

DLH

DATE 6/9/2000

LOADING AND BRACING[⊕] IN MILVAN CONTAINERS[⊕] OF CHARGE, DEMOLITION, LINEAR, HE, M59 AND INERT, M69, IN METAL SHIPPING AND STORAGE CONTAINERS

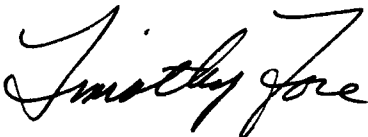
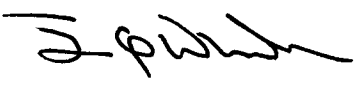
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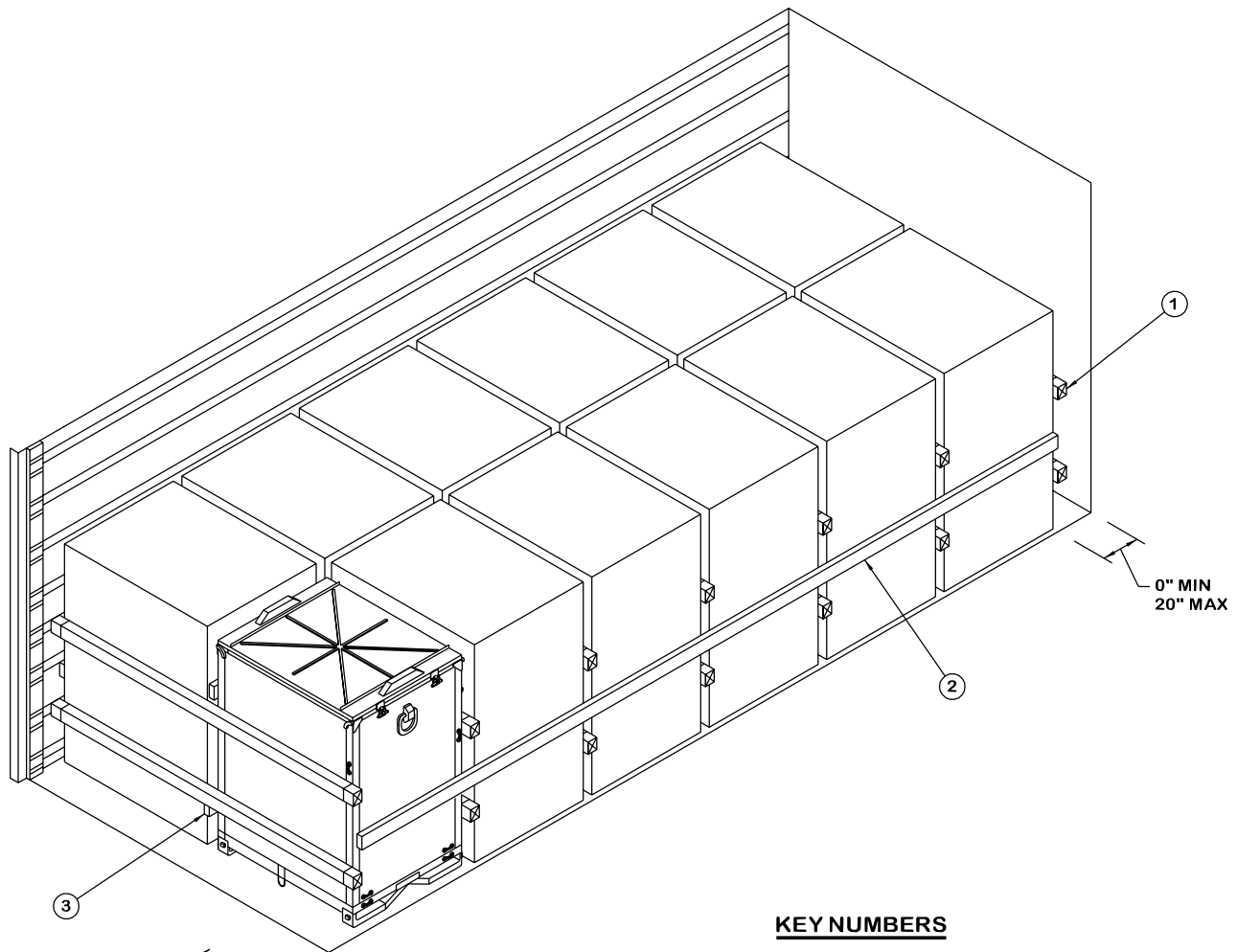
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● LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

⊕ ONLY TYPE II OR TYPE IV MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD-BRACING SYSTEM THAT MEETS THE REQUIREMENTS OF MIL-C-52661 WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY INDUSTRIAL OPERATIONS COMMAND 	ENGINEER	BASIC	LAURA FIEFFER		DO NOT SCALE			
		REV.			WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
	TECHNICIAN	BASIC			JULY 2000			
		REV.						
	DRAFTSMAN	BASIC						
		REV.						
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND 	TRANSPORTATION ENGINEERING DIVISION		<i>William P. Invidia</i>					
	VALIDATION ENGINEERING DIVISION		TESTED		CLASS	DIVISION	DRAWING	FILE
	LOGISTICS ENGINEERING OFFICE				19	48	4327	15J1008
U.S. ARMY DEFENSE AMMUNITION CENTER								



REAR OF CONTAINER. →

ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS MEMBER (14 REQD). POSITION AS SHOWN IN THE DETAIL ABOVE, AT THE 16" AND 38" HEIGHTS. SEE THE "FILL DETAIL" ON PAGE 4.
- ② SIDE FILL, 2" X 4" BY LOAD LENGTH (REF: 17'-7-7/8") (2 REQD). RANDOM LENGTH PIECES MAY BE USED. WIRE TIE TO THE 28" HIGH BELT RAIL ON EACH SIDE OF THE CONTAINER. SEE THE DETAIL ON PAGE 5.
- ③ CENTER FILL ASSEMBLY (6 REQD). SEE THE DETAIL ON PAGE 5.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	111	74
NAILS	NO. REQD	POUNDS
10d (3")	52	1
WIRE, 0.0800 " DIA	-- 15' REQD	----- 0.25 LBS
CROSS MEMBER	-----	----- 14 REQD

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
MICLIC CONTAINER	--- 12	----- 29,400 LBS
DUNNAGE	-----	----- 150 LBS
CONTAINER	-----	----- 5,700 LBS
TOTAL WEIGHT		----- 35,250 LBS (APPROX)

K. 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 CONTAINERS 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 HARD-BOARD (MASONITE) OR FROM A SHEET OF ANY OTHER MATERIAL THAT WILL SATISFY THE REQUIREMENTS.

L. MAXIMUM LOAD WEIGHT CRITERIA:

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

M. 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 THE 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 RAILCAR. THE REAR END OF THE 40-FOOT UNIT WILL OVERHANG 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.

N. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-1/2". EXCESSIVE SLACK CAN BE ELIMINATED BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE VERTICAL PIECES ON THE CENTER FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS OF THE LUMBER IN THE CENTER FILL ASSEMBLY MAY BE ADJUSTED, AS NECESSARY, TO FACILITATE VARIANCE IN THE CONTAINER SIZE.

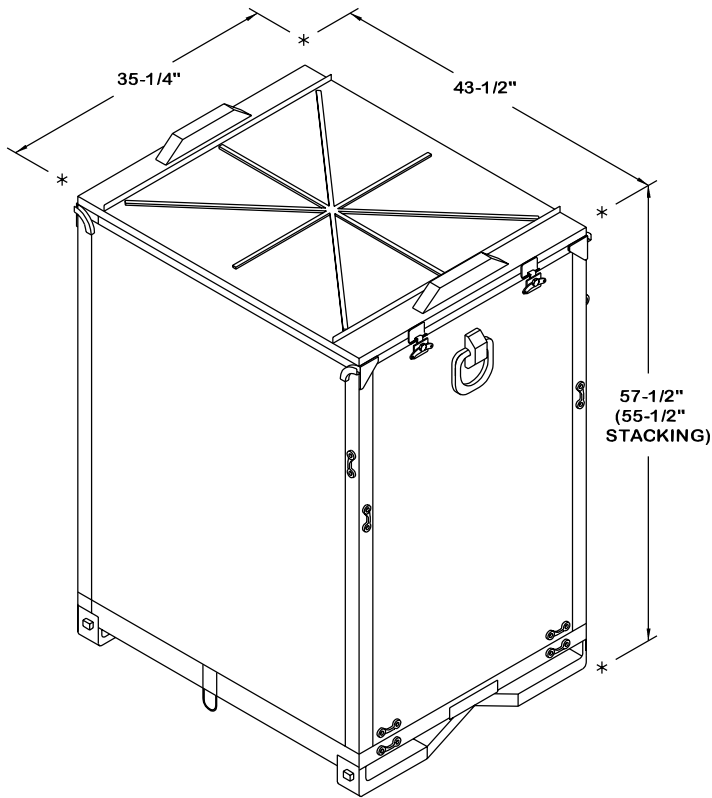
O. WHETHER A CONTAINER IS FULL OR IS LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CONTAINER.

- 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 LINEAR DEMOLITION CHARGES, HE M59, AND INERT M69, (MICLIC) IN METAL SHIPPING AND STORAGE CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MICLIC ITEMS INSTALLED. SEE PAGE 4 AND NAVAL SEA SYSTEMS COMMAND DRAWING 6120593 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE MILVAN MUST NOT BE EXCEEDED.
- C. 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-FLATCAR (T/COFC) SHIPMENT.
- D. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED IN MIL-C-52661. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. 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. SEE THE "FILL DETAIL" ON PAGE 4 FOR ADDITIONAL GUIDANCE. 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. THE LOAD BLOCKING COMPONENT DESIGNATED AS "CROSS MEMBER" HEREIN IS IDENTIFIED AS "BEAM ASSEMBLY" WITHIN TM 55-8115-200-23&P, DATED DECEMBER 1979. THE BEAM ASSEMBLY IS FURTHER IDENTIFIED AS NSN 8115-00-165-6623.
- E. DUNNAGE LUMBER SPECIFIED IS OF A 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.
- F. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE MILVAN WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- G. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER 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.
- H. PORTIONS OF THE MILVAN DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDEWALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- J. 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 25.4 MM AND ONE POUND EQUALS 0.454 KG.

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MATERIAL SPECIFICATIONS

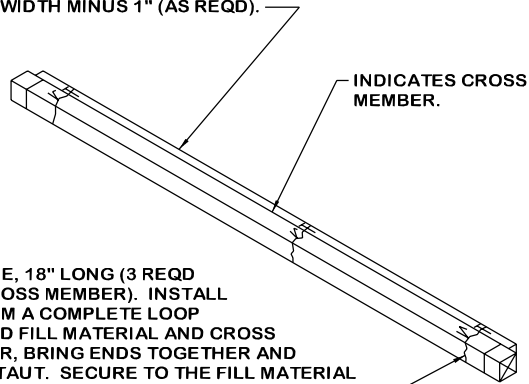
- LUMBER - - - - - -: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - - -: ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS).
- WIRE, CARBON STEEL -: ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.



CONTAINER DETAIL

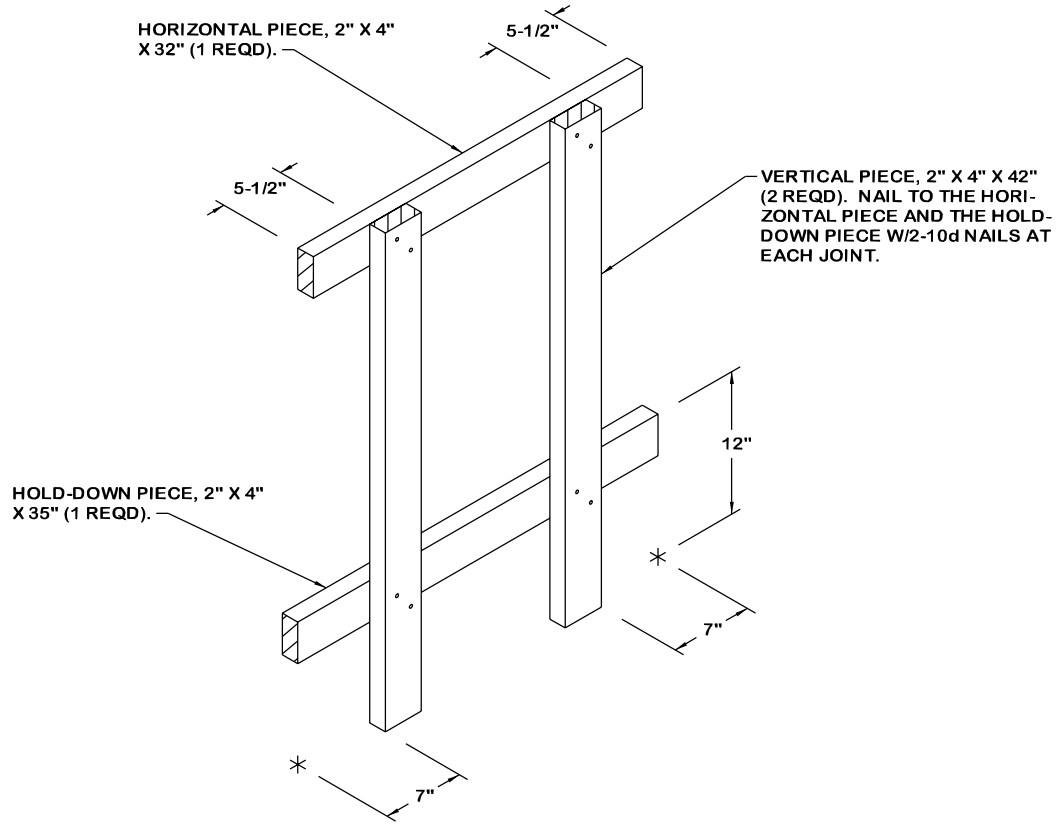
GROSS WEIGHT - - - - - 2,450 LBS (APPROX)
 CUBE - - - - - 51.0 CUBIC FEET (APPROX)

FILL MATERIAL, 1" X 4" OR 2" X 4" MATERIAL BY CONTAINER WIDTH MINUS 1" (AS REQD).



TIE WIRE, 18" LONG (3 REQD PER CROSS MEMBER). INSTALL TO FORM A COMPLETE LOOP AROUND FILL MATERIAL AND CROSS MEMBER, BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE FILL MATERIAL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

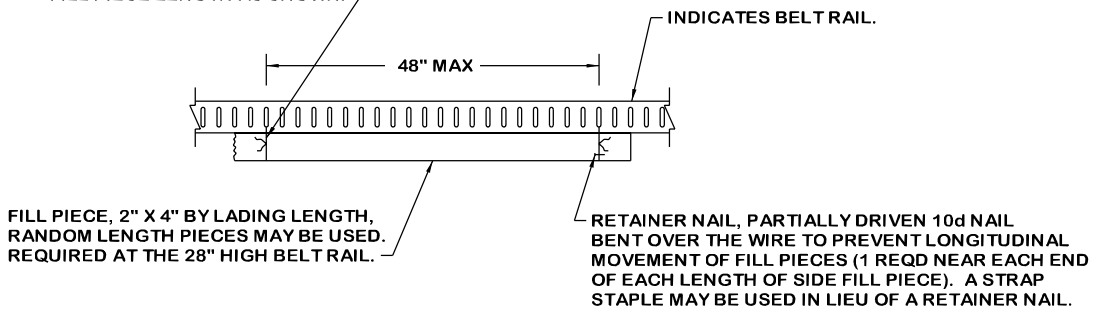
FILL DETAIL



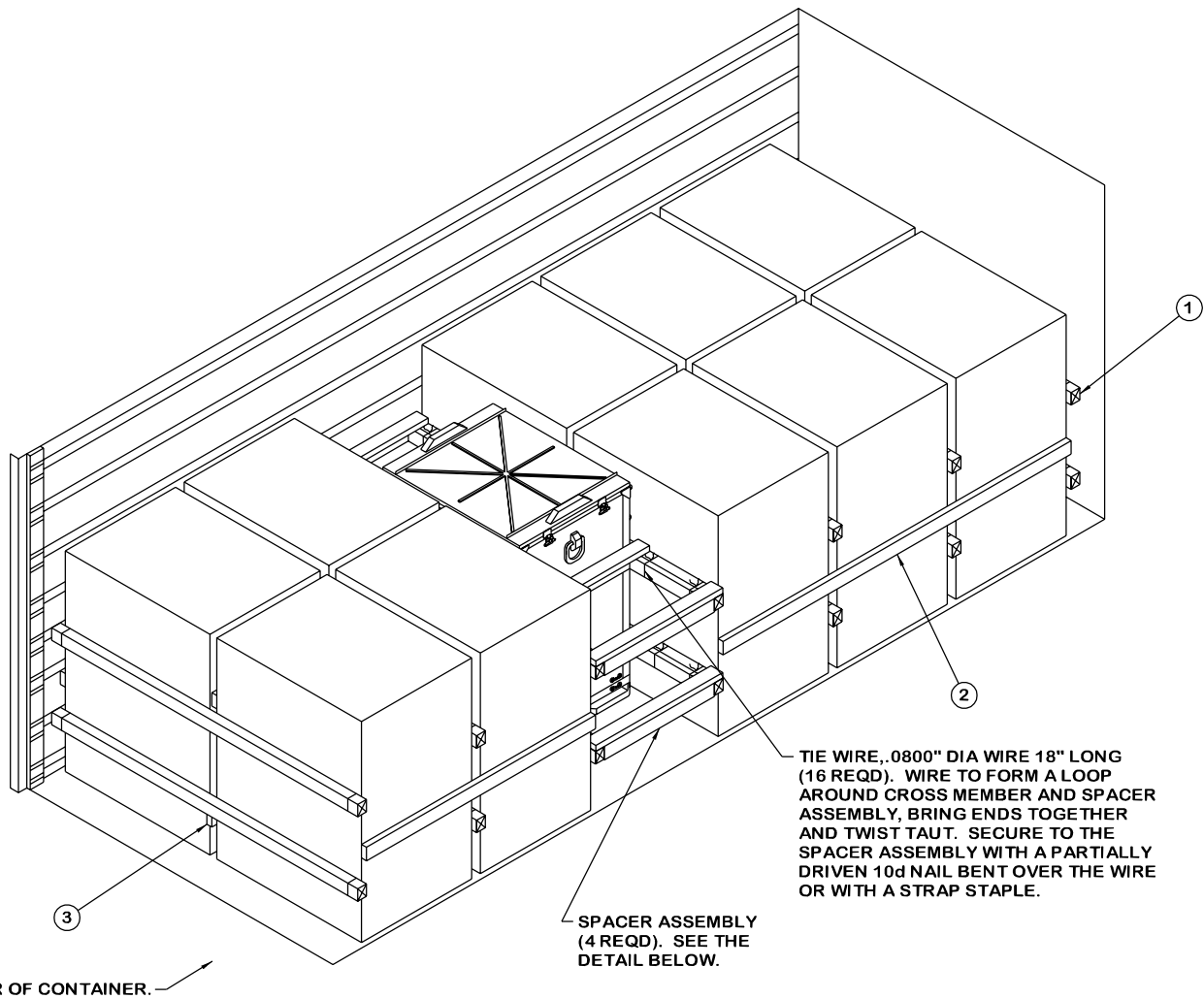
CENTER FILLER ASSEMBLY

NOTE: VERTICAL PIECES MUST BE INSTALLED IN THE LOAD TO FIT BETWEEN THE LOWER STRAP FASTENER LOOPS ON THE CONTAINER.

TIE WIRE, 0.0800" DIA WIRE 18" LONG. WIRE TO FORM A COMPLETE LOOP THROUGH HOLE IN BELT RAIL AND AROUND FILL PIECE, BRING ENDS TOGETHER AND TWIST TAUT. REQUIRED NEAR EACH END OF FILL PIECE AND EVERY 48" OF FILL PIECE LENGTH AS SHOWN.



SIDE FILL DETAIL



ISOMETRIC VIEW

LESS-THAN-FULL-LOAD PROCEDURE

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2. SEE GENERAL NOTE "O" ON PAGE 3.

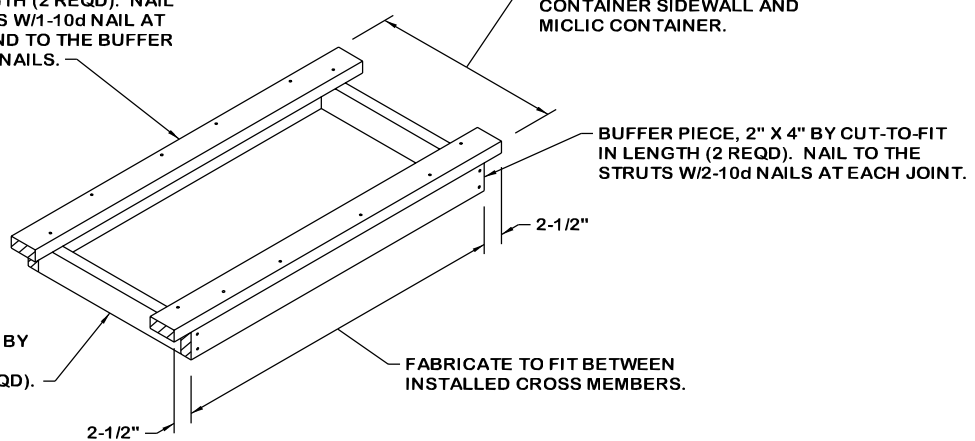
RETAINER PIECE, 2" X 4" BY CUT-TO-FIT IN LENGTH (2 REQD). NAIL TO THE STRUTS W/1-10d NAIL AT EACH JOINT AND TO THE BUFFER PIECE W/4-10d NAILS.

FABRICATE TO FIT BETWEEN CONTAINER SIDEWALL AND MICLIC CONTAINER.

BUFFER PIECE, 2" X 4" BY CUT-TO-FIT IN LENGTH (2 REQD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.

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

FABRICATE TO FIT BETWEEN INSTALLED CROSS MEMBERS.



SPACER ASSEMBLY