

APPROVED BY
BUREAU OF EXPLOSIVES

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LOADING AND BRACING* IN MILVAN CONTAINERS[⊗] OF JASSM (AGM-158) MISSILES PACKED IN CNU-614/E CONTAINERS

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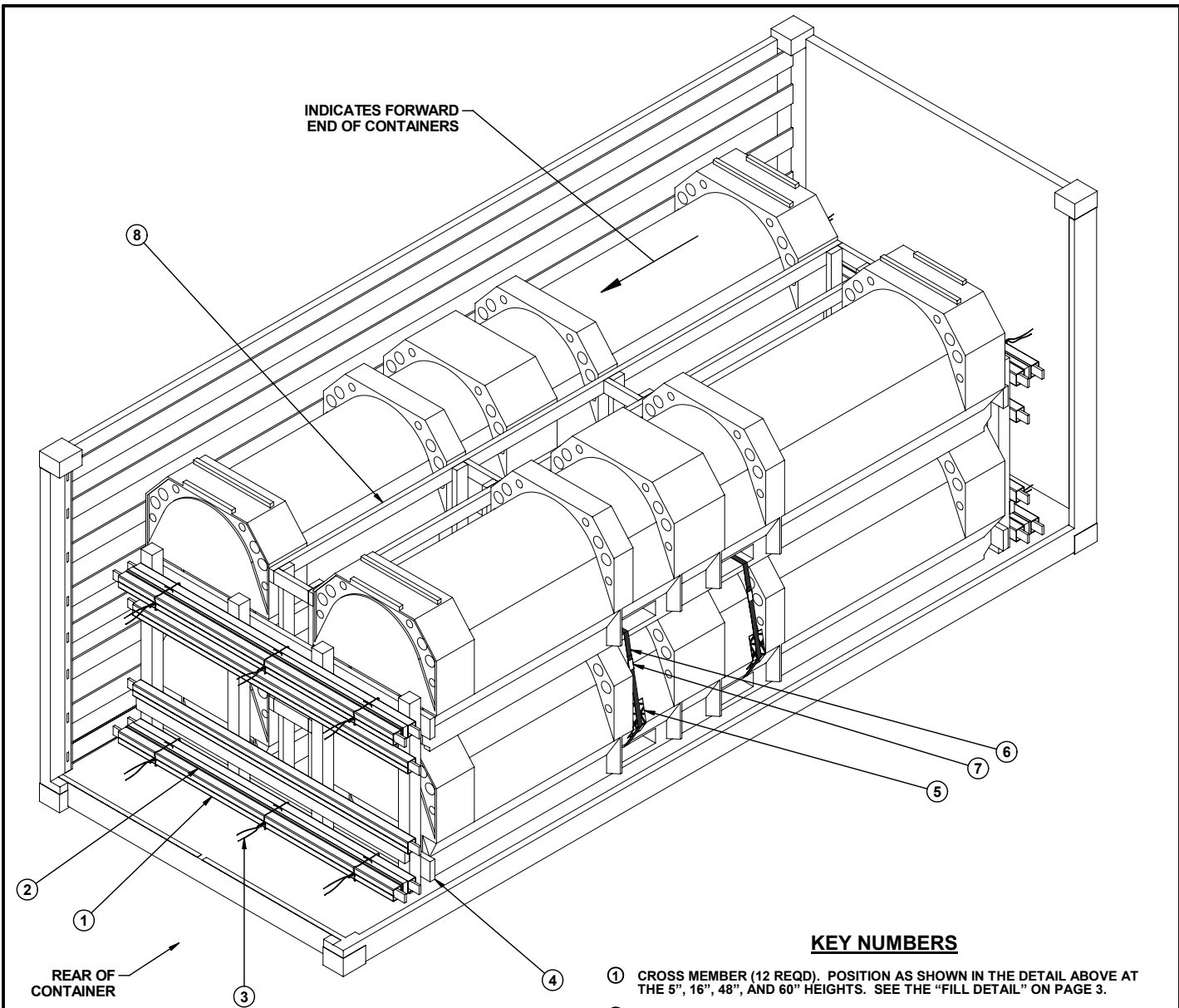
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[⊗]ONLY MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD-BRACING SYSTEM THAT SATISFIES THE REQUIREMENTS OF THE BUREAU OF EXPLOSIVES PAMPHLET 6C WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE. CAUTION: OTHER REQUIREMENTS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

*THE PROCEDURES SHOWN HEREIN ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY CONTAINER-ON-FLATCAR (COFC) RAIL, MOTOR, OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND		CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.			
<i>Ed Aslett</i>		DO NOT SCALE		AUGUST 2007	
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APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND		TRANSPORTATION ENGINEERING DIVISION	<i>Paula G. Ziff</i>		
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U.S. ARMY DEFENSE AMMUNITION CENTER			19	48	DRAWING
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ISOMETRIC VIEW

KEY NUMBERS

- ① CROSS MEMBER (12 REQD). POSITION AS SHOWN IN THE DETAIL ABOVE AT THE 5", 16", 48", AND 60" HEIGHTS. SEE THE "FILL DETAIL" ON PAGE 3.
- ② FILL MATERIAL, 1" X 4" OR 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (4 REQD).
- ③ TIE WIRE, 0.080" DIAMETER BY 24" (12 REQD, 3 PER DOUBLED CROSSMEMBER). SEE THE "FILL DETAIL" ON PAGE 3.
- ④ END GATE (2 REQD). SEE THE DETAIL ON PAGE ON PAGE 5.
- ⑤ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT THROUGH FORKLIFT OPENINGS.
- ⑥ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (4 REQD, 2 PER CONTAINER STACK). INSTALL THROUGH FORK POCKETS AS FAR APART AS POSSIBLE.
- ⑦ SEAL FOR 1-1/4" STEEL STRAPPING (4 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.
- ⑧ CENTER FILL ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 5.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	155	104
2" X 6"	31	31
4" X 4"	35	47
NAILS	NO. REQD	POUNDS
10d (3")	140	2-1/4
STEEL STRAPPING, 1-1/4" -	48' REQD	7 LBS
SEAL FOR 1-1/4" STRAPPING -	4 REQD	1/4 LB
WIRE, 0.080" DIA	18' REQD	1/2 LB
CROSS MEMBER		12 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-614/E	4	13,480 LBS
DUNNAGE		370 LBS
CONTAINER		5,700 LBS
TOTAL WEIGHT		19,550 LBS (APPROX)

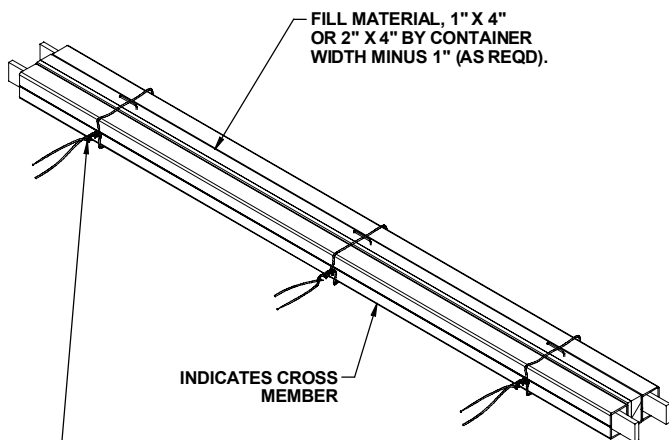
GENERAL NOTES

(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 SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF JASSM MISSILES PACKED IN CNU-614/E CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS CONTAINER WITH MISSILE ITEMS. SEE LOCKHEED MARTIN INTEGRATED SYSTEMS DRAWING 79601200 AND PAGE 4 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CANISTERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE MILVAN CONTAINER 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. WHEN LOADING MISSILE 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". THE LENGTH OF THE STRUTS IN THE CENTER FILL ASSEMBLY OR FILLER ASSEMBLY MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER.
- E. 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 END GATE AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. SEE THE "FILL DETAIL" BELOW 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.
- F. 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.
- 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. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE MILVAN WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. 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.

- K. **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.
- L. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:
 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
 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.
- M. 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.
- N. 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 4 FOR GUIDANCE.
- O. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGES 2 AND 6 MAY BE REDUCED FOR SHIPMENT, IF DESIRED.
- P. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN CONTAINER AND THE MILVAN.
- Q. 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 "SHOE-HORN" TYPE DEVICE. THE SLIP-SHEET WILL PROVIDE A SMOOTH SURFACE THAT WILL PREVENT 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 SHEETBOARD (MASONITE) OR FROM A SHEET OF ANY OTHER MATERIAL THAT WILL SATISFY THE REQUIREMENTS.

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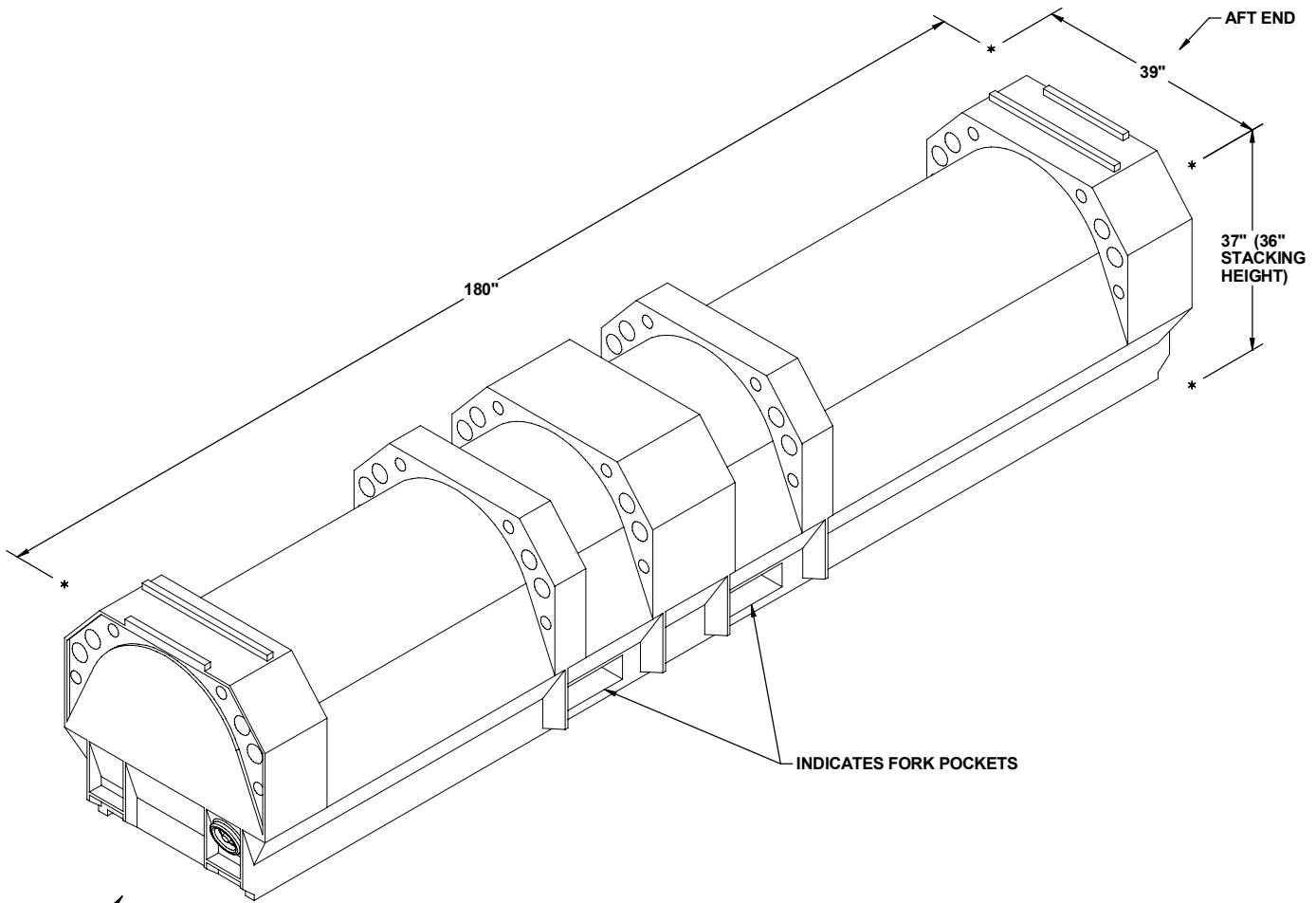


TIE WIRE, .0800" DIA WIRE BY 18" LONG (3 REQD PER CROSSMEMBER). INSTALL TO FORM A COMPLETE LOOP AROUND FILL MATERIAL AND CROSS MEMBER(S), BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO FILL MATERIAL WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.

FILL DETAIL

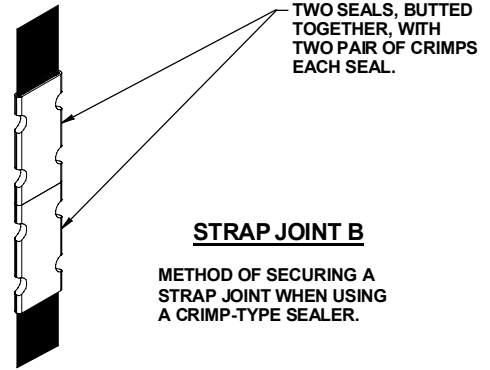
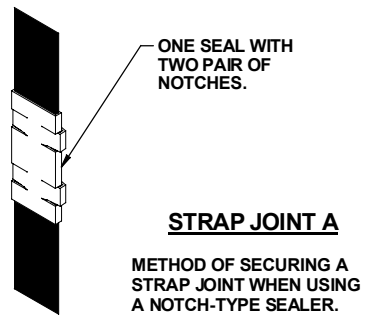
MATERIAL SPECIFICATIONS

LUMBER - - - - -	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
NAILS - - - - -	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS).
STRAPPING, STEEL - - -	ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B, (GRADE 2), OR C.
SEAL, STRAP - - - - -	ASTM D3953; CLASS H, FINISH A, B, (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
ANTI-CHAFING MATERIAL - - - - -	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
WIRE, CARBON STEEL - - -	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.

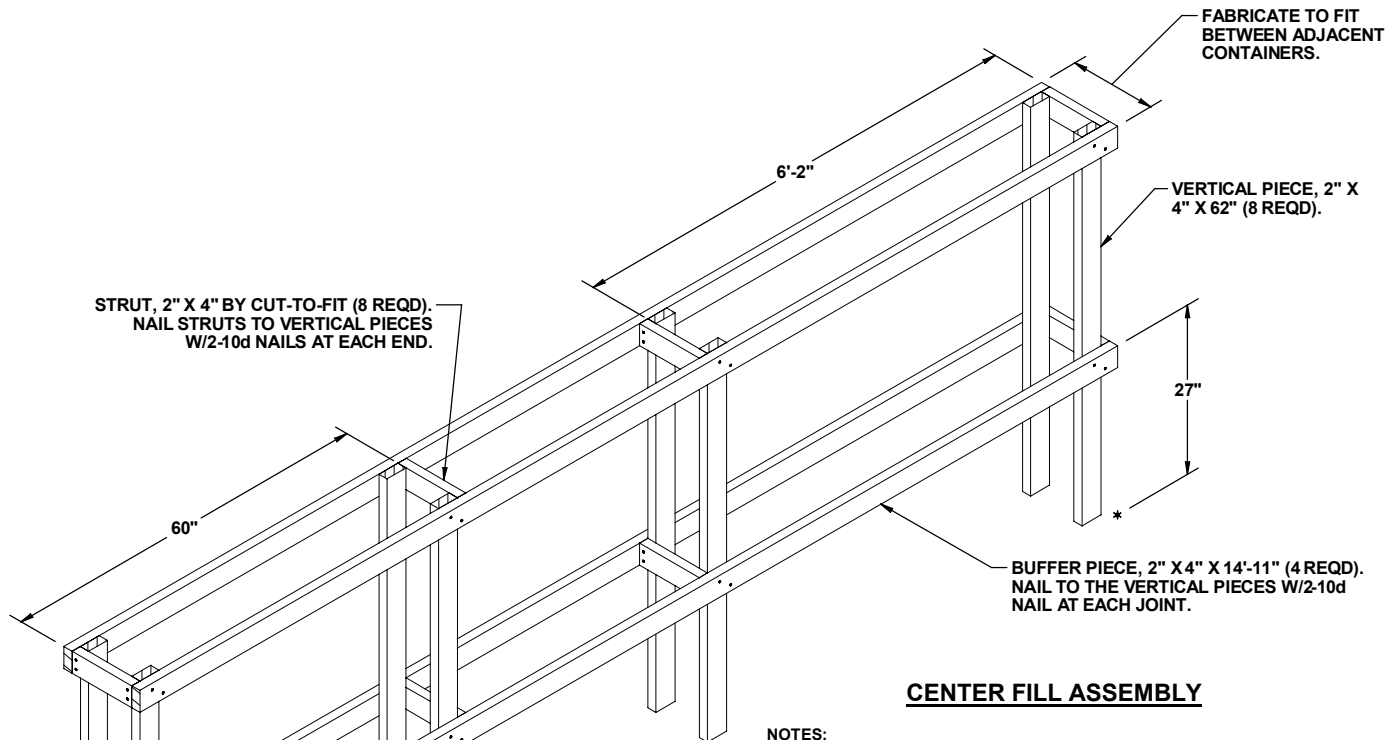


CNU-614/E CONTAINER

GROSS WEIGHT ----- 3,370 LBS (APPROX)
 CUBE ----- 150.3 CU FT (APPROX)

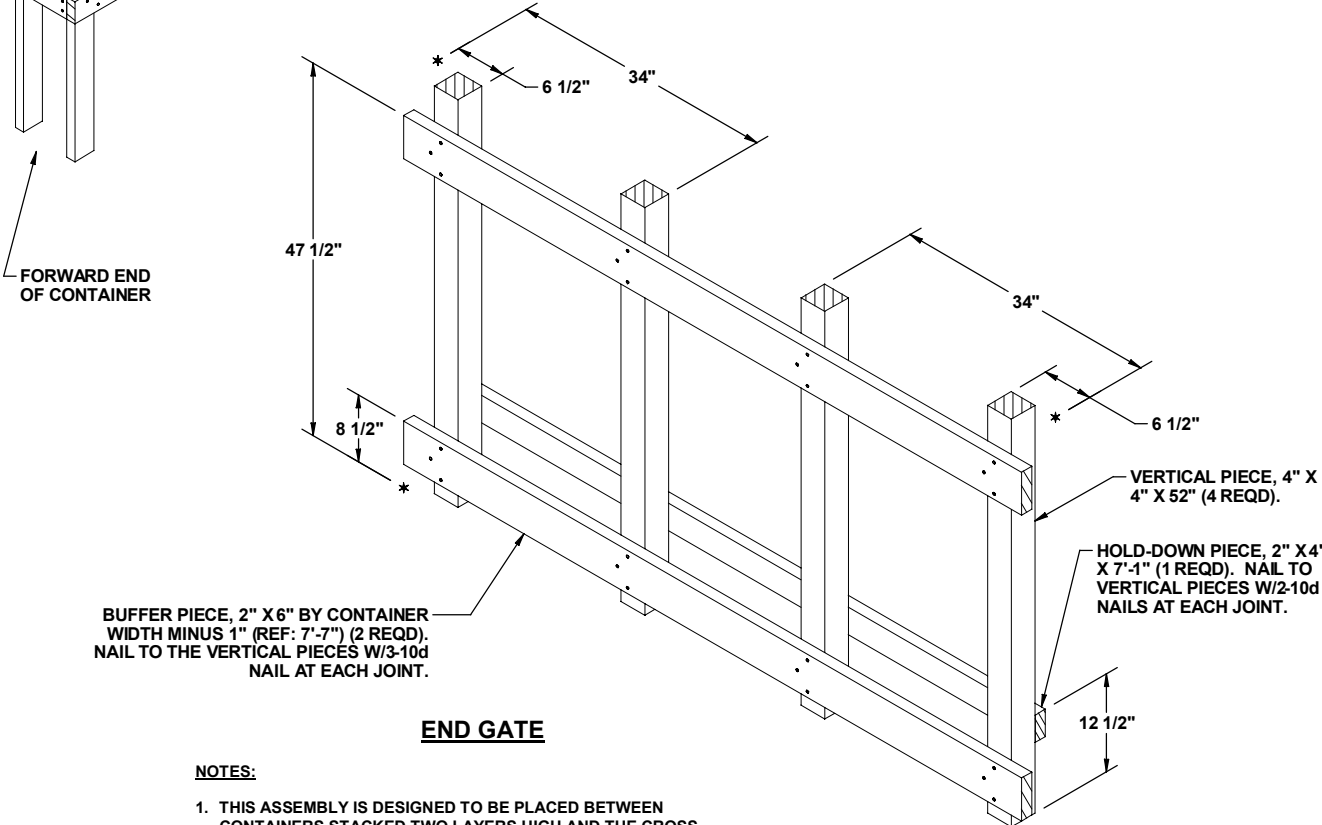


END-OVER-END STRAP JOINTS



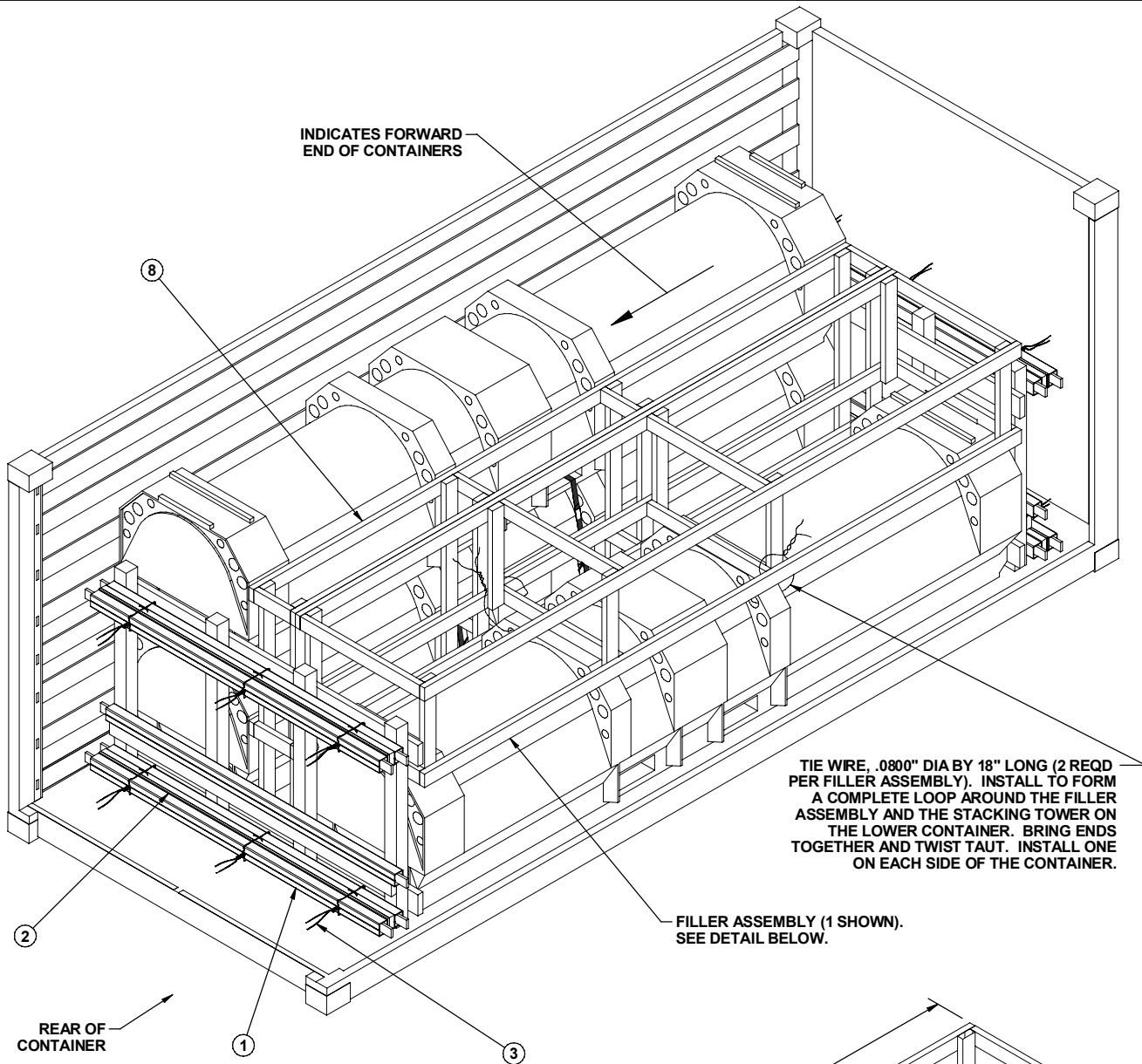
CENTER FILL ASSEMBLY

- NOTES:**
1. THIS ASSEMBLY IS DESIGNED TO BE PLACED BETWEEN LATERALLY ADJACENT CONTAINERS STACKED TWO LAYERS HIGH.
 2. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 27" AND REDUCE THE HEIGHT OF THE LOWER STRUTS AND BUFFER PIECES TO 8".



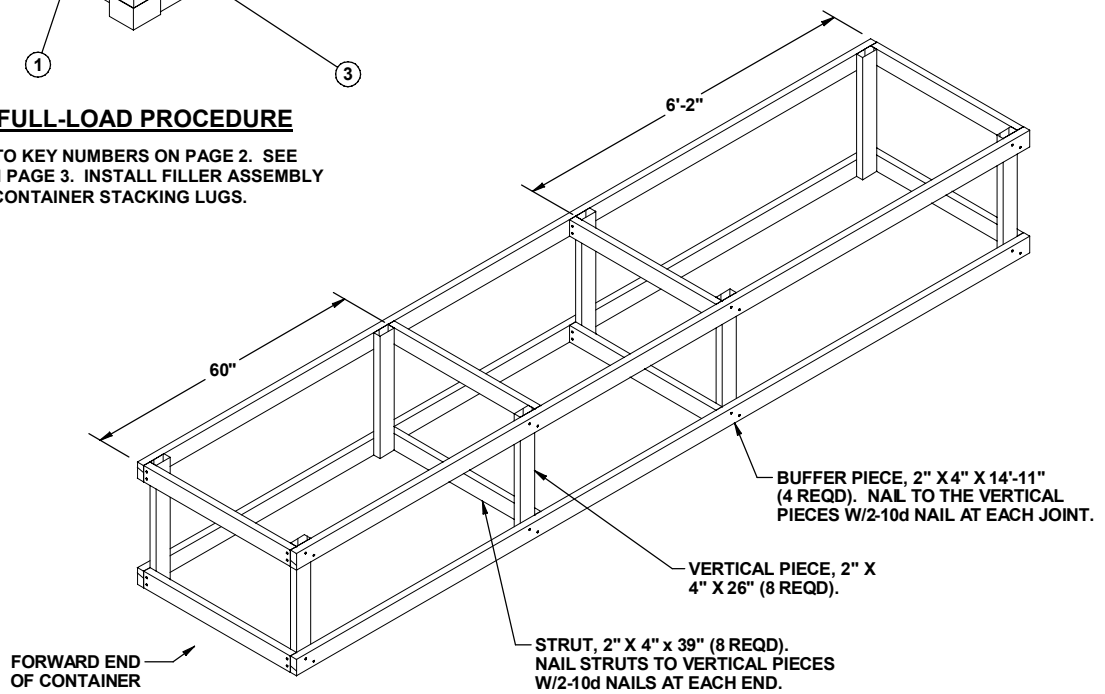
END GATE

- NOTES:**
1. THIS ASSEMBLY IS DESIGNED TO BE PLACED BETWEEN CONTAINERS STACKED TWO LAYERS HIGH AND THE CROSS MEMBERS.
 2. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 30" AND REMOVE THE UPPER BUFFER PIECE.



LESS-THAN-FULL-LOAD PROCEDURE

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2. SEE GENERAL NOTE "M" ON PAGE 3. INSTALL FILLER ASSEMBLY TO FIT WITHIN LOWER CONTAINER STACKING LUGS.



FILLER ASSEMBLY