APPROVED BY
BUREAU OF EXPLOSIVES

DATE 8//9/9/

LOADING AND BRACING WITH WOODEN
DUNNAGE IN SIDE OPENING COMMERCIAL
CONTAINERS OF SIDEWINDER (AIM-9L)
MISSILES IN CNU-310/E SHIPPING
AND STORAGE CONTAINERS AND SPARROW
(AIM-7F) MISSILES IN CNU-305/E
SHIPPING AND STORAGE CONTAINERS

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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-FLAT CAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS. SEE GENERAL NOTE "K" ON PAGE 2.

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#### **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 THE SIDEWINDER (AIM-9L) MISSILE IN A CNU-310/E CONTAINER AND THE SPARROW (AIM-7F) MISSILE IN A CNU-305/E CONTAINER. SUBSEQUENT REFERENCE TO THE CNU-310/E CONTAINER HEREIN MEANS THE CNU-310/E CONTAINER WITH MISSILES INSTALLED. AND SUBSEQUENT REFERENCE TO THE CNU-305/E CONTAINER HEREIN MEANS THE CNU-305/E CONTAINER HEREIN MEANS THE CNU-305/E CONTAINER WITH MISSILES INSTALLED. SEE PAGE 3 FOR DETAILS OF THE CONTAINERS. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED. THE "MAXIMUM GROSS WEIGHT" OF 44.800 POUNDS 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 INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" HIGH. THE LOAD IS DESIGNED FOR TRAILER/ CONTAINER-ON-FLAT-CAR (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 CNU-305/E AND CNU-310/E CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE END AND SIDE DUNNAGE ASSEMBLIES). ALTHOUGH A TOTAL OF 1-1/2" OF UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS PERMITTED, LATERAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM. EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE SIDE FILL ASSEMBLIES ON ONE OR BOTH SIDES OF THE CONTAINER. NAIL EACH ADDITIONAL PIECE TO THE BEARING PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS OF THE HORIZONTAL PIECES ON ONE OR BOTH SIDES OF THE CONTAINER MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE CNU-305/E OR CNU-310/E CONTAINER SIZE. THE STRUTS AND TIE PIECES IN THE END AND SIDE SPACER ASSEMBLIES MAY ALSO BE LENGTHENED OR SHORTENED, AS REQUIRED, TO ELIMINATE EXCESSIVE SLACK IN THE LOAD.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, I\* X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" 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. <u>CAUTION</u>: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- H. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- J. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET GC APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLAT-CAR (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
  - 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.
- K. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLAT BED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- L. 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 DNE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454KG.

(CONTINUED AT RIGHT)

#### (GENERAL NOTES CONTINUED)

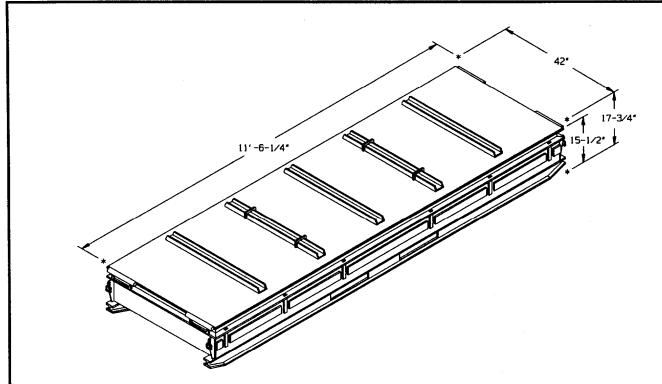
- M. IN SOME CONTAINERS, THE ENDWALL CORRUGATIONS ARE CONFIGURED SUCH AS TO ALLOW FOR THE ELIMINATION OF THE FILL PIECE ON THE DOOR SIDE STRUT ASSEMBLIES. IF THE REAR BUFFER PIECE WILL BE IN TOTAL CONTACT WITH THE ENDWALL, THE FILL PIECE MAY BE ELIMINATED. IF A PORTION OF THE REAR BUFFER PIECE WILL NOT BE IN CONTACT WITH THE ENDWALL DUE TO THE CONFIGURATION OF THE CORRUGATIONS, THE FILL PIECE MUST BE INSTALLED.
- N. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:
  - PREFABRICATE FOUR STRUT ASSEMBLIES, FOUR SPREADER ASSEMBLIES, TWO END BLOCKING ASSEMBLIES, TWO END SPACER ASSEMBLIES. THREE FILL ASSEMBLIES, ONE SUPPORT ASSEMBLY, AND TWO SIDE SPACER ASSEMBLIES.
  - INSTALL FOUR STRUT ASSEMBLIES, FOUR SPREADER ASSEMBLIES, TWO END BLOCKING ASSEMBLIES, TWO END FILL ASSEMBLIES, AND ONE FILL ASSEMBLY.
  - 3. LOAD THREE, TWO, OR ONE CNU-310/E CONTAINERS, AS REQUIRED FOR THE LOADS DEPICTED ON PAGES 4, 6 OR 8.
  - 4. INSTALL ONE FILL ASSEMBLY.
  - 5. REPEAT STEP 3.
  - INSTALL ONE SUPPORT ASSEMBLY AND ONE SIDE SPACER ASSEMBLY. WIRE TIE THE SIDE SPACER ASSEMBLY TO THE END SPACER ASSEMBLIES.
  - 7. INSTALL ONE. TWO OR THREE CNU-305/E CONTAINERS, AS REQUIRED FOR THE LOADS DEPICTED ON PAGES 4, 6 OR 8.
  - 8. INSTALL ONE FILL ASSEMBLY AND ONE SIDE SPACER
    ASSEMBLY. WIRE TIE THE SIDE SPACER ASSEMBLY TO THE
    END SPACER ASSEMBLIES.

### MATERIAL SPECIFICATIONS

LUMBER - - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

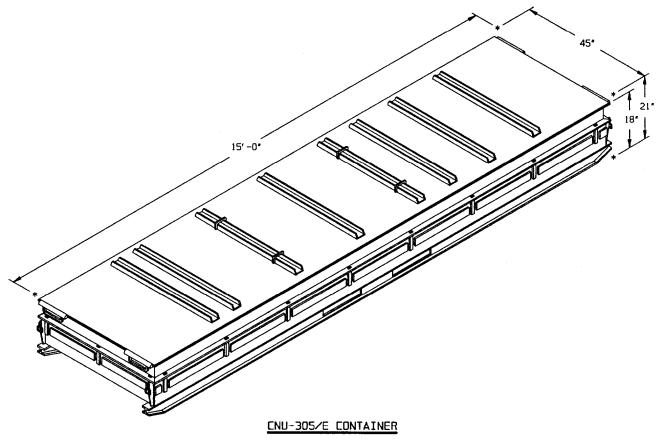
NAILS ----: FED SPEC FF-N-105; COMMON.

WIRE - - - - - - : FED SPEC QQ-W-461: ANNEALED, BLACK.



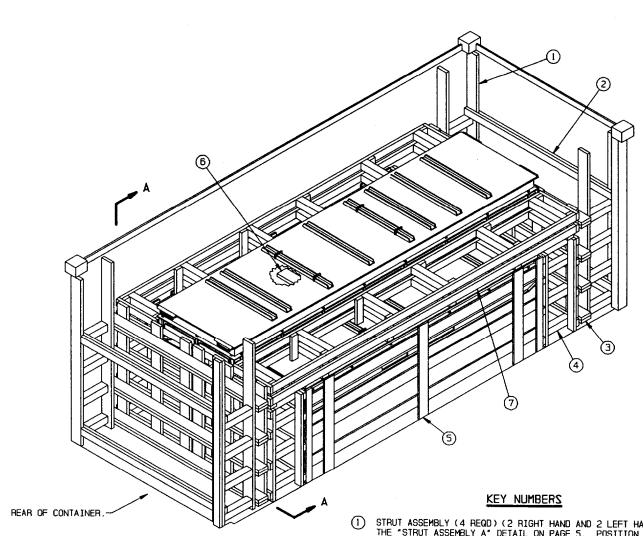
# CNU-310/E CONTAINER

CONTAINER WEIGHT - - - - 1.380 LBS (APPROX)
CUBE - - - - - - - 59.7 CUBIC FEET (APPROX)

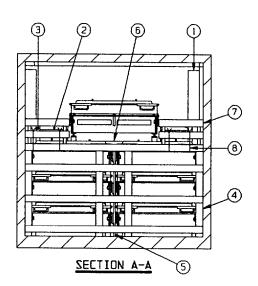


CONTAINER WEIGHT - - - - 2.855 LBS (APPROX)
CUBE - - - - - - - 98.5 CUBIC FEET (APPROX)

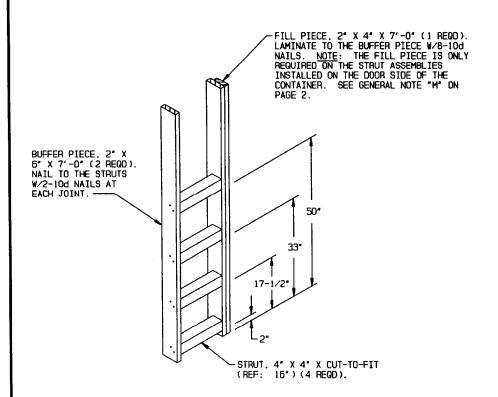
PAGE 3



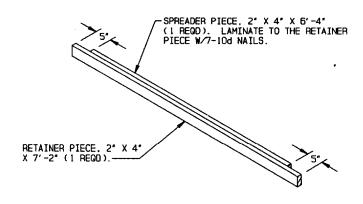
### ISOMETRIC VIEW



- (1) STRUT ASSEMBLY (4 REQD) (2 RIGHT HAND AND 2 LEFT HAND). SEE THE "STRUT ASSEMBLY A" DETAIL ON PAGE 5. POSITION THE ASSEMBLY WITH THE 4" X 4" STRUTS AGAINST THE CONTAINER SIDEWALL OR TOWARDS THE DOOR. AS SHOWN ABOVE. NOTE: INSTALL A STRUT ASSEMBLY CONTAINING A FILL PIECE ON THE DOOR SIDE OF THE CONTAINER ONLY. AFTER PIECE MARKED (3) IS INSTALLED AND CENTERED ON THE WIDTH OF THE CONTAINER. NAIL THROUGH THE REAR BUFFER PIECE OF EACH STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY OF PIECE MARKED (3) W/2-12d NAILS AT EACH JOINT.
- (2) SPREADER ASSEMBLY (4 REQD). SEE THE "SPREADER ASSEMBLY"
  DETAIL ON PAGE 5. POSITION AS SHOWN ABOVE. IMMEDIATELY
  ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE STRUT
  ASSEMBLIES W/2-10d NAILS AT EACH JOINT.
- (3) END BLOCKING ASSEMBLY (2 REGD). SEE THE "END BLOCKING ASSEMBLY A" DETAIL ON PAGE 10 AND GENERAL NOTE "F" ON PAGE 2.
- 4 END SPACER ASSEMBLY (2 REQD). SEE THE "END SPACER ASSEMBLY A" DETAIL ON PAGE 10 AND GENERAL NOTE "D" ON PAGE 2.
- (5) FILL ASSEMBLY (3 REQD). SEE THE "FILL ASSEMBLY A" DETAIL ON PAGE 11 AND GENERAL NOTE "D" ON PAGE 2. INSTALL BETWEEN THE CNU-310/E CONTAINERS AND THE SIDEWALL, AND BETWEEN THE CNU-310/E CONTAINERS AND THE DOOR. INSTALL WITH THE HORIZONTAL PIECES AWAY FROM THE DOOR OR SIDEWAIL.
- (6) SUPPORT ASSEMBLY (1 REQU). SEE THE "SUPPORT ASSEMBLY" DETAIL ON PAGE 7. INSTALL ON TOP OF THE UPPERMOST CNU-310∕E CONTAINERS. WITH THE TIE PIECE BETWEEN THE CONTAINERS.
- (7) SIDE SPACER ASSEMBLY (2 REQD). SEE THE "SIDE SPACER ASSEMBLY A" DETAIL ON PAGE 11 AND GENERAL NOTE "D" ON PAGE 2.
- B TIE WIRE, NO. 14 GAGE, 36" LONG (8 REOD, 4 PER SIDE SPACER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE UPPER HORIZONTAL PIECE ON THE END SPACER ASSEMBLY AND THE LOWER TIE PIECE ON THE SIDE SPACER ASSEMBLY, BRING ENDS TOGETHER, AND TWIST TAUT.



# STRUT ASSEMBLY A



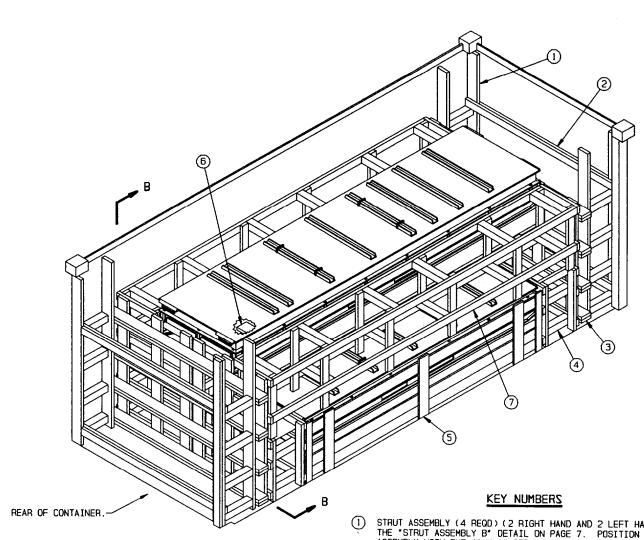
## SPREADER ASSEMBLY

BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1" X 4" 1" X 6" 2" X 4" 2" X 6" 4" X 4"	23 145 418 247 95	8 73 279 247 127	
NAILS	NO. REQO	POUNDS	
5d (2") 10d (3") 12d (3-1/4")	129 836 32	1 13 3/4	
WIRE, NO. 14 GAGE 24' REQD 1/2 LB			

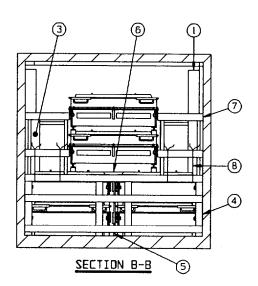
## NWOHZ ZA CAOL

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-305/E CONTAINER CNU-310/E CONTAINER DUNNAGE CONTAINER	<u>6</u>	8.280 LBS 1,484 LBS
TOTAL WEIG	HT	18.669 LBS (APPROX)

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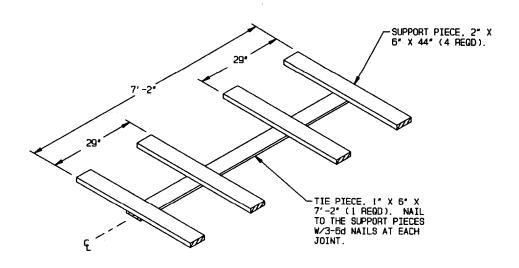


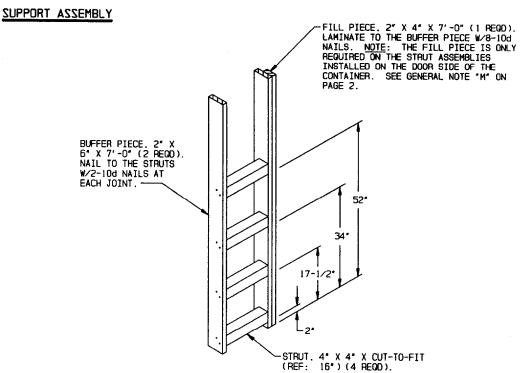
### ISOMETRIC VIEW



- THE "STRUT ASSEMBLY (4 REQD) (2 RIGHT HAND AND 2 LEFT HAND). SEE
  THE "STRUT ASSEMBLY B" DETAIL ON PAGE 7. POSITION THE
  ASSEMBLY WITH THE 4" X 4" STRUTS AGAINST THE CONTAINER SIDE—
  WALL OR TOWARDS THE DOOR, AS SHOWN ABOVE. NOTE: INSTALL A
  STRUT ASSEMBLY CONTAINING A FILL PIECE ON THE DOOR SIDE OF
  THE CONTAINER ONLY. AFTER PIECE MARKED ③ IS INSTALLED AND
  CENTERED ON THE WIDTH OF THE CONTAINER, NAIL THROUGH THE REAR
  BUFFER PIECE OF EACH STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY
  OF PIECE MARKED ③ W/2-12d NAILS AT EACH JOINT.
- 2 SPREADER ASSEMBLY (4 REQD). SEE THE "SPREADER ASSEMBLY"
  DETAIL ON PAGE 5. POSITION AS SHOWN ABOVE. IMMEDIATELY
  ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE STRUT
  ASSEMBLIES W/2-10d NAILS AT EACH JOINT.
- (3) END BLOCKING ASSEMBLY (2 REQD). SEE THE "END BLOCKING ASSEMBLY B" DETAIL ON PAGE 12 AND GENERAL NOTE "F" ON PAGE 2.
- (4) END SPACER ASSEMBLY (2 REQU). SEE THE "END SPACER ASSEMBLY B" DETAIL ON PAGE 12 AND GENERAL NOTE "D" ON PAGE 2.
- FILL ASSEMBLY (3 REQD). SEE THE "FILL ASSEMBLY B" DETAIL ON PAGE 13 AND GENERAL NOTE "D" ON PAGE 2. INSTALL BETWEEN THE CNU-310/E CONTAINERS AND THE SIDEWALL, AND BETWEEN THE CNU-310/E CONTAINERS AND THE DOOR. INSTALL WITH THE HORIZONTAL PIECES AWAY FROM THE DOOR OR SIDEWALL.
- (5) SUPPORT ASSEMBLY (1 REQD). SEE THE "SUPPORT ASSEMBLY" DETAIL ON PAGE 7. INSTALL ON TOP OF THE UPPERMOST CNU-310∕E CONTAINERS, WITH THE TIE PIECE BETWEEN THE CONTAINERS.
- (7) SIDE SPACER ASSEMBLY (2 REQD). SEE THE "SIDE SPACER ASSEMBLY B" DETAIL ON PAGE 13 AND GENERAL NOTE "D" ON PAGE 2.
- (8) TIE WIRE, NO. 14 GAGE, 48" LONG (8 REQD, 4 PER SIDE SPACER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE UPPER HDRIZONTAL PIECE ON THE END SPACER ASSEMBLY AND THE LOWER TIE PIECE ON THE SIDE SPACER ASSEMBLY, BRING ENDS TOGETHER, AND TWIST TAUT.

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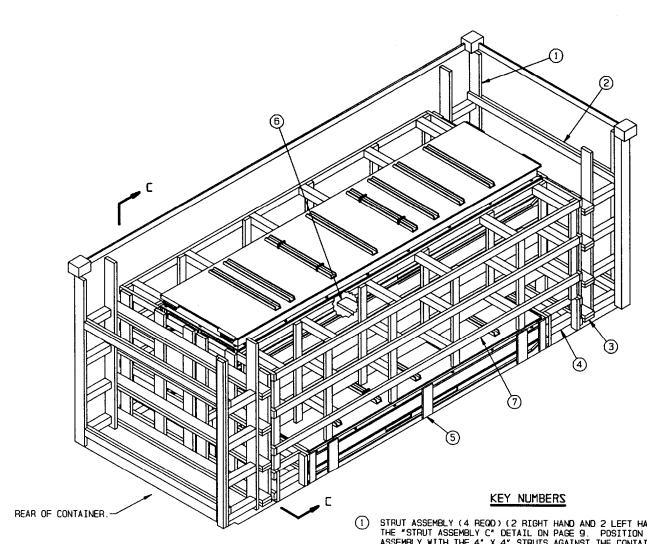
## STRUT ASSEMBLY B

		<del> </del>	
BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1" X 4" 1" X 6" 2" X 4" 2" X 6" 4" X 4"	15 99 405 249 83	5 50 270 249 111	
NAILS	NO. REQD	POUNDS	
5d (2*) 10d (3*) 12d (3-1/4*)	90 772 32	3/4 12 3/4	
WIRE, NO. 14 GAGE 32' REQD 3/4 (B			

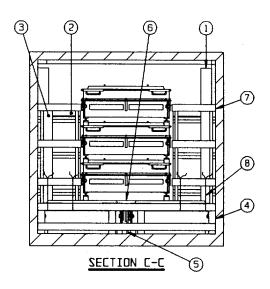
## LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-305/E CONTAINER CNU-310/E CONTAINER DUNNAGE CONTAINER	4	5.520 LBS

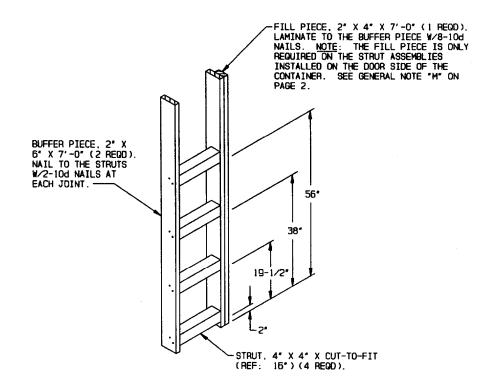
TOTAL WEIGHT - - - - - - 18.665 LBS (APPROX)



### ISOMETRIC VIEW



- THE "STRUT ASSEMBLY (4 REQD) (2 RIGHT HAND AND 2 LEFT HAND). SEE THE "STRUT ASSEMBLY C" DETAIL ON PAGE 9. POSITION THE ASSEMBLY WITH THE 4" X 4" STRUTS AGAINST THE CONTAINER SIDE—WALL OR TOWARDS THE DOOR, AS SHOWN ABOVE. NOTE: INSTALL A STRUT ASSEMBLY CONTAINING A FILL PIECE ON THE DOOR SIDE OF THE CONTAINER ONLY. AFTER PIECE MARKED ③ IS INSTALLED AND CENTERED ON THE WIDTH OF THE CONTAINER, NAIL THROUGH THE REAR BUFFER PIECE OF EACH STRUT ASSEMBLY INTO EACH BEAM ASSEMBLY OF PIECE MARKED ③ W-2-12d NAILS AT EACH JOINT.
- 2 SPREADER ASSEMBLY (4 REQD). SEE THE "SPREADER ASSEMBLY"
  DETAIL ON PAGE 5. POSITION AS SHOWN ABOVE, IMMEDIATELY
  ABOVE THE TOP AND BOTTOM STRUTS AND NAIL TO THE STRUT
  ASSEMBLIES W/2-10d NAILS AT EACH JOINT.
- (3) END BLOCKING ASSEMBLY (2 REQD). SEE THE "END BLOCKING ASSEMBLY C" DETAIL ON PAGE 15 AND GENERAL NOTE "F" ON PAGE 2.
- 4 END SPACER ASSEMBLY (2 REOD). SEE THE "END SPACER ASSEMBLY C" DETAIL ON PAGE 15 AND GENERAL NOTE "D" ON PAGE 2.
- (5) FILL ASSEMBLY (3 REOD). SEE THE "FILL ASSEMBLY C" DETAIL ON PAGE 14 AND GENERAL NOTE "D" ON PAGE 2. INSTALL BETWEEN THE CNU-310/E CONTAINER AND THE SIDEWALL, AND BETWEEN THE CNU-310/E CONTAINER AND THE DOOR. INSTALL WITH THE HORIZONTAL PIECES AWAY FROM THE DOOR OR SIDEWALL.
- (6) SUPPORT ASSEMBLY (1 REQD). SEE THE "SUPPORT ASSEMBLY" DETAIL ON PAGE 7. INSTALL ON TOP OF THE CNU-310/E CONTAINERS, WITH THE TIE PIECE BETWEEN THE CONTAINERS.
- (7) SIDE SPACER ASSEMBLY (2 REQD): SEE THE "SIDE SPACER ASSEMBLY C" DETAIL ON PAGE 14 AND GENERAL NOTE "D" ON PAGE 2.
- (8) TIE WIRE, NO. 14 GAGE, 48" LONG (8 REQD, 4 PER SIDE SPACER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE UPPER HORIZONTAL PIECE ON THE END SPACER ASSEMBLY AND THE LOWER TIE PIECE ON THE SIDE SPACER ASSEMBLY, BRING ENDS TOGETHER, AND TWIST TAUT.



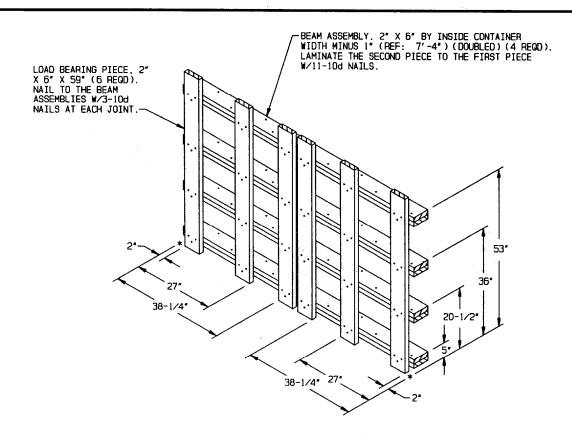
### STRUT ASSEMBLY C

BILL OF MATERIAL			
LUMBER	LINEAR FEET	BOARD FEET	
1" X 4" 1" X 6" 2" X 4" 2" X 6" 4" X 4"	8 53 458 253 91	3 27 306 253 122	
NAILS	NO. REQD	POUNDS	
6d (2°) 10d (3°) 12d (3-1/4°)	51 820 32	1/2 12-3/4 3/4	
WIRE, NO. 14 GAGE 32' REQD 3/4 LB			

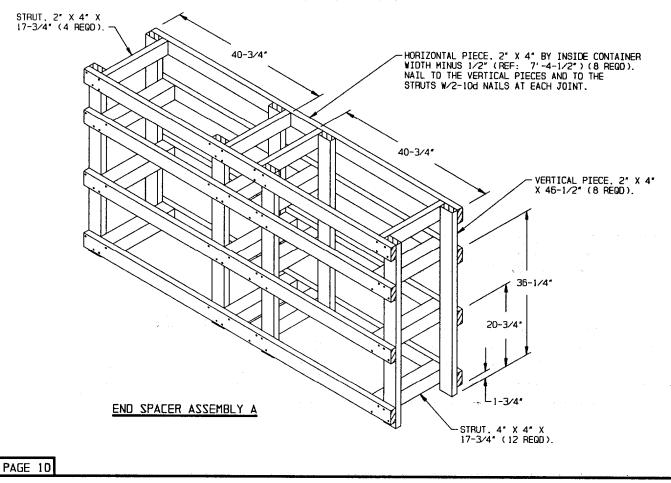
# LOAD AS SHOWN

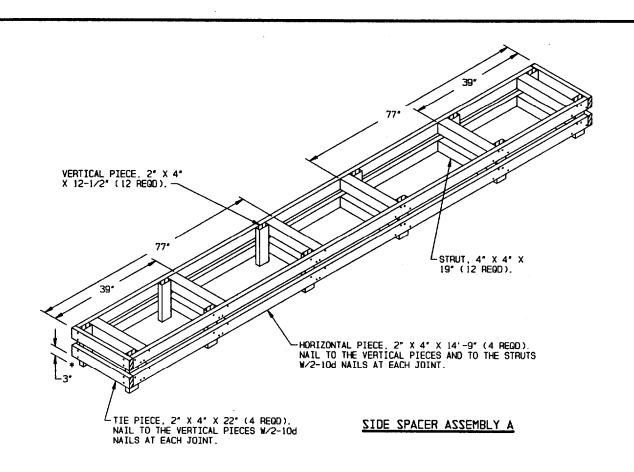
ITEM	QUANTITY	WEIGHT (APPROX)
CNU-305/E CONTAINER CNU-310/E CONTAINER DUNNAGE CONTAINER	2	2,760 LBS 1,437 LBS
TOTAL WEIG	SHT	18,812 LBS (APPROX)

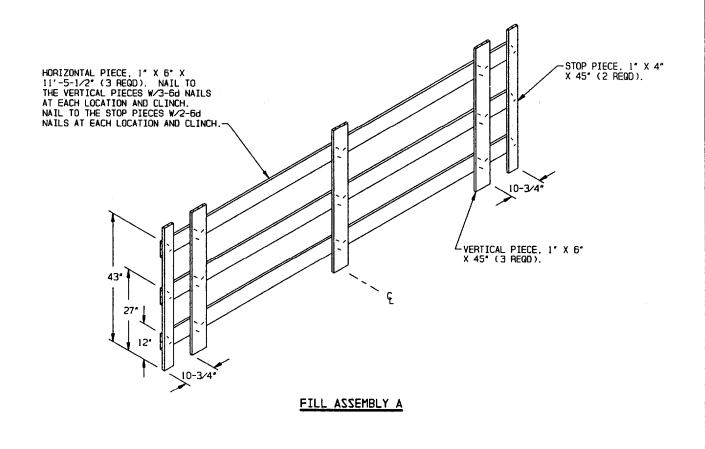
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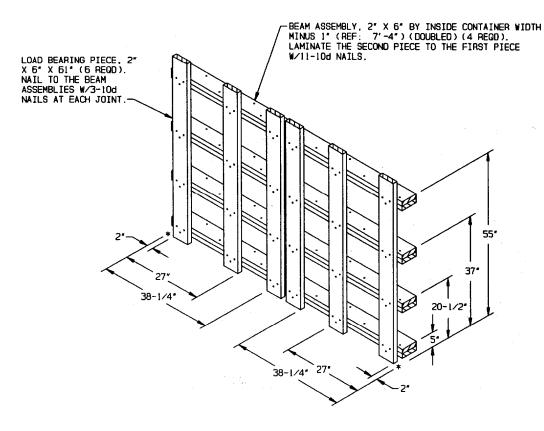


# END BLOCKING ASSEMBLY A

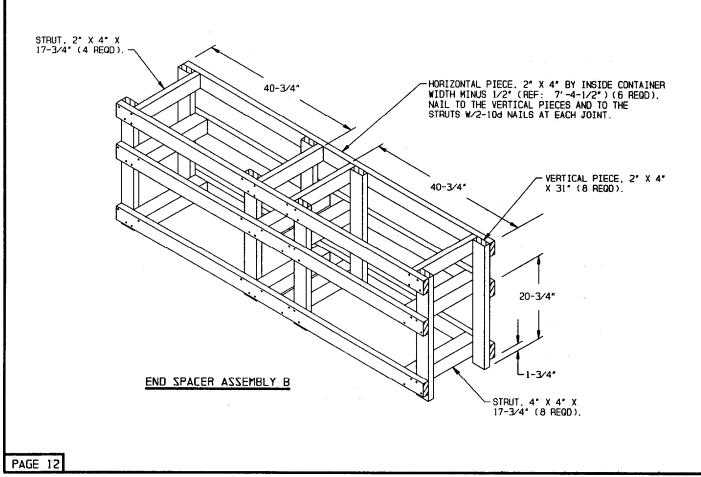


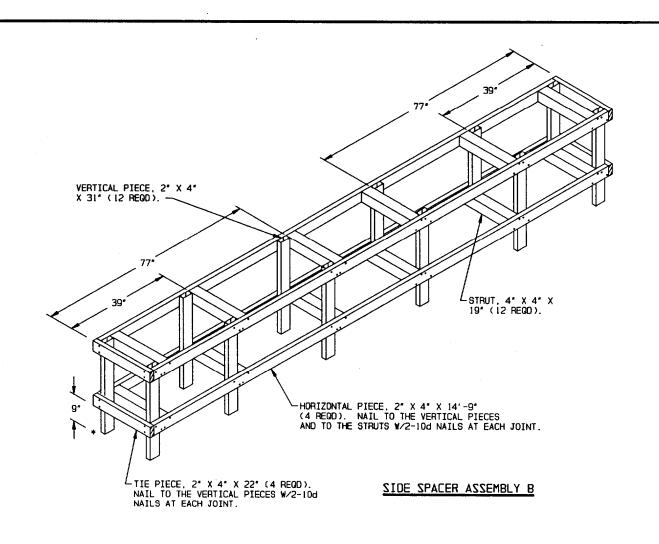


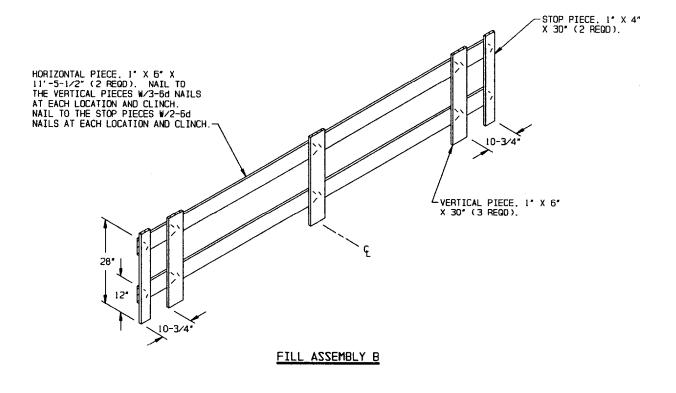


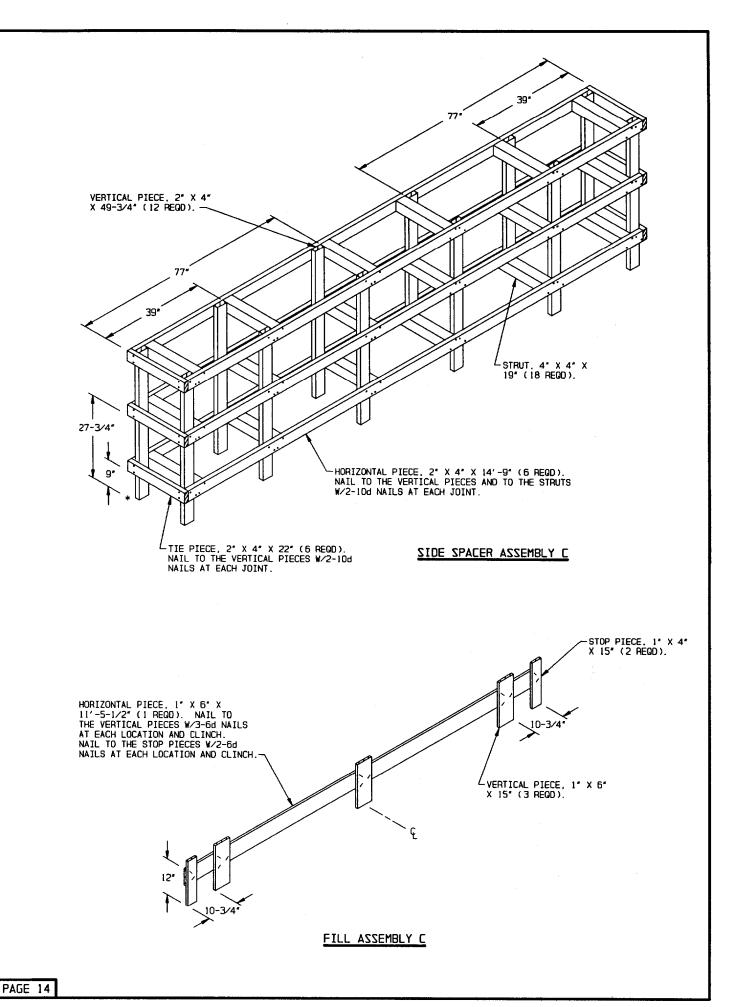


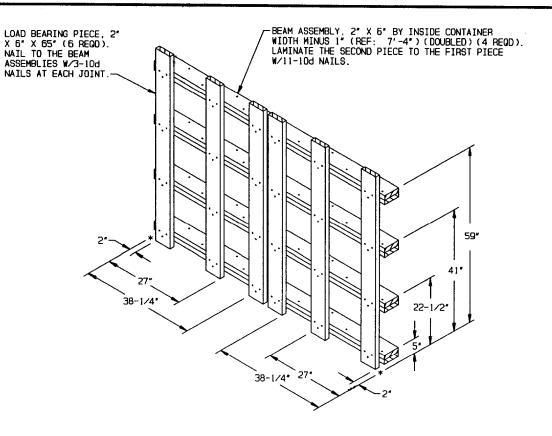
## **END BLDCKING ASSEMBLY B**











# END BLOCKING ASSEMBLY C

