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Date: 2011.02.11 14:20:20

# LOADING AND BRACING® IN SIDE **OPENING ISO CONTAINERS OF** SIDEWINDER MISSILE (AIM-9X) PACKED IN CNU-609 CONTAINERS

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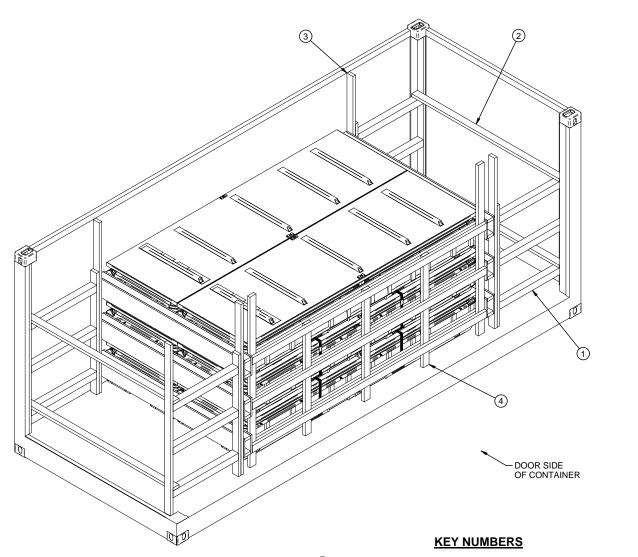
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THE PROCEDURES SHOWN HEREIN ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL, MOTOR, OR WATER CARRIERS.



# **ISOMETRIC VIEW**

- ① STRUT ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-3") (2 REQD). NAIL TO THE STRUTS OF THE STRUT ASSEMBLY W/2-10d NAILS AT EACH END.
- 3 END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6. NAIL THROUGH THE BUFFER PIECES INTO THE VERTICAL PIECE OF THE STRUT ASSEMBLIES W/5-10d NAILS.
- ④ SIDE FILL ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 7.

BILL OF MATERIAL			
LUMBER	LI NEAR FEET	BOARD FEET	
2" X 4" 2" X 6"	268 71	179 95	
NAILS	NO. REQD	POUNDS	
6d (2") 10d (3") 12d (3-1/4")	264 152 48	1. 55 2. 34 0. 80	

PLYWOOD, 3/4" - - - 69.67 SQ FT REQD 143.69 LBS STEEL STRAPPING, 1-1/4" - 46.50' REQD - 6.64 LBS SEAL FOR 1-1/4" STRAPPING - 4 REQD - - 0.18 LBS

# LOAD AS SHOWN

ITEM	QUANTI TY	WEIGHT (APPROX)
DUN NAGE -		702 LBS

TOTAL WEI GHT - - - - 24,446 LBS (APPROX)

#### **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 SIDEWINDER (AIM-9X) MISSILES PACKED IN CNU-609 SHIPPING AND STORAGE CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CONTAINER WITH MISSILE ITEMS. SEE PAGES 4 AND 5 AND NAVY DRAWING 6214173 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED. THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20' LONG BY 8' WIDE BY 8'6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-5-11/4"
  LONG BY 89-3/4" WIDE BY 88" HIGH, WITH A MAXIMUM GROSS WEIGHT OF
  52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE DIFFERENT INSIDE
  MEASUREMENTS, VERIFY INSIDE CONTAINER DIMENSIONS PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ONFLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO
  BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. MOTICE: 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". THE THICKNESS, LENGTH AND/OR QUANTITY OF THE VERTICAL OR HORIZONTAL PIECES IN THE SIDE FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER. THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL. EXCESSIVE SLACK CAN BE ELIMINATED EITHER BY INCREASING THE LENGTH OF THE STRUTS IN THE TWO STRUT ASSEMBLIES ON ONE END OF THE LOAD, OR BY INSTALLING 4" WIDE BY 66" LONG FILL MATERIAL. FILL MATERIAL MAY BE INSTALLED BETWEEN THE STRUT ASSEMBLY VERTICAL PIECES AND THE END BLOCKING ASSEBMBLY BUFFER PIECES, TOENAIL EACH PIECE W/5 APPROPRIATELY SIZED NAILS (10d FOR 2" MATERIAL).
- E. 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.
- 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 ENDWALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE STRUT 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 FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER ENDWALLS, ONLY THE CORNER POST 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 CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

- 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-I OW:
  - 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.

(CONTINUED AT RIGHT)

#### (GENERAL NOTES CONTINUED)

- 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 DOCU-MENT 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 "LESS-THAN-FULL-LOAD" PROCEDURES ON PAGE 8.
- R. ANTI-CHAFING MATERIAL MAY BE INSTALLED AT POINTS OF CONTACT BETWEEN CONTAINERS, BETWEEN CONTAINERS AND THE SIDE OPENING CONTAINER, AND BETWEEN CONTAINERS AND STEEL STRAPPING, IF DESIRED, TO PREVENT CHAFING DAMAGE TO CONTAINER PAINT AND MARKINGS
- S. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:
  - PREFABRICATE TWO END BLOCKING ASSEMBLIES, FOUR STRUT AS-SEMBLIES AND ONE SIDE FILL ASSEMBLY.
  - 2. INSTALL TWO STRUT ASSEMBLIES, TWO SPREADER PIECES, AND ONE END BLOCKING ASSEMBLY.
  - 3. LOAD A SINGLE CONTAINER
  - 4 LOAD A UNITIZED CONTAINER LOAD
  - INSTALL REMAINING STRUT ASSEMBLIES, TWO SPREADER PIECES, AND END BLOCKING ASSEMBLY.
  - 6. REPEAT STEPS 3 AND 4.
  - 7. INSTALL ONE SIDE FILL ASSEMBLY.

#### **MATERIAL SPECIFICATIONS**

LUMBER - - - - - - - - SEE TM 743-200-1 (DUNNAGE LUMBER) AND VO-LUNTARY PRODUCT STANDARD PS 20.

NAILS - - - - - - - - SATM F1667; COMMON STEEL NAIL NLCMS OR NLCMMS).

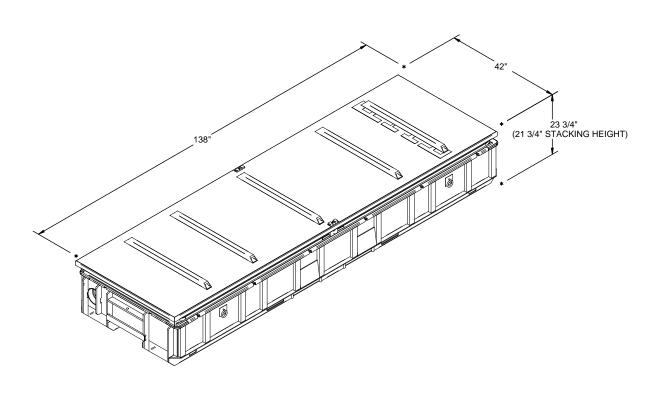
STRAPPING, STEEL - -: ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.

SEAL, STRAP - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.

WIRE, CARBON STEEL -: ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.

STAPLE - - - - - - : ASTM F1667; STFCS-189 OR STFCS-207, 15/16" OR 1" CROWN WIDTH X 3/4" LEG LENGTH FOR 3/4" STRAPPING, OR STFCS-224, 1-17/32" CROWN WIDTH X 3/4" LEG LENGTH FOR 1-1/4" STRAPPING.

- - -: MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.



## **CNU-609 CONTAINER**

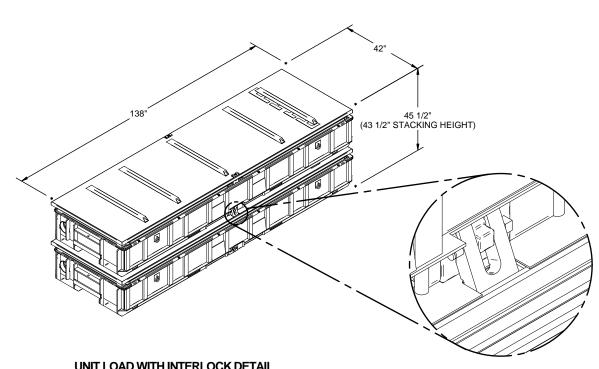
GROSS WEI GHT - - - - - - - - - 2, 949 LBS CUBE - - - - - - 79. 7 CU FT

#### **UNITIZATION AND HANDLING GUIDANCE**

- 1. STACKING CONTAINERS FOR UNITIZING:
  - A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
  - B. POSITION THE AFT END OF AN UPPER CONTAINER ABOVE THE AFT END OF THE NEXT LOWER CONTAINER.
  - C. THE CONTAINER SKIDS OF AN UPPER CONTAINER SHOULD BE FULLY SEATED AGAINST THE SKID LOCATOR PIECES ON THE COVER OF THE NEXT LOWER CONTAINER.
- 2. UNITIZING PROCEDURE USING PREFERRED INTERLOCKING FEATURE (SHOWN ON PAGE 5).
  - A. DETACH QUICK RELEASE PIN (BOTH SIDES) ON CONTAINER TO BE PLACED ON TOP.
  - B. STACK TWO CONTAINERS AS SHOWN. BE SURE TO ALIGN THE STACKING FEATURES.
  - C. SECURE TOP CONTAINER TO BOTTOM CONTAINER USING INTERLOCKING FEATURE.
  - D. INSTALL QUICK RELEASE PIN (BOTH SIDES).

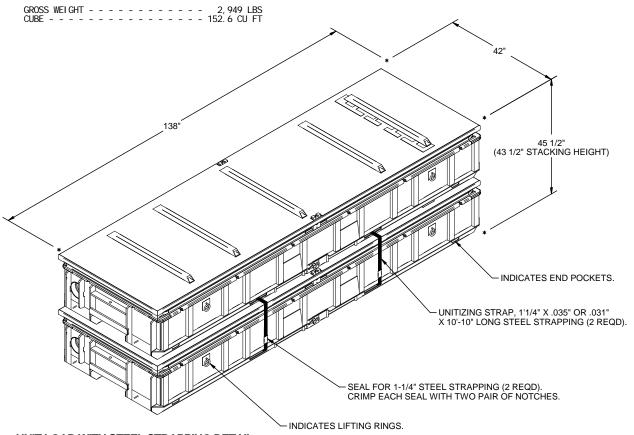
#### $(\underline{\textbf{UNITIZATION}} \ \textbf{AND} \ \textbf{HANDLING} \ \textbf{GUIDANCE} \ \textbf{CONTINUED})$

- 3. ALTHOUGH THE PREFERRED UNITIZING PROCEDURE UTILIZES THE INTER-LOCKING PIN/BRACKET DETAIL, THE ALTERNATE UNITIZING PROCEDURE US-ING OPTIONAL 1-1/4" BANDING STRAPS IS AS FOLLOWS (SHOWN ON PAGE 5).
  - A. STACK TWO CONTAINERS AS SHOWN. BE SURE TO ALIGN THE STACKING FEATURES.
  - B. FEED UNITIZING STRAP THROUGH FORK POCKETS OF BOTH CONTAINERS. (2 PLACES)
  - C. TENSION AND SECURE EACH STRAP WITH ONE DOUBLE-NOTCHED SEAL.
- 4. CONTAINER OR CONTAINER STACK HANDLING:
  - A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS. APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.
  - B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
  - C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE.



# **UNIT LOAD WITH INTERLOCK DETAIL**

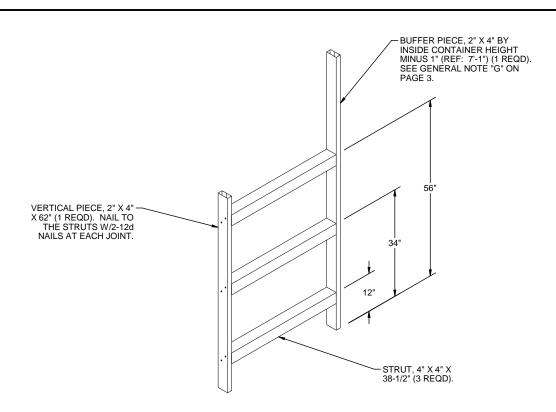
CAUTION: CONTAINER INTERLOCKS ARE ONLY APPROVED FOR TWO HIGH LOADS. ADDITIONAL STEEL UNITIZING STRAPS MUST BE USED WHEN LOADING THREE LAYERS.



# **UNIT LOAD WITH STEEL STRAPPING DETAIL**

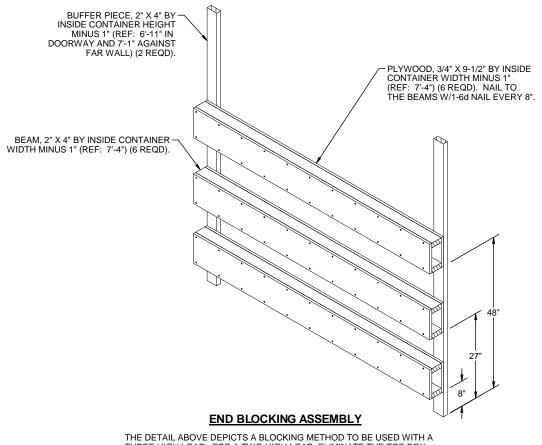
<u>NOTE</u>: UNITIZATION USING THE CONTAINER INTERLOCKS IS THE PREFERRED METHOD. THE ALTERNATE STEEL STRAPPING METHOD IS DEPI CTED ABOVE.

GROSS WEI GHT - - - - - - - - - 2, 949 LBS CUBE - - - - - - - 152. 6 CU FT

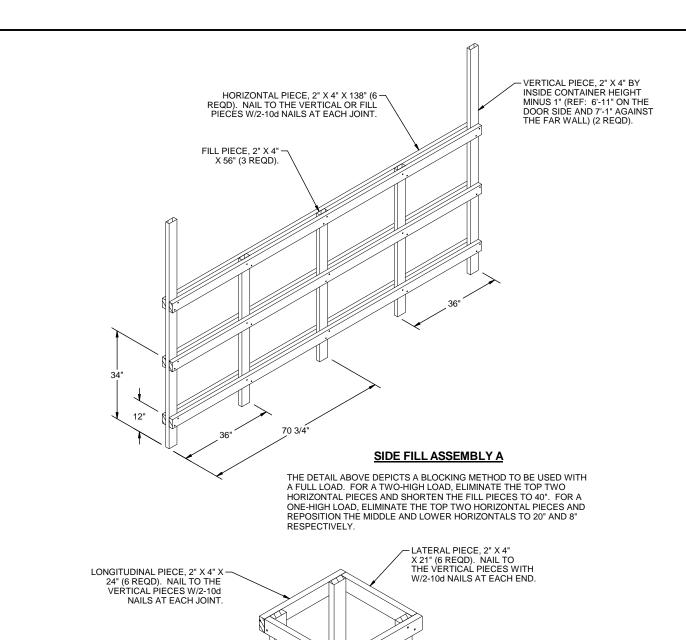


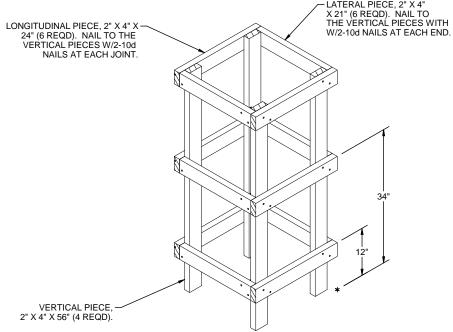
#### **STRUT ASSEMBLY**

FOR A TWO-HIGH LOAD, ELIMINATE THE TOP STRUT AND SHORTEN THE VERTICAL PIECE TO  $40^\circ$ . FOR A ONE-HIGH LOAD, ELIMINATE THE UPPER STRUT, SHORTEN THE VERTICAL PIECE TO  $26^\circ$  AND REPOSITION THE MIDDLE STRUT TO  $20^\circ$ .



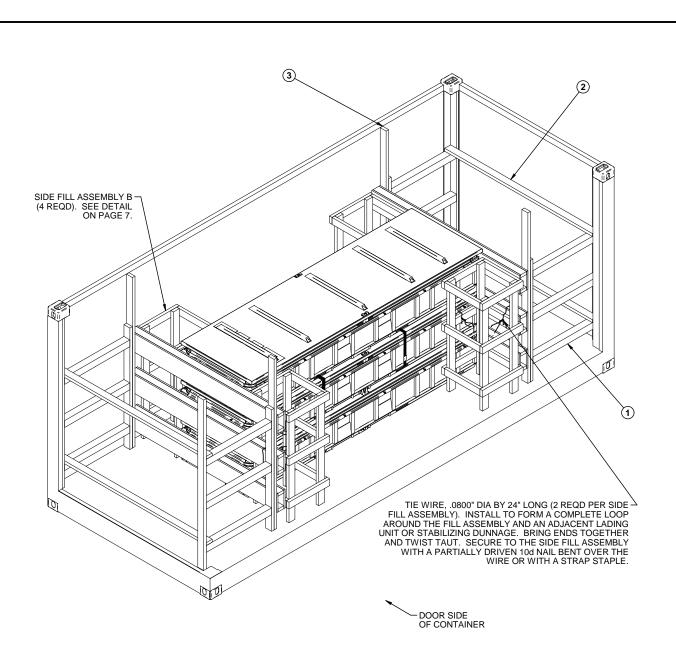
THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED WITH A THREE-HIGH LOAD. FOR A TWO-HIGH LOAD, ELIMINATE THE TOP BOX BEAM ASSEMBLY. FOR A ONE-HIGH LOAD, ELIMINATE THE UPPER TWO BEAM ASSEMBLIES AND REPOSITION THE LOWER ASSEMBLY TO 5".





# SIDE FILL ASSEMBLY B

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED WITH A LESS-THAN-FULL-LOAD. FOR A TWO-HIGH LOAD, ELIMINATE THE UPPER TWO LATERAL AND UPPER TWO LONGITUDINAL PIECES AND SHORTEN THE VERTICAL PIECES TO 34". FOR A ONE-HIGH LOAD, ELIMINATE THE UPPER TWO LATERAL AND UPPER TWO LONGITUDINAL PIECES, REPOSITION THE MIDDLE LATERAL AND LONGITUDINAL PIECES TO 20" AND REDUCE THE VERTICAL PIECES TO 20"



### LESS-THAN-FULL-LOADPROCEDURE

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL CONTAINER LOAD (LESS THAN FOUR LADING UNITS). KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2. SEE GENERAL NOTE "H" ON PAGE 3.