERS

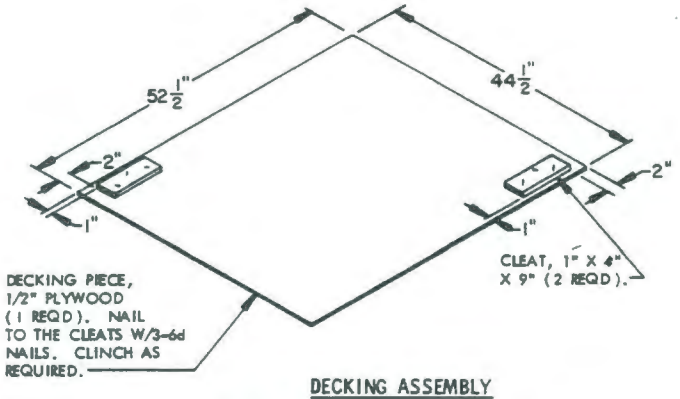
1. CROSS MEMBER ( 12 REQD ). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION C-C" VIEW.
2. SIDE FILL, 2" X 4" BY LADING HEIGHT ( 8 REQD ). SEE THE "SIDE FILL SECUREMENT" DETAIL ON PAGE 5.
3. SIDE FILL, 1" X 4" BY LADING HEIGHT ( 8 REQD ). SEE THE "SIDE FILL SECUREMENT" DETAIL ON PAGE 5.
4. FILL PIECE, 1" X 4" X 30" ( 8 REQD ). NAIL TO THE 1" X 4" SIDE FILL PIECE W/3-6d NAILS. CLINCH NAILS AS REQUIRED.
5. DECK ASSEMBLY ( 8 REQD ). SEE THE "DECKING ASSEMBLY" DETAIL ON PAGE 11.




SECTION C-C



COMBINATION UNPALLETIZED/PALLETIZED LOAD




DECKING ASSEMBLY

THE ASSEMBLY DEPICTED ABOVE HAS BEEN SHOWN UPSIDE DOWN FOR CLARITY PURPOSES.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 10 DEPICTS A COMBINATION LOAD OF 48 UNPALLETIZED CONTAINERS AND 8 PALLET UNITS OF CONTAINERS IN A MILVAN CONTAINER.
2. IF A CONTAINER IS TO BE LOADED WITH LESS CONTAINERS THAN SHOWN IN THE LOAD VIEW ON PAGE 10, CONTAINERS SHOULD BE ELIMINATED FROM THE REAR OF THE LOAD. FOR EXAMPLE, IF ONLY 41 UNPALLETIZED CONTAINERS ARE TO BE LOADED, THE METHOD SPECIFIED BY THE "ALTERNATIVE LOADING PATTERN" DETAILS SHOWN ON PAGE 12 MUST BE USED.
3. IF A MILVAN CONTAINER IS TO BE LOADED WITH LESS CONTAINERS THAN SHOWN IN THE LOAD VIEW ON PAGE 10, A "FILLER" ASSEMBLY MAY ALSO BE USED TO FILL THE VOID IN A LOAD FOR AN OMITTED CONTAINER. THE FILLER MUST BE USED IN THE TOP LAYER OF CONTAINERS ONLY. IF A FILLER ASSEMBLY MUST BE USED ADJACENT TO A CROSS MEMBER, CARE SHOULD BE EXERCISED TO INSURE THAT THE CROSS MEMBER CONTACTS THE BUFFER BOARD OF THE FILLER ASSEMBLY.
4. SPECIFICATIONS FOR THE "BASIC LOAD", AND THE "ALTERNATIVE LOADING PATTERNS" SHOWN ON PAGE 12 WILL BE APPLIED SEPARATELY OR IN COMBINATION TO BLOCK AND BRACE OTHER THAN 48 UNPALLETIZED CONTAINERS WITH 8-PALLET UNITS. NOTICE: IT IS NOT PERMITTED TO LOAD UNPALLETIZED CONTAINERS IN A STACK WHICH CONTAINS JUST ONE (1) PALLET UNIT. HOWEVER, IT IS PERMITTED TO LOAD AND BRACE A STACK OF JUST ONE (1) PALLET UNIT BY APPLYING THE SPECIFICATIONS DELINEATED WITHIN THE "ALTERNATIVE LOADING PATTERN" DETAIL SHOWN ON PAGE 9. IF NECESSARY, ADJUSTMENTS TO MORE THAN ONE STACK CAN BE ACCOMPLISHED TO SATISFY A REDUCED-LOAD QUANTITY THAT IS TO BE SHIPPED.
5. WHEN LOADING THE TWO (2) PALLET UNITS IN THE MOST REARWARD STACK IN A LOAD AS SHOWN ON PAGE 10, THE FIRST PALLET UNIT OF THE TWO WILL BE LOADED INTO THE RIGHT REAR CORNER OF THE MILVAN.

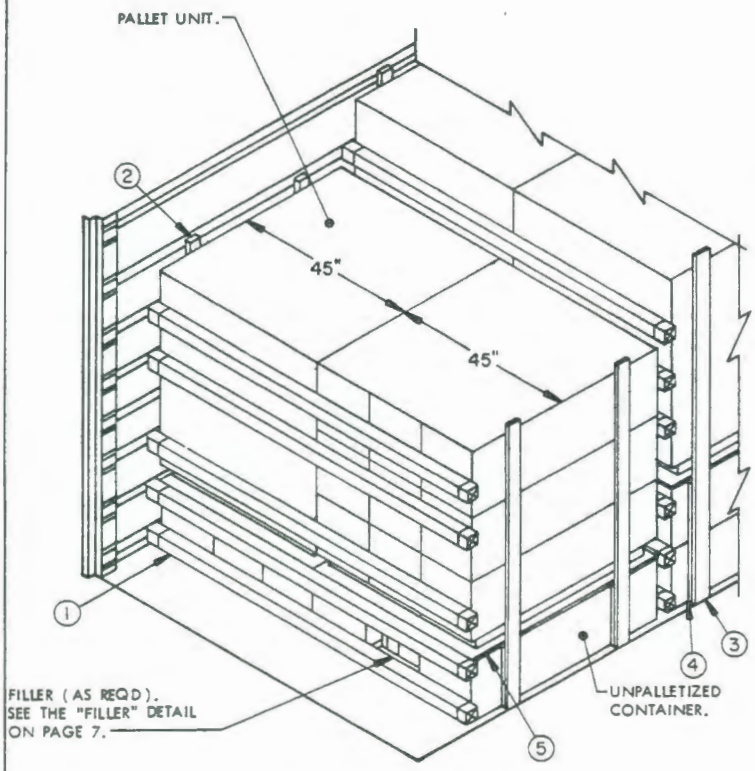
BILL OF MATERIAL

| LUMBER | LINEAR FEET | BOARD FEET |
|---|---|---|
| 1" X 4" | 90 | 30 |
| 2" X 4" | 58 | 39 |
| NAILS | NO. REQD | POUNDS |
| 6d (2") | 72 | 1/2 |
| PLYWOOD, 1/2" ---------- 130 SQ. FT. REQD ------ 179 LBS | | |
| WIRE, NO. 14 GAGE -------- 48' REQD ---------- 3/4 LB | | |
| CROSS MEMBER ---------- 12 REQD | | |

LOAD AS SHOWN

| ITEM | QUANTITY | WEIGHT (APPROX) |
|---|---|---|
| MISSILE CNTR | 48 | 5,568 LBS |
| PALLET UNIT | 8 | 9,336 LBS |
| DUNNAGE | | 353 LBS |
| CONTAINER | | 5,700 LBS |
| TOTAL GROSS WEIGHT | | 20,957 LBS |

COMBINATION UNPALLETIZED/PALLETIZED LOAD

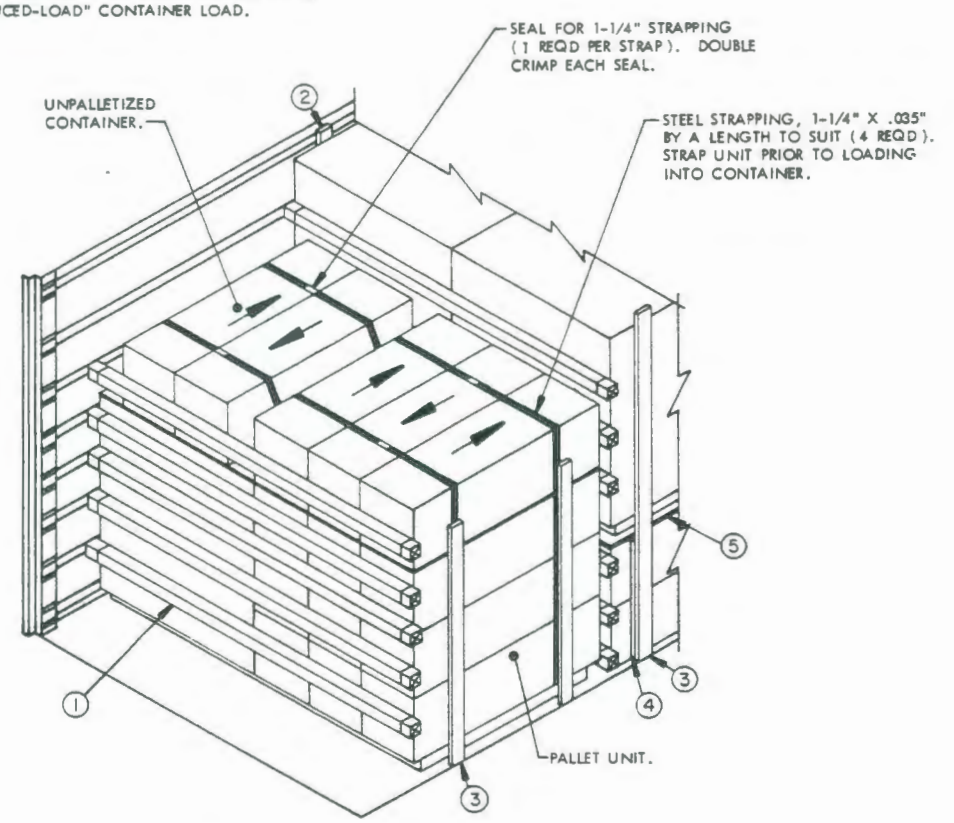



ALTERNATIVE LOADING PATTERN

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD.

SPECIAL NOTES:

1. TWO BASIC REDUCED-LOAD CONFIGURATIONS ARE SPECIFIED ON THIS PAGE.
2. THE LOAD AT THE TOP OF THE PAGE SHOWS A REAR STACK OF TWO PALLET UNITS ON TOP OF ONE LAYER OF UNPALLETIZED CONTAINERS WHEREIN THE USE OF A "FILLER" ASSEMBLY HAS BEEN TYPICALLY SPECIFIED. AS REQUIRED, "FILLER" ASSEMBLIES CAN ALSO BE USED IN THE SECOND LAYER OF THE UNPALLETIZED PORTION OF A STACK. ADDITIONALLY, MORE THAN ONE "FILLER" ASSEMBLY CAN BE USED IN A STACK PROVIDING THEY ARE ALL PUT IN THE TOP LAYER OF THE UNPALLETIZED PORTION OF A STACK AND PROVIDING A "FILLER" IS NOT PUT ADJACENT TO A SIDE WALL OF THE MILVAN. IF DESIRED, QUANTITY-ADJUSTMENT PROVISIONS AS SHOWN IN THE REAR STACK CAN ALSO BE APPLIED TO FORWARD STACKS WITHIN A LOAD, TO ACHIEVE A LOAD QUANTITY TO BE SHIPPED. THE LENGTHS OF PIECES MARKED (2), (3) AND (4) ARE TO BE ADJUSTED TO SUIT THE HEIGHT AND LOAD CONFIGURATION OF ADJUSTED STACKS.
3. THE LOAD AT THE BOTTOM OF THE PAGE SHOWS A REAR STACK OF TWO REGULAR 9-BOX PALLET UNITS WHICH ARE LOADED DIRECTLY ON THE FLOOR OF THE MILVAN AND HAVE ADDITIONAL CONTAINERS STACKED ON TOP OF THEM. THE ADDITIONAL CONTAINERS ARE TO BE STRAPPED TO THE PALLET UNIT DIRECTLY BELOW THEM WITH TWO STRAPS AS TYPICALLY SHOWN. REGARDING THE SECUREMENT OF EXTRA CONTAINERS TO THE TOP OF A REGULAR PALLET UNIT, IT IS PERMITTED TO SO SECURE ONE THROUGH THREE EXTRA CONTAINERS TO THE TOP OF ONE PALLET UNIT, BUT NOT MORE THAN THREE ARRANGED INTO NOT MORE THAN ONE ADDITIONAL LAYER ON A SINGLE PALLET UNIT. NOTE THAT PIECES MARKED (4) ARE NOT REQUIRED WHEN USING THE DEPICTED METHOD FOR LOADING A REDUCED-LOAD STACK. IF DESIRED, THE DEPICTED METHOD CAN ALSO BE USED AS REQUIRED IN FORWARD STACKS, TO ACHIEVE A LOAD QUANTITY TO BE SHIPPED.
4. REGARDING BOTH REDUCED-LOAD DETAILS SHOWN ON THIS PAGE, IT IS ONLY NECESSARY TO BAY-OFF A LOAD BETWEEN STACKS WITH ADDITIONAL CROSS MEMBERS AS SHOWN, WHEN THE LOAD ARRANGEMENTS WITHIN TWO LONGITUDINALLY ADJACENT STACKS ARE DIFFERENT. IF ONE STACK IS HIGHER THAN THE OTHER AND BOTH STACKS HAVE THE SAME CONFIGURATION BELOW THE HEIGHT OF THE SHORTER STACK, THEN IT IS ONLY NECESSARY TO USE ADDITIONAL CROSS MEMBERS TO BLOCK THAT PORTION OF THE HIGHER STACK WHICH EXTENDS ABOVE THE SHORTER STACK. IN ALL CASES, EACH LAYER OF CONTAINERS IS TO BE BLOCKED FORE AND AFT, WHETHER THE CONTAINERS ARE PALLETIZED OR ARE NOT PALLETIZED.
5. IF DESIRED OR IF NECESSARY TO BEST SUIT THE QUANTITY OF ITEMS TO BE LOADED INTO A MILVAN, A COMBINATION OF THE LOADING AND BLOCKING METHODS SHOWN IN THE TWO DETAILS CAN BE USED IN ANY ONE MILVAN LOAD.




ALTERNATIVE LOADING PATTERN

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD.



COMBINATION UNPALLETIZED/PALLETIZED LOAD