LOADING AND BRACING® IN 40 FOOT END OPENING ISO CONTAINERS OF AIR INFLATABLE RETARDER, BSU-49 PACKED IN THE CNU-335/E OR CNU-335A/E CONTAINER, AND BSU-50 PACKED IN THE CNU-336/E OR CNU-336A/E CONTAINER

INDEX

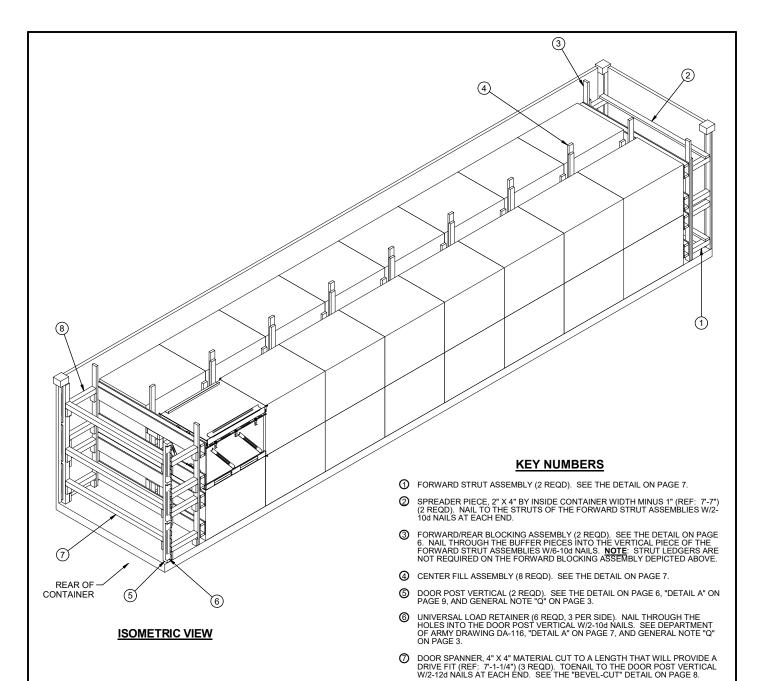
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - - - - - - - - - - - -

CNU-335A/E OR CNU-336A/E CONTAINER LOAD - - - - -

ITEM

CNU CONTAINER DETAILS							
DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE DISTRIBUTION IS UNLIMITED.	В	E SH	PROCEDURES SHOWN HEREI IIPPED BY TRAILER/CONTAIN R CARRIERS.				
U.S. ARMY MATERIEL COMMAND DRAWING							
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PAGE(S)



BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
2" x 4" 4" x 4"	729 45	486 60		
NAILS	NO. REQD	POUNDS		
6d (2") 10d (3") 12d (3-1/4")	352 712 64	2-1/4 11 1-1/4		

PLYWOOD, 3/4" - - 96.06 SQ FT REQD - -198.11 LBS UNIVERSAL LOAD RETAINER - - 6 REQD - - 39.00 LBS

LOAD AS SHOWN*

ITEM	QUANTITY	WEIGHT (APPROX)
DUNNAGE	335A/E 32 	35,712 LBS 1,342 LBS 8,380 LBS
ТО	TAL WEIGHT	45,434 LBS (APPROX)

STRUT, 4" X 4" BY CUT-TO-FIT (REF: 17") (8 REQD). TOENAIL TO THE BUFFER PIECES OF THE REAR BLOCKING ASSEMBLY AND TO THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE

*THE BSU-49 IN CNU-335A/E CONTAINER IS SHOWN ABOVE, THE LOAD DEPICTED IS ALSO APPLICABLE TO THE BSU-50 IN THE CNU-336A/E CONTAINER WITH AN APPROXIMATE WEIGHT OF 27,263 LBS.

CNU-335A/E OR CNU-336A/E CONTAINER LOAD

GENERAL NOTES

- 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 AIR INFLATABLE RETARDER, BSU-49 PACKED IN THE CNU-335/E OR CNU-335A/E CONTAINER, AND BSU-50 PACKED IN THE CNU-336/E OR CNU-336A/E CONTAINER SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH AMMUNITION ITEMS. SEE PAGE 4 AND T.O. 11A6-13-7 FOR DETAILS OF THE CONTAINERS. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON AN 8,380 POUND 40' LONG BY 8' WIDE BY 8'-6" HIGH END OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 39'-5" LONG BY 92" WIDE BY 93" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 67,200 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95", BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93", VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.
- D. 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 FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE CENTER FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL. EXCESSIVE SLACK CAN BE ELIMINATED BY INCREASING THE LENGTH OF THE STRUTS AT THE REAR OF THE LOAD, OR BY INSTALLING 4" WIDE BY 66" LONG FILL MATERIAL.
- E. THIS DRAWING DEPICTS A 32-CONTAINER MAXIMUM CONFIGURATION, WITH A LADING WEIGHT OF 45,562 POUNDS FOR THE BSU-49 IN THE CNU-335/E CONTAINER AND A LADING WEIGHT OF 45,434 POUNDS FOR THE BSU-49 IN THE CNU-335A/E CONTAINER. DUE TO RESTRICTIONS ENACTED BY THE SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND AND THE JOINT MUNITIONS COMMAND, ANY ISO CONTAINER DESTINED TO BE MOVED OVER CONUS HIGHWAYS CAN NOT EXCEED 40,000 POUNDS GROSS WEIGHT. IN ORDER TO COMPLY WITH THIS RESTRICTION, FIVE OR SIX CONTAINERS MUST BE ELIMINATED FROM THE 32-CONTAINER MAXIMUM LOAD, RESPECTIVELY. THIS WILL RESULT IN A 27-CONTAINER LOAD FOR THE BSU-49 IN THE CNU-3356/E CONTAINER, WITH A GROSS WEIGHT OF 39,962 POUNDS. ALTERNATELY, THIS WILL RESULT IN A 26-CONTAINER LOAD FOR THE BSU-49 IN THE CNU-335A/E CONTAINER, WITH A GROSS WEIGHT OF 39,206 POUNDS. SEE THE "LESS-THANFULL" LOAD PROCEDURES ON PAGE 8 FOR DETAILS.
- 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 FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY OR FORWARD STRUT ASSEMBLY 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 FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER FORWARD WALL, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.
- H. 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.
- J. <u>CAUTION</u>: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- K. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES

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 CETTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

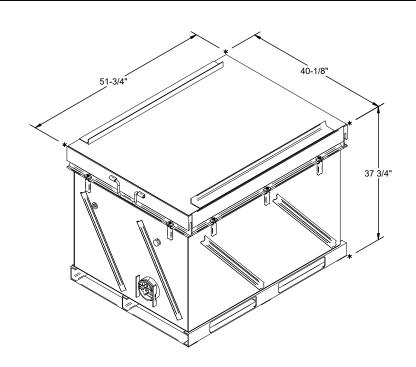
(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

- M. 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 FOL-LOW:
 - A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BO-GIE 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.
- N. 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.
- O. 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.
- P. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE FILLER ASSEMBLY ON PAGE 7 AND THE "LESS-THAN-FULL LOAD PROCEDURE" ON PAGE 8.
 - IF A LOAD IS REDUCED BY ONLY A SMALL AMOUNT (ONE OR TWO LAD-ING UNITS), LADING UNITS NORMALLY MAY BE ELIMINATED FROM THE CENTER OF THE LOAD.
 - 2. IF A LOAD IS REDUCED BY A LARGE AMOUNT (MORE THAN THREE LAD-ING UNITS), LADING UNITS SHOULD BE ELIMINATED AS REQUIRED AND THE TOTAL LOAD SHIFTED FORE OR AFT, AS NECESSARY, TO ACHIEVE A SYMMETRICAL WEIGHT DISTRIBUTION. THE DEPICTED PROCEDURES WILL BE FOLLOWED AS CLOSELY AS POSSIBLE, MAKING ONLY THOSE ADJUSTMENTS TO THE DUNNAGE WHICH ARE REQUIRED TO ACCOM-MODATE THE NUMBER OF UNITS TO BE SHIPPED.
- Q. SIX UNIVERSAL LOAD RETAINERS, AS DEPICTED IN THE LOADS ON PAGES 2 AND 8, ARE REQUIRED WHEN LOADING A TWO HIGH LOAD AND, FOUR ARE REQUIRED WHEN LOADING A ONE HIGH LOAD. REFER TO DAC DRAWING ACV00682 FOR DETAILS OF THE UNIVERSAL LOAD RETAINER CONSTRUCTION, AND TO DEPARTMENT OF THE ARMY DRAWING DA-116 FOR DETAILS FOR INSTALLATION TO THE DOOR POST VERTICAL, PLACEMENT INTO THE CONTAINER, AND FOR OTHER METHODS OF REAR-OF-LOAD RESTRAINT.
- R. 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.
- S. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN IN THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 73 OF DRAW-ING AMC 19-48-4153-15PA1002. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUT AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.
- T. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN CONTAINERS, AND BETWEEN CONTAINERS AND THE END OPENING CONTAINER WALL, IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS.

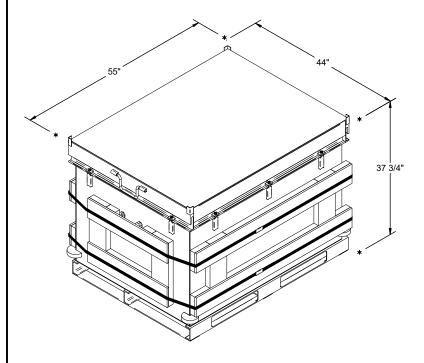
MATERIAL SPECIFICATIONS

MATERIAL SPECIFICATIONS			
<u>LUMBER</u> :	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOL- UNTARY PRODUCT STANDARD PS 20.		
<u>NAILS</u> :	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).		
<u>PLYWOOD</u> :	COMMERCIAL ITEM DESCRIPTION A-A-55057, IN- DUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EX- TERIOR GRADE MAY BE SUBSTITUTED.		
WIRE, CARBON STEEL -:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800° DIA, GRADE 1006 OR BETTER.		
ANTI-CHAFING MATERIAL:	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.		



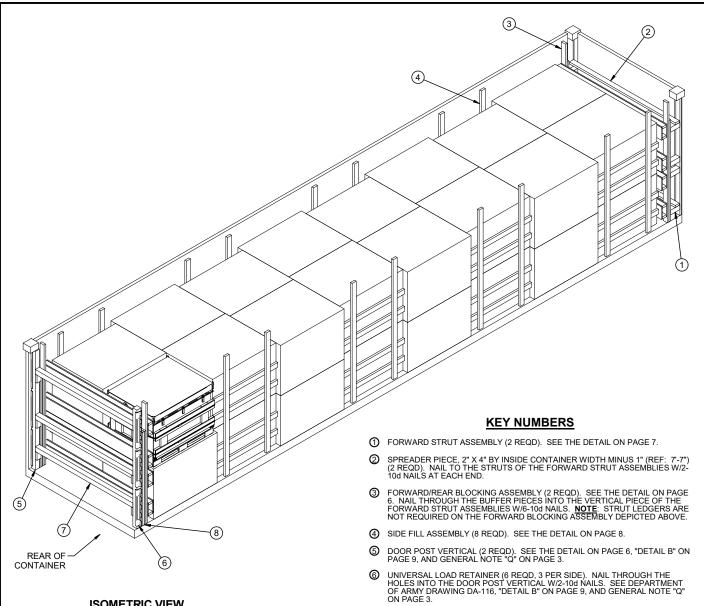
CNU-335A/E OR CNU-336A/E CONTAINER DATA

GROSS WEIGHT BSU-49 IN CNU-335A/E CONTAINER - - 1,038 LBS GROSS WEIGHT BSU-50 IN CNU-336A/E CONTAINER - - 559 LBS CUBE - - - - - - - - - - - - - - - 45.4 CU FT



CNU-335/E OR CNU-336/E CONTAINER DATA

GROSS WEIGHT BSU-49 IN CNU-335/E CONTAINER - - 1,120 LBS GROSS WEIGHT BSU-50 IN CNU-336/E CONTAINER - - 641 LBS CUBE - - - - - - - - - - - 52.9 CU FT



ISOMETRIC VIEW

BILL OF MATERIAL				
LUMBER	LINEAR FEET	BOARD FEET		
2" X 4"	729	486		
4" × 4"	45	60		
NAILS	NO. REQD	POUNDS		
6d (2")	352	2-1/4		
10d (3")	712	11		
12d (3-1/4")	64	1-1/4		
PLYWOOD 3/4" 96 06 SO FT REOD198 11 LBS				

96.06 SQ FT UNIVERSAL LOAD RETAINER - - 6 REQD - - 39.00 LBS

LOAD AS SHOWN*

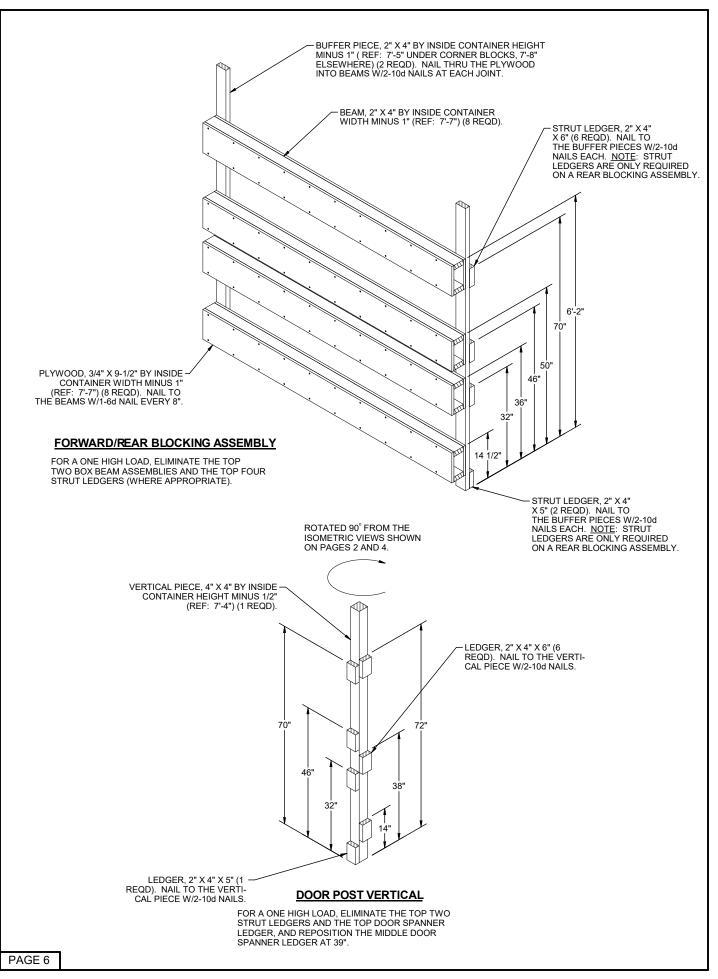
ITEM	QUANTITY	WEIGHT	(APPROX)
DUNNAGE	U-335/E ER 32 	35,840 1,342 8,380	LBS
-	TOTAL WEIGHT	45.562	LBS (APPROX)

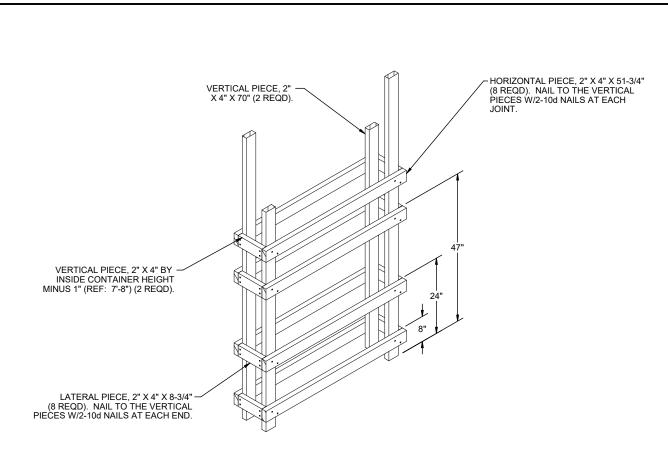
ODOR SPANNER, 4" X 4" MATERIAL CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-1/4") (3 REQD). TOENAIL TO THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 8.

FILL MATERIAL, 4" WIDE BY 7'-1" LONG MATERIAL (AS REQD). NAIL THE FIRST PIECE TO THE REAR BLOCKING ASSEMBLY W/6 NAILS OF A SUITABLE SIZE (10d FOR 2" THICK MATERIAL). NAIL EACH ADDITIONAL PIECE TO THE PREVIOUS PIECE IN A SIMILAR MANNER. <u>NOTE</u>: MULTIPLE PIECES MAY BE LAMINATED TOGETHER FIRST AND THEN TOENAILED TO THE REAR BLOCKING ASSEMBLY. SEE "DETAIL A" ON PAGE 7.

*THE BSU-49 IN CNU-335/E CONTAINER IS SHOWN ABOVE. THE LOAD DEPICTED IS ALSO APPLICABLE TO THE BSU-50 IN THE CNU-336/E CONTAINER WITH AN APPROXIMATE WEIGHT OF 30,234LBS.

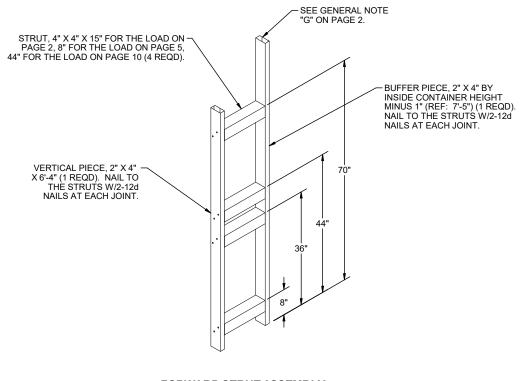
CNU-335/E OR CNU-336/E CONTAINER LOAD





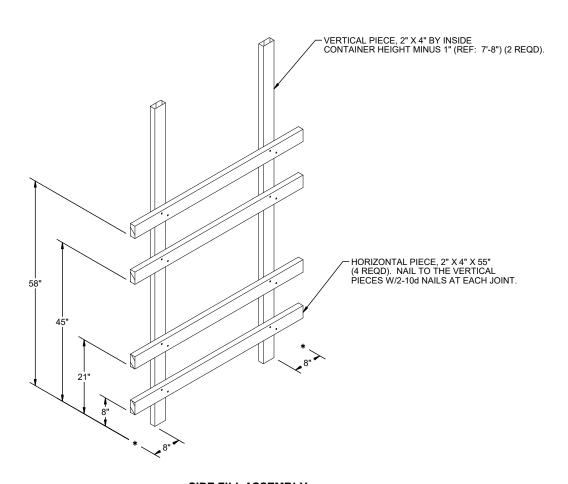
CENTER FILL ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO HORIZONTAL PIECES AND TOP TWO LATERAL PIECES AND SHORTEN THE 70" VERTICAL PIECES TO 44".



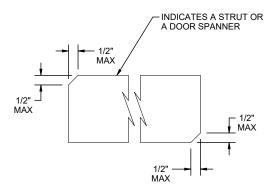
FORWARD STRUT ASSEMBLY

FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO STRUTS AND SHORTEN THE VERTICAL PIECE TO 42".



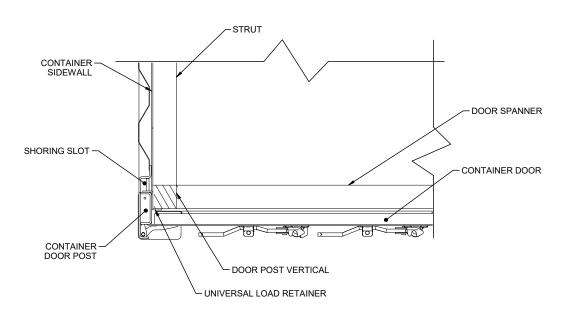
SIDE FILL ASSEMBLY

THE ASSEMBLY DEPICTED ABOVE IS FOR USE WITH THE CNU-335/E OR THE CNU-336/E CONTAINER LOAD SHOWN ON PAGE 5. FOR A ONE HIGH LOAD, ELIMINATE THE TOP TWO HORIZONTAL PIECES.



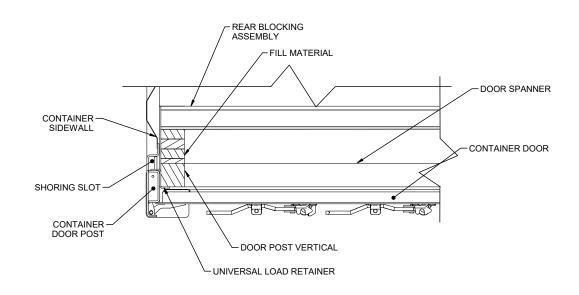
BEVEL CUT

IF DESIRED, EACH END OF A STRURT OR DOOR SPANNER MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE INSTALLING THE STRUTS WITH A "DRIVE" FIT.



DETAIL A

A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER SHOWN ON PAGE 2 DEPICTING THE PROPER POSITION OF THE DOOR POST VERTICAL RETAINER AND ADJACENT DUNNAGE PIECES.



DETAIL B

A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER SHOWN ON PAGE 5 DEPICTING THE PROPER POSITION OF THE DOOR POST VERTICAL RETAINER AND ADJACENT FILL MATERIAL.

