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DATE 06/08/01

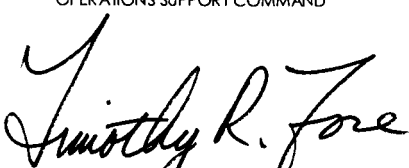
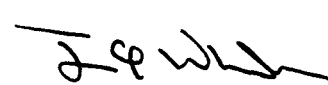
LOADING AND BRACING* IN SIDE OPENING ISO CONTAINERS OF 2,000 POUND GUIDED BOMB UNITS (GBU-24/BLU-109/B), COMPLETE ROUND

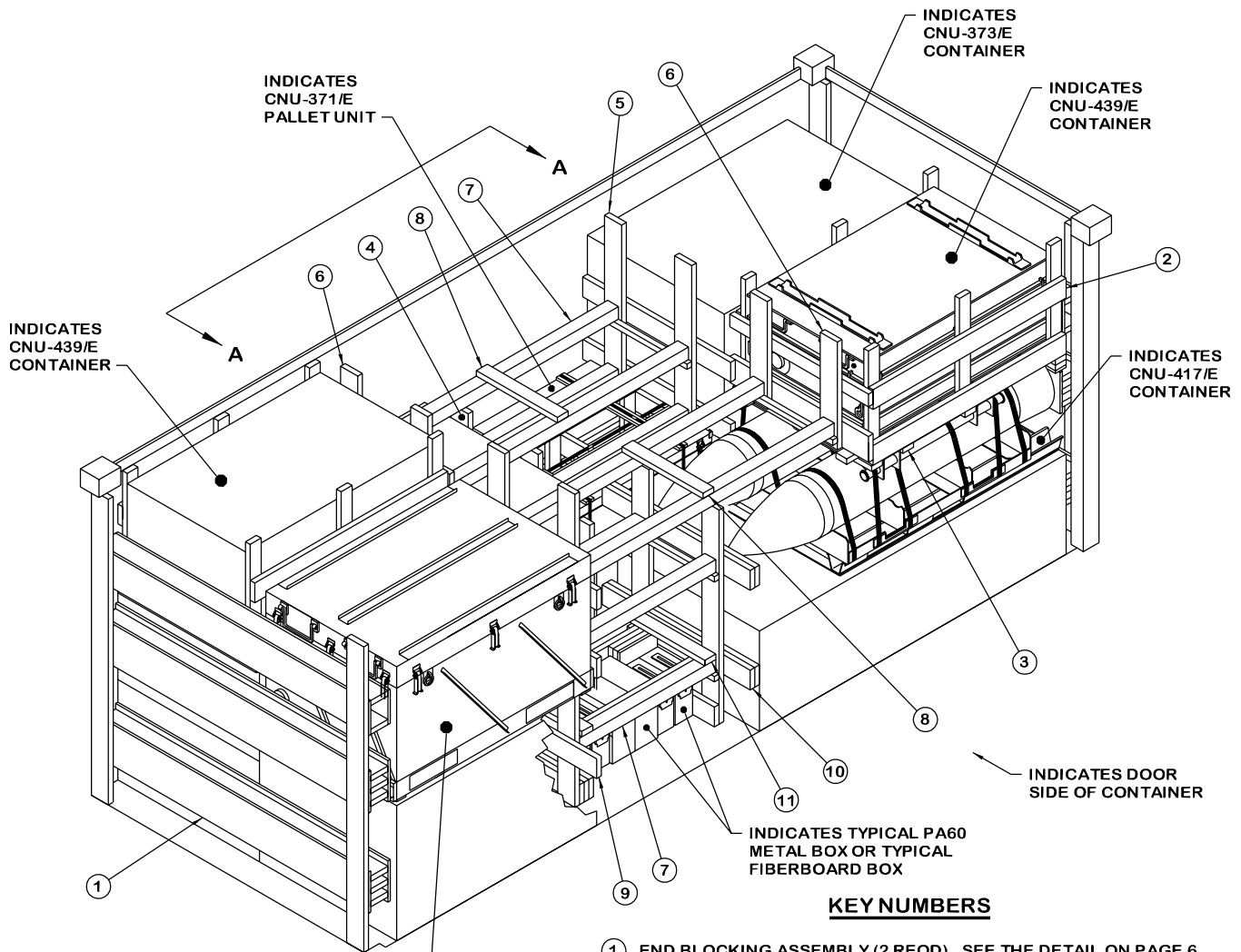
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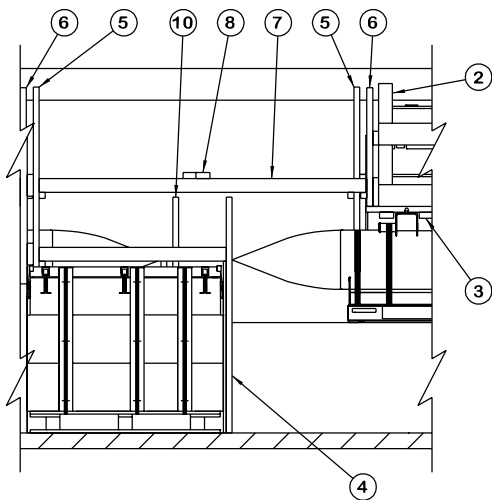
- * LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY OPERATIONS SUPPORT COMMAND 	ENGINEER	BASIC REV.	Laura A. Fieffer	DO NOT SCALE			
	TECHNICIAN	BASIC REV.		WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
		DRAFTSMAN	BASIC REV.		MAY 2001		
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND 	TRANSPORTATION ENGINEERING DIVISION		<i>G. L. Willis</i>	CLASS	DIVISION	DRAWING	FILE
	VALIDATION ENGINEERING DIVISION		<i>William R. Freinh</i>	19	48	8720	SP15M14
	ENGINEERING DIRECTORATE		<i>William R. Freinh</i>				



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.
- ② FILL ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 6.
- ③ DECKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 7. POSITION ON TOP OF THE BOMB PALLET UNITS.
- ④ CENTER GATE A (1 REQD). SEE THE DETAIL ON PAGE 7. INSTALL BETWEEN THE BOMB PALLET UNITS LOADED AGAINST THE FAR WALL OF THE CONTAINER AND THE CNU-371/E PALLET UNIT.
- ⑤ CENTER GATE B (1 REQD). SEE THE DETAIL ON PAGE 7. INSTALL AGAINST THE CNU-373/E CONTAINER LOADED AGAINST THE FAR WALL OF THE CONTAINER.
- ⑥ CENTER GATE C (2 REQD). SEE THE DETAIL ON PAGE 8. INSTALL AGAINST THE CNU-439/E CONTAINERS.
- ⑦ STRUT, 4" X 4" BY CUT TO FIT (REF: 6'-10-3/4" FOR THE UPPER TWO FAR WALL STRUTS AND THE UPPER TWO DOOR SIDE STRUTS, 47-3/4" FOR THE LOWER TWO FAR WALL STRUTS, AND 44-3/4" FOR THE LOWER FOUR DOOR SIDE STRUTS) (8 REQD, TWO BETWEEN CENTER GATES "D" AND "C", TWO BETWEEN CENTER GATES "A" AND "B", AND FOUR BETWEEN CENTER GATES "D" AND "E"). TOENAIL TO THE CENTER GATES W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 9.
- ⑧ STRUT BRACING, 2" X 4" BY LENGTH TO SUIT (REF: 26") (2 REQD). CENTER ON THE STRUTS INSTALLED BETWEEN CENTER GATES "C" AND "D", AND "C" AND "B" (THE LONG STRUTS), AND NAIL TO THE STRUTS W/2-10d NAILS AT EACH END.
- ⑨ CENTER GATE D (1 REQD). SEE THE DETAIL ON PAGE 8. INSTALL AGAINST THE CNU-373/E CONTAINERS LOADED AGAINST THE DOOR SIDE OF THE CONTAINER.
- ⑩ CENTER GATE E (1 REQD). SEE THE DETAIL ON PAGE 9. INSTALL AGAINST THE CNU-417/E CONTAINERS LOADED AGAINST THE DOOR SIDE OF THE CONTAINER.
- ⑪ RETAINER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 9. NAIL THE RETAINER PIECES TO THE LOWER STRUTS ON THE DOOR SIDE OF THE CONTAINER W/2-10d NAILS AT EACH JOINT.

(GENERAL NOTES CONTINUED)

GENERAL NOTES

- 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 25.4MM AND ONE POUND EQUALS 0.454 KG.
- 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. THE LOAD LIMIT OF A T/COFC RAILCAR 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.
- M. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- N. 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.
- O. ANTI-CHAFING MATERIAL, CONSISTING OF NEUTRAL BARRIER MATERIAL, PLYWOOD, OR HARDBOARD, MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN THE LADING AND THE SIDE OPENING CONTAINER TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS.

- 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 2,000 LB GBU-24 (BLU-109) BOMBS, INCLUDING ASSOCIATED COMPONENTS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINERS WITH THE GBU-24 COMPONENTS. SEE PAGES 4 AND 5 FOR DETAILS OF THE COMPONENTS. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOADS AS SHOWN ARE BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" HIGH AND A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY MOTOR OR WATER CARRIERS. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN ALSO BE USED.
- D. WHEN LOADING THE UNITS, 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 FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO A HORIZONTAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS OF THE HORIZONTAL AND VERTICAL PIECES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- F. 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.
- G. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALLS. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE END BLOCKING ASSEMBLIES TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER ENDWALLS ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER ENDWALLS, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR LONGITUDINAL BLOCKING.
- H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-417/E CONTAINER		
WITH BLU-109/B	4	17,880 LBS
CNU-371/E PALLET UNIT		
WITH WGU-39/B	1	1,289 LBS
CNU-373/E CONTAINER		
WITH BSU-84A/B	4	4,168 LBS
CNU-439/E CONTAINER		
WITH ADG-769/B	2	932 LBS
CY72 BOX	1	4 LBS
F809 BOX	4	84 LBS
FY73 BOX	1	5 LBS
DUNNAGE		1,152 LBS
CONTAINER		6,050 LBS
TOTAL WEIGHT		31,564 LBS (APPROX)

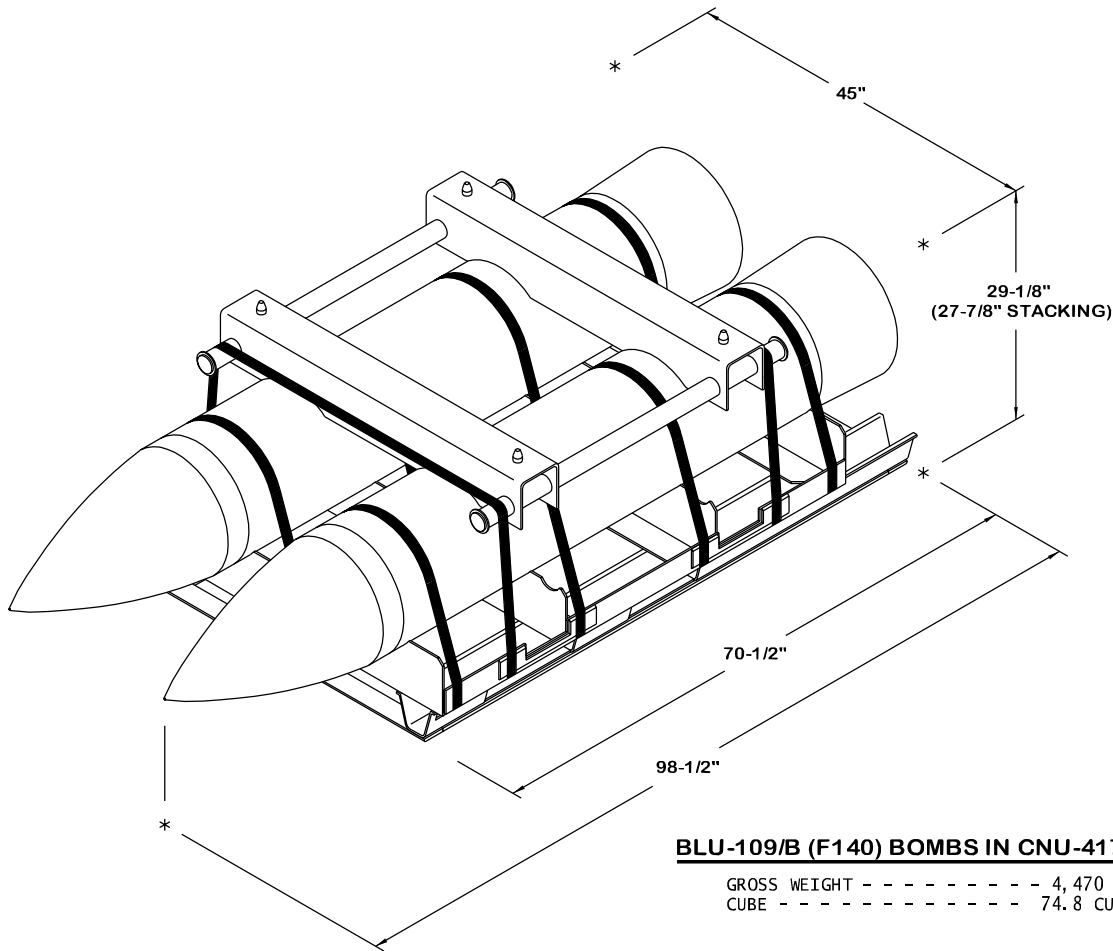
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BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	7	3
2" X 2"	21	7
2" X 4"	83	55
2" X 6"	330	330
2" X 8"	8	10
4" X 4"	37	49
NAILS	NO. REQD	POUNDS
6d (2")	378	2-1/4
10d (3")	296	4-3/4
12d (3-1/4")	32	3/4
PLYWOOD, 1/2"	31.67 SQ FT REQD	43.54 LBS
PLYWOOD, 3/4"	93.61 SQ FT REQD	193.06 LBS

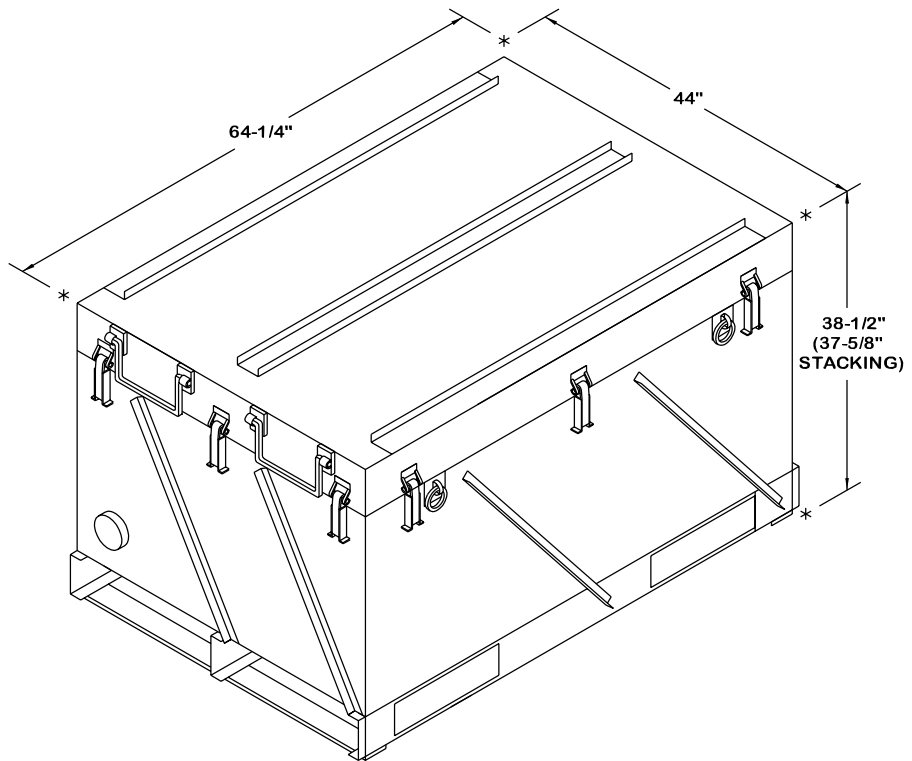
MATERIAL SPECIFICATIONS

- LUMBER - - - - -: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - -: ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).
- PLYWOOD - - - - -: COMMERCIAL ITEM DESCRIPTION A-A-55057, INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
- ANTI-CHAFING MATERIAL - - - - -: MIL-B-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
- HARDBOARD - - - - -: ANSI/AHA A135.4, CLASS 1.



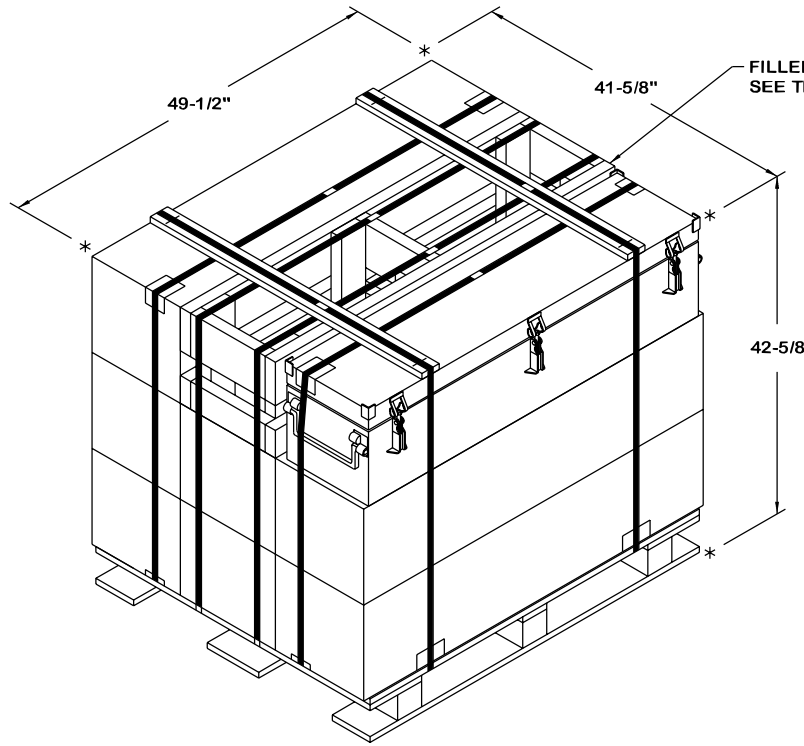
BLU-109/B (F140) BOMBS IN CNU-417/E CONTAINER

GROSS WEIGHT - - - - - 4,470 LBS (APPROX)
 CUBE - - - - - 74.8 CU FT (APPROX)

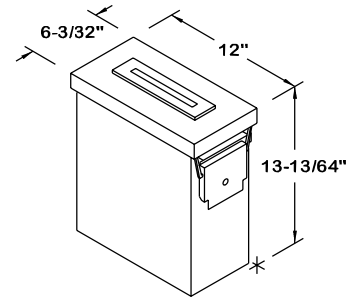


BSU-84A/B (EA27) IN CNU-373/E CONTAINER

GROSS WEIGHT - - - - - 1,042 LBS (APPROX)
 CUBE - - - - - 61.8 CUBIC FEET (APPROX)



FILLER ASSEMBLY (1 REQD.)
SEE THE DETAIL ON PAGE 10.



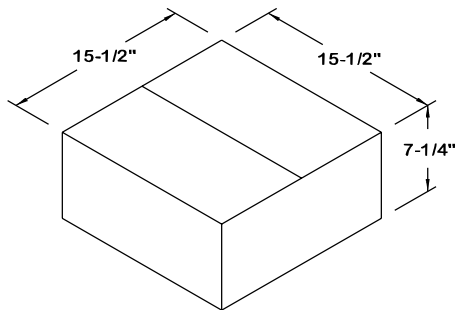
FMU-143B/B (F809) IN PA60 METAL BOX

GROSS WEIGHT - - - - - 21 LBS (APPROX)
CUBE - - - - - 0.6 CUBIC FEET (APPROX)

WGU-39/B (EA37) IN CNU-371/E CONTAINER

PALLETIZE IAW U.S. AIR FORCE DRAWING 817371, ELIMINATING ONE CNU-371/E CONTAINER AND ADDING ONE FILLER ASSEMBLY AS DEPICTED ON PAGE 10.

8 CONTAINERS OF WGU-39/B (1 PER CONTAINER)	AT 144 LBS -	1,152 LBS (APPROX)
FILLER ASSEMBLY	- - - - -	45 LBS
DUNNAGE	- - - - -	12 LBS
PALLET	- - - - -	80 LBS
TOTAL WEIGHT - - - - -		1,289 LBS (APPROX)
CUBE - - - - -		50.9 CU FT (APPROX)

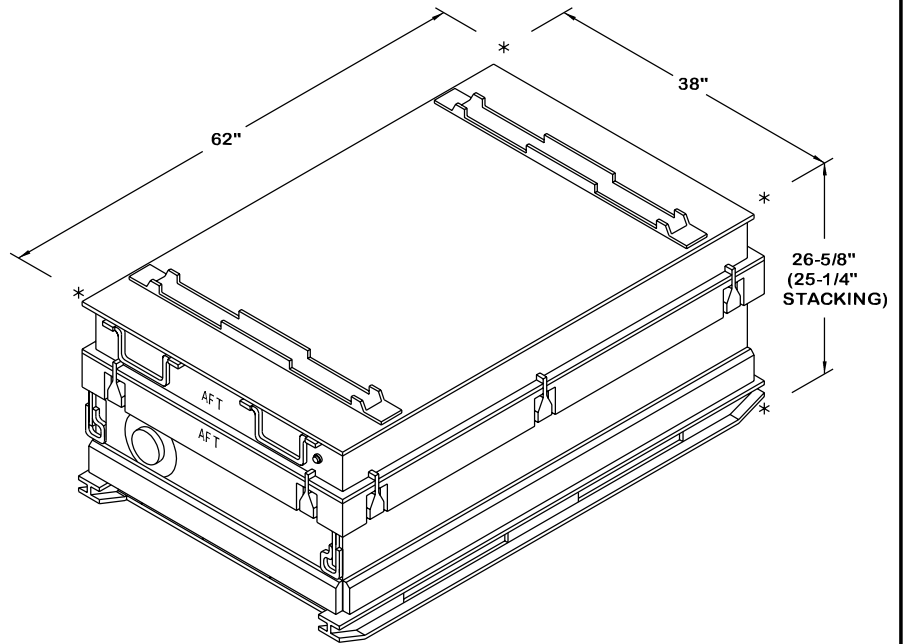


SWIVEL AND LOOP ASSEMBLY (FY73) IN FIBERBOARD BOX

GROSS WEIGHT - - - - 5 LBS (APPROX)
CUBE - - - - 1.0 CUBIC FEET (APPROX)

SWIVEL AND LINK ASSEMBLY (CY72) IN FIBERBOARD BOX

GROSS WEIGHT - - - - 4 LBS (APPROX)
CUBE - - - - 1.0 CUBIC FEET (APPROX)



ADG-769/B (CY19) IN CNU-439/E CONTAINER

GROSS WEIGHT - - - - - 466 LBS (APPROX)
CUBE - - - - - 36.3 CUBIC FEET (APPROX)

SEE GENERAL NOTE "G" ON PAGE 3.

PLYWOOD, 3/4" X 9-1/2" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (2 REQD). NAIL TO THE BEAMS W/1-6d NAIL EVERY 8".

BEAM, 2" X 6" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (8 REQD).

BUFFER PIECE, 2" X 6" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-1") (2 REQD). NAIL THRU PLYWOOD INTO THE BEAMS W/2-10d NAILS AT EACH JOINT.

PLYWOOD, 3/4" X 11-1/2" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2") (4 REQD). NAIL TO THE BEAMS W/1-6d NAIL EVERY 8".

69"

49-1/2"

21-5/8"

END BLOCKING ASSEMBLY

VIEW A

9-1/2"

11-1/2"

2"
1-1/2"
2"
1-1/2"

VIEW A

VERTICAL PIECE, 2" X 4" X 31" (3 REQD).

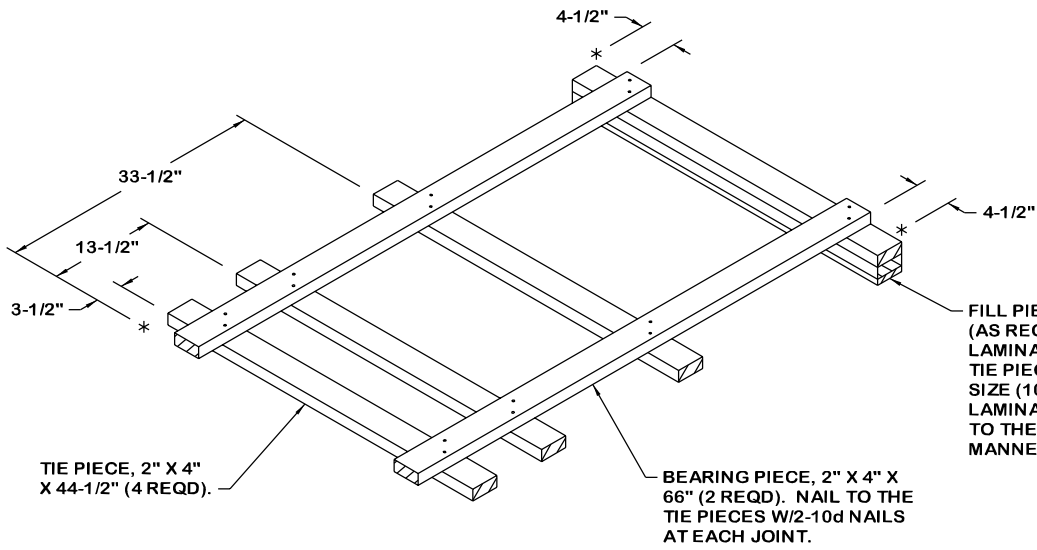
29-1/4"

15-1/2"

HORIZONTAL PIECE, 2" X 6" X 62" (2 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

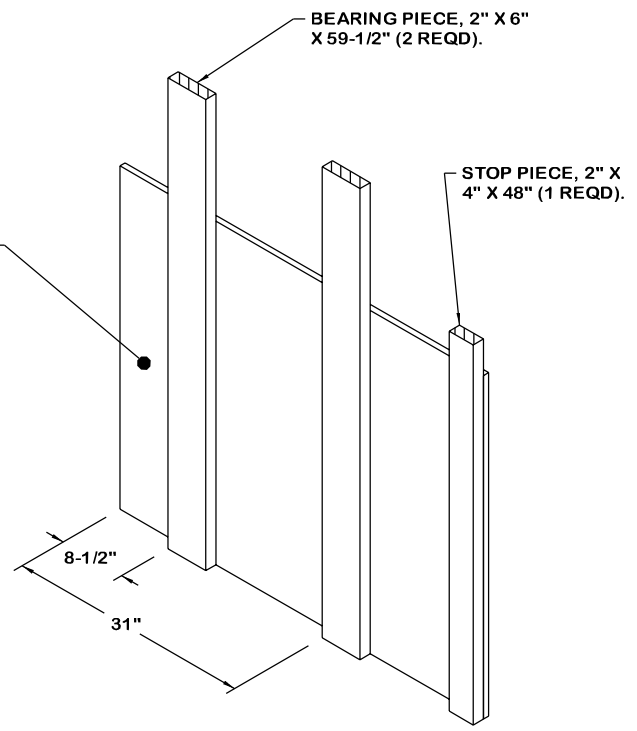
FILL ASSEMBLY

INSTALL WITH THE VERTICAL PIECES AGAINST THE CNU-439/E CONTAINER.



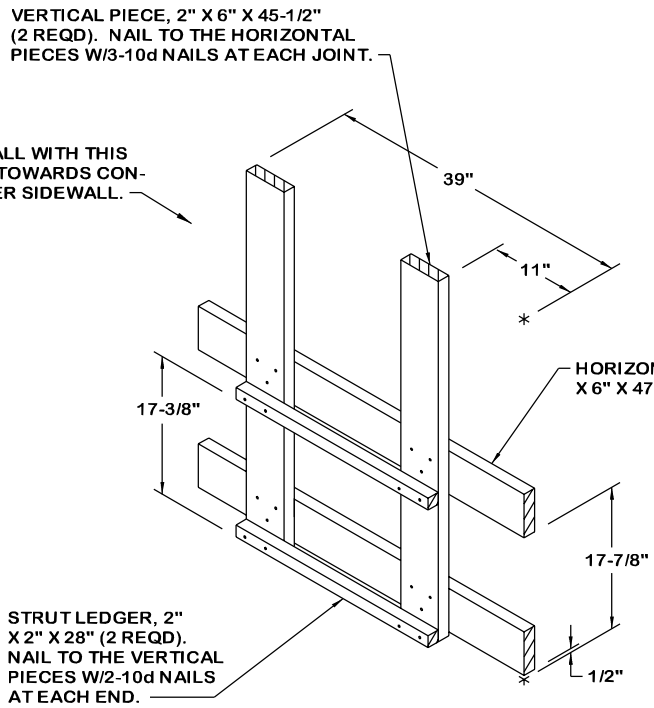
DECKING ASSEMBLY

INSTALL WITH THE FILL PIECES ON THE BLU-109/B BOMB TAILS.

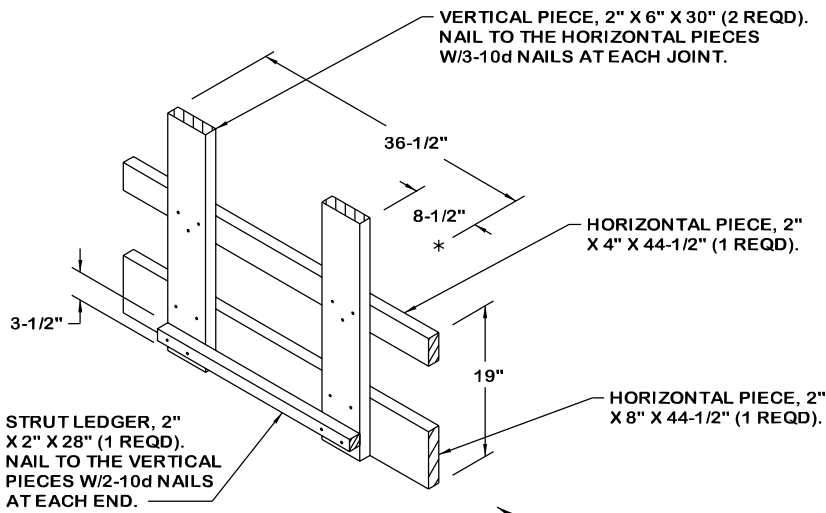


CENTER GATE A

NOTE: BEARING PIECES MUST BE IN ALIGNMENT WITH BOMB NOSES. INSTALL WITH THE BEARING PIECES AGAINST THE BOMB NOSES.



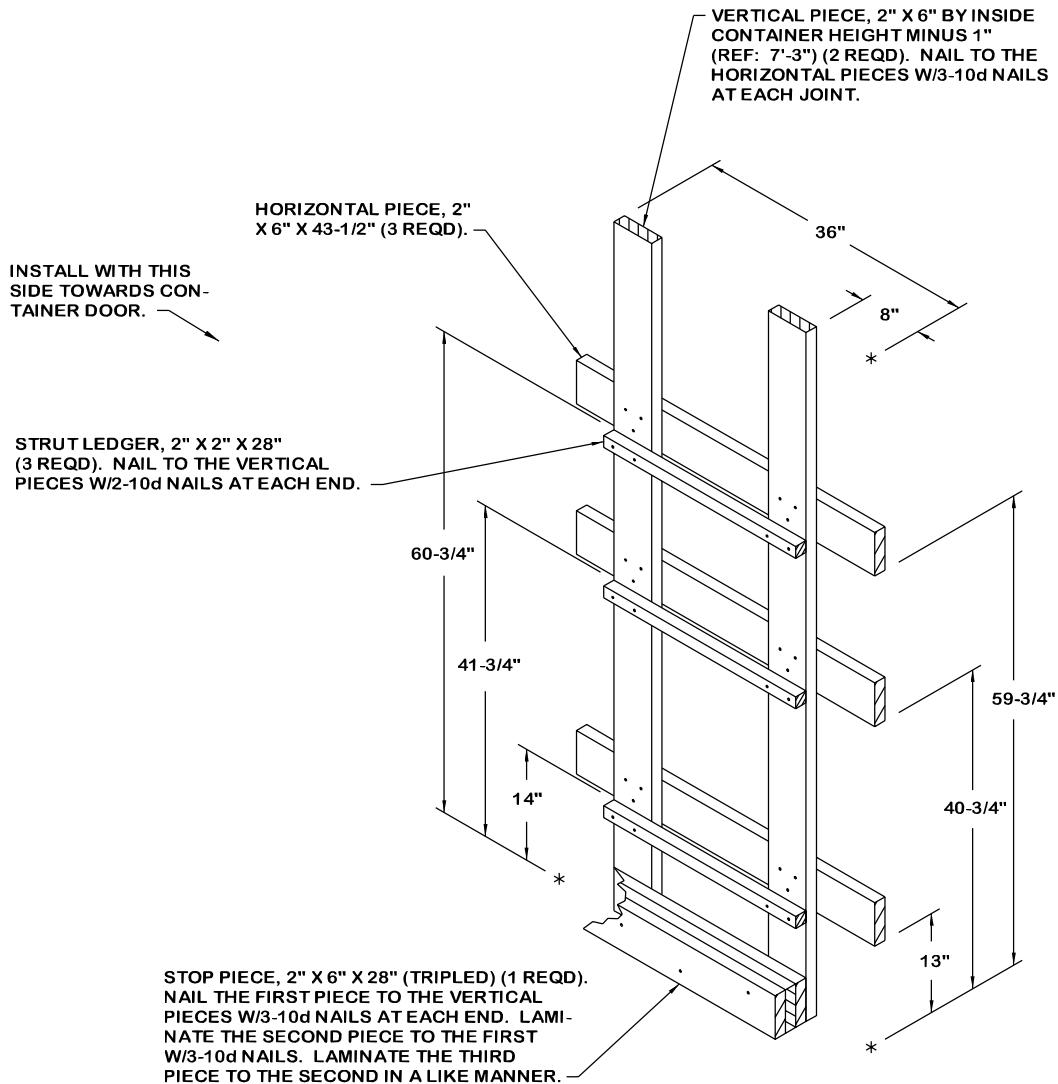
CENTER GATE B



CENTER GATE C

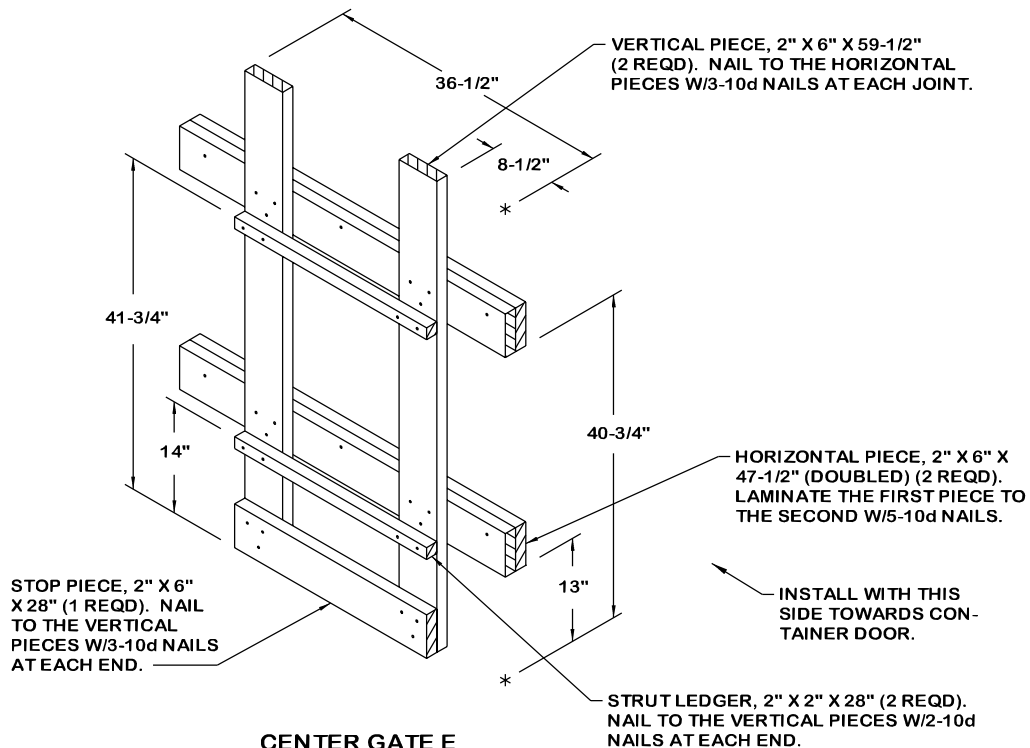
A RIGHT HAND GATE IS DEPICTED ABOVE,
A LEFT HAND GATE IS ALSO REQUIRED.

INSTALL WITH THIS
SIDE TOWARDS OUT-
SIDE OF CONTAINER.



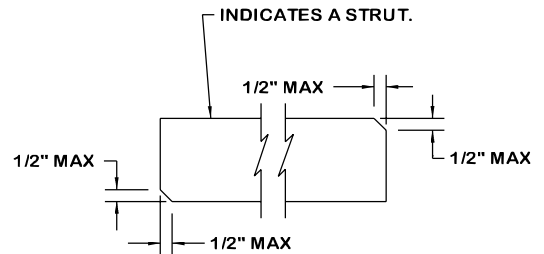
CENTER GATE D

NOTE: THE ABOVE ASSEMBLY HAS BEEN SHOWN ROTATED
180° FROM THE ORIENTATION IN WHICH IS TO BE INSTALLED
FOR CLARITY PURPOSES.



CENTER GATE E

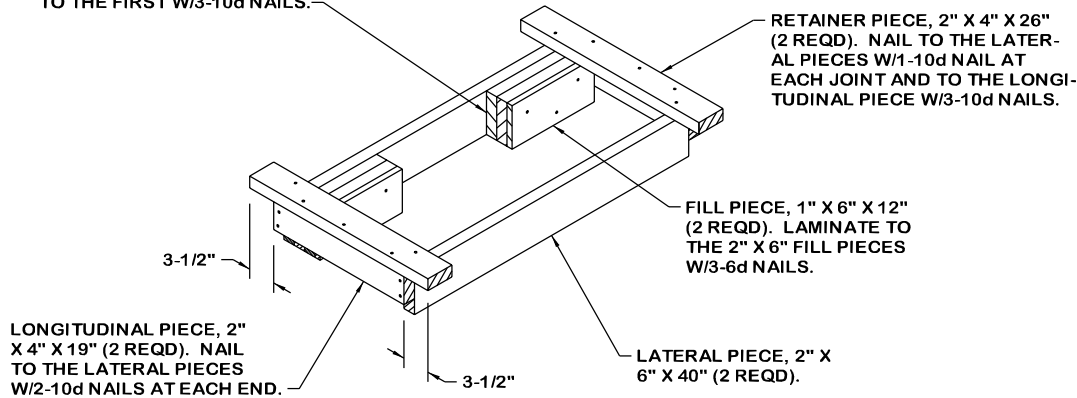
NOTE: VERTICAL PIECES MUST BE
IN ALIGNMENT WITH BOMB NOSES.



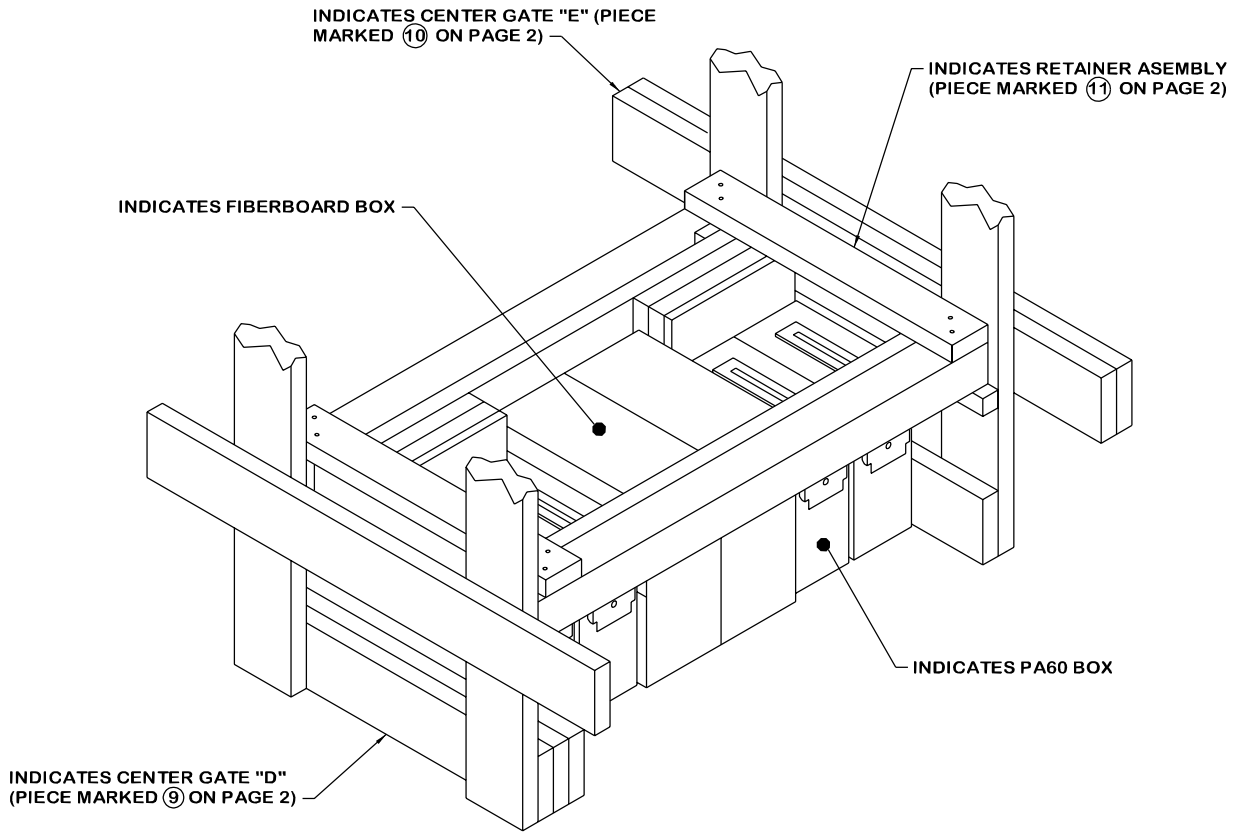
BEVEL-CUT

IF DESIRED, EACH END OF A STRUT MAY BE
BEVEL-CUT AS SHOWN ABOVE TO FACILITATE
THE ACHIEVEMENT OF A TIGHT CENTER-GATE-
TO-CENTER-GATE FIT.

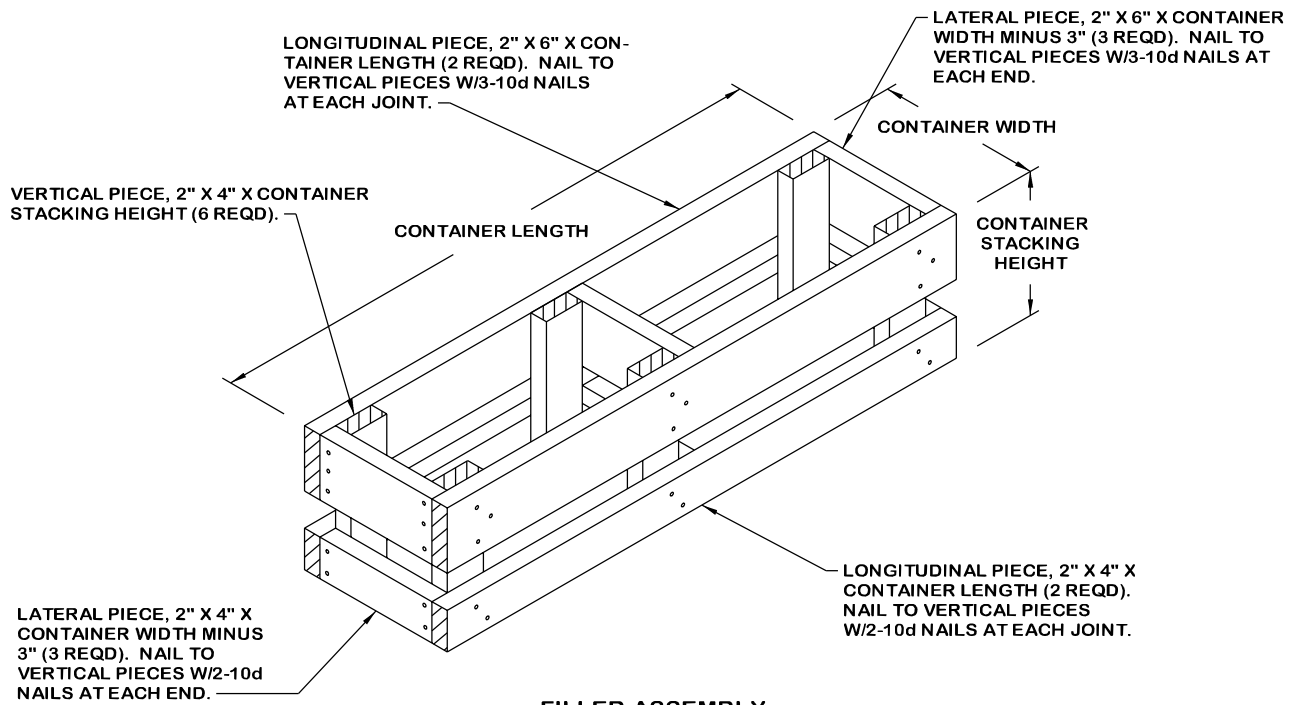
FILL PIECE, 2" X 6" X 12" (DOUBLED) (2 REQD).
LAMINATE THE FIRST PIECE TO THE LATERAL
PIECE, FLUSH AGAINST THE LONGITUDINAL PIECE,
W/3-10d NAILS. LAMINATE THE SECOND PIECE
TO THE FIRST W/3-10d NAILS.



RETAINER ASSEMBLY



SECUREMENT OF MISCELLANEOUS BOXES



FILLER ASSEMBLY

NOTE: THE ABOVE ASSEMBLY IS FOR USE WITH THE CNU-371/E PALLET UNIT. REFERENCES TO "CONTAINER" ABOVE IS TO THE CNU-371/E CONTAINER. CONTAINER STACKING HEIGHT IS 3/8" LESS THAN THE TOTAL CONTAINER HEIGHT (REF: 12-1/8").