

APPROVED BY U.S. COAST GUARD <i>[Signature]</i> DATE <u>9/2/82</u>	APPROVED BY BUREAU OF EXPLOSIVES <i>E. P. Galber</i> SUPERVISOR, MILITARY & INTERMODAL SERVICES DATE <u>8/17/82</u>
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LOADING AND BRACING WITH WOODEN DUNNAGE IN COMMERCIAL CONTAINERS OF PALLETIZED UNITS OF BOMBS, GENERAL PURPOSE, 500-LB, MK82 MOD 1 (6-BOMB PALLET UNIT)[●]

THE DEPICTED WOODEN DUNNAGE METHOD CAN BE APPLIED TO ANY COMMERCIAL INTERMODAL 20-FOOT CONTAINER, ALTHOUGH THE DUNNAGE DIMENSIONS HAVE BEEN GIVEN FOR A 92" WIDE BY 95" HIGH (INSIDE DIMENSIONS) CONTAINER. ALTHOUGH THE LOAD AS SHOWN IS BASED ON AN 8'-6" HIGH CONTAINER, AN 8'-0" HIGH CONTAINER IS PREFERRED FOR SHIPPING THE DEPICTED LOAD. WHEN AN 8'-0" HIGH CONTAINER IS USED, THE HEIGHT OF SOME DUNNAGE ASSEMBLIES WILL HAVE TO BE LOWERED BY REMOVING SOME MATERIAL FROM THE TOP OR BOTTOM OF SOME OF THE VERTICAL PIECES.

LOADING AND BRACING SPECIFICATIONS AS DELINEATED HEREIN ARE ADEQUATE FOR SHIPMENTS TO BE MOVED BY ANY SURFACE MODE OF TRANSPORT (MOTOR, RAIL, AND WATER).

REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW.

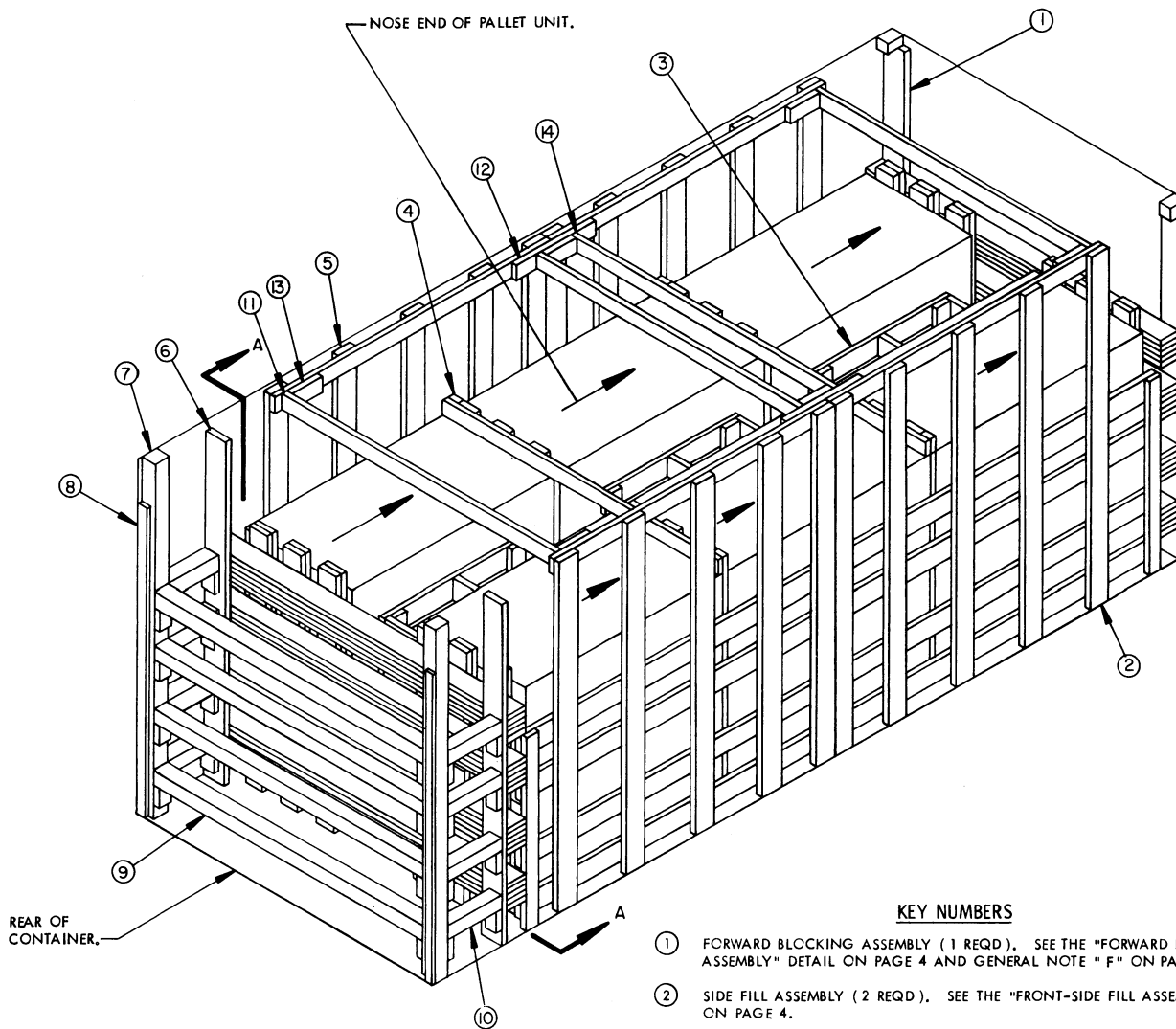
- A. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
- B. THE LOAD LIMIT OF A T/COFC RAIL CAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS/MODIFIED FLAT BED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.

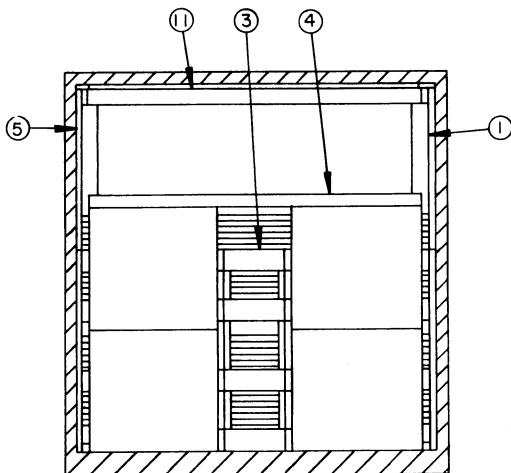
● NOTE: OUTLOADING PROCEDURES CONTAINED WITHIN THIS DRAWING ARE APPLICABLE TO PALLETIZED UNITS OF MK82 MOD 1 BOMBS, WHEN PALLETIZED IN ACCORDANCE TO U. S. AIR FORCE TRANSPORTATION PACKAGING ORDER (1325) TPC 00-294-4152.

REVISIONS			DRAFTSMAN <i>[Signature]</i>	PROJ ENG <i>[Signature]</i>
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			APPROVED, U. S. ARMY ARMAMENT MATERIAL READINESS COMMAND <i>[Signature]</i>	
			APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIAL DEVELOPMENT AND READINESS COMMAND (DARCOM) <i>[Signature]</i> U. S. ARMY DEFENSE AMBITION CENTER AND SCHOOL	
			U. S. ARMY DARCOM DRAWING	
			SEPTEMBER 1982	
			DEF AMMO CEN & SCH DWG NO	
			D-SARAC-4457	

DO NOT SCALE



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE "FORWARD BLOCKING ASSEMBLY" DETAIL ON PAGE 4 AND GENERAL NOTE " F " ON PAGE 3.
- ② SIDE FILL ASSEMBLY (2 REQD). SEE THE "FRONT-SIDE FILL ASSEMBLY" DETAIL ON PAGE 4.
- ③ CENTER FILL ASSEMBLY (3 REQD). SEE THE "CENTER FILL ASSEMBLY" DETAIL ON PAGE 6 AND GENERAL NOTE " F " ON PAGE 3.
- ④ SEPARATOR GATE (2 REQD). SEE THE "SEPARATOR GATE" DETAIL ON PAGE 6 AND GENERAL NOTE " F " ON PAGE 3.
- ⑤ SIDE FILL ASSEMBLY (2 REQD). SEE THE "REAR-SIDE FILL ASSEMBLY" DETAIL ON PAGE 5.
- ⑥ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE "REAR BLOCKING ASSEMBLY" DETAIL ON PAGE 5 AND GENERAL NOTE " F " ON PAGE 3.
- ⑦ DOOR POST VERTICAL (2 REQD). SEE THE "DOOR POST VERTICAL" DETAIL AND "DETAIL A" ON PAGE 7.
- ⑧ DOOR POST VERTICAL RETAINER (2 REQD). SEE THE "DOOR POST VERTICAL RETAINER" DETAIL AND "VIEW A" ON PAGE 8. NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL W/4-10d NAILS.
- ⑨ DOOR SPANNER, 4" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A DRIVE FIT BETWEEN DOOR POST VERTICALS (REF: 7'-1-3/8") (4 REQD). TOENAIL TO THE DOOR POST VERTICALS W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 7. AFTER INSTALLING THE BOTTOM AND THE TOP DOOR SPANNERS, THE STRUTS, PIECES MARKED ⑩ , ARE TO BE INSTALLED.
- ⑩ STRUT, 4" X 4" BY CUT-TO-FIT (8 REQD). TOENAIL TO THE BUFFER PIECES OF THE "REAR BLOCKING ASSEMBLY" AND THE "DOOR POST VERTICAL" W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 7.
- ⑪ SPANNER PIECE, 2" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A TIGHT FIT (REF: 7'-2") (2 REQD). TOENAIL TO THE SIDE FILL ASSEMBLIES W/2-10d NAILS AT EACH END.
- ⑫ SPLICE FOR TIE PIECES, 2" X 4" X 18" (2 REQD). NAIL TO TWO LONGITUDINAL ADJACENT TIE PIECES OF THE SIDE FILL ASSEMBLIES W/3-10d NAILS AT EACH END.
- ⑬ SPANNER PIECE CLEAT, 2" X 4" X 9" (6 REQD). LOCATE AS SHOWN AND NAIL TO THE TIE PIECE W/3-8d NAILS.
- ⑭ SPANNER PIECE, 2" X 4" MATERIAL, CUT TO A LENGTH THAT WILL PROVIDE FOR A TIGHT FIT (REF: 6'-11") (2 REQD). TOENAIL TO THE SPLICE FOR THE PIECES W/2-12d NAILS AT EACH END.

(GENERAL NOTES CONTINUED)

GENERAL NOTES

K. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE ONE FORWARD BLOCKING ASSEMBLY, FOUR SIDE FILL ASSEMBLIES, THREE CENTER FILL ASSEMBLIES, TWO SEPARATOR GATES, ONE REAR BLOCKING ASSEMBLY, AND NAIL A DOOR POST VERTICAL RETAINER TO EACH DOOR POST VERTICAL, ONE RIGHT HAND AND ONE LEFT HAND.
2. INSTALL FORWARD BLOCKING ASSEMBLY.
3. INSTALL ONE LEFT-HAND FRONT SIDE FILL ASSEMBLY, LOAD TWO PALLET UNITS, AND INSTALL ONE CENTER FILL ASSEMBLY.
4. INSTALL ONE RIGHT-HAND FRONT SIDE FILL ASSEMBLY AND LOAD TWO PALLET UNITS.
5. INSTALL ONE SEPARATOR GATE.
6. REPEAT STEP 3 USING ONE LEFT-HAND REAR SIDE FILL ASSEMBLY.
7. REPEAT STEP 4 USING ONE RIGHT-HAND REAR SIDE FILL ASSEMBLY.
8. REPEAT STEP 5.
9. INSTALL TWO PALLET UNITS AND ONE CENTER FILL ASSEMBLY.
10. LOAD TWO PALLET UNITS.
11. INSTALL REAR BLOCKING ASSEMBLY.
12. INSTALL THE TWO DOOR POST VERTICAL ASSEMBLIES (ONE RIGHT-HAND AND ONE LEFT-HAND).
13. INSTALL TWO DOOR SPANNER PIECES (ONE AT THE LOWEST POSITION AND ONE AT THE UPPERMOST POSITION).
14. INSTALL EIGHT STRUTS.
15. INSTALL THE TWO SPLICE PIECES FOR THE TIE PIECES, THE SIX SPANNER PIECE CLEATS, AND THE FOUR SPANNER PIECES. SEE "*" NOTE BELOW.
16. INSTALL THE REMAINING TWO DOOR SPANNER PIECES.

* IF DESIRED, PIECES MARKED ②, AND ⑪ THRU ⑭ MAY BE INSTALLED PRIOR TO LOADING A CONTAINER.

- 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 PROCEDURE IS APPLICABLE TO A LOAD OF 12 PALLET UNITS OF GENERAL PURPOSE MK82, THERMAL PROTECTED BOMB, PACKED 6 PER PALLET UNIT. SUBSEQUENT REFERENCE TO PALLET UNIT MEANS THE PALLET WITH AMMUNITION ITEMS. SEE PAGE 6 FOR THE DETAIL OF THE PALLET UNIT. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF 44,800 POUNDS MUST NOT BE EXCEEDED.
- C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND 20' LONG BY 8' WIDE BY 8'-4" HIGH INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 95" 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 PALLET UNITS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE FORWARD AND SIDE DUNNAGE ASSEMBLIES). ALTHOUGH A TOTAL OF ONE AND ONE-HALF INCHES (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 BEARING 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 NUMBER AND THICKNESS OF THE BEARING PIECES AND THE THICKNESS OF THE VERTICAL PIECES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN PALLET UNIT SIZE.
- E. DUNNAGE LUMBER SPECIFIED IS OF A 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 WHEREVER 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, SUCH AS SOME ALL STEEL CONTAINERS, THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. A PIECE OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE 2" X 6" 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". THIS PIECE IS NOT REQUIRED WHEN THE FRONT WALL OF THE CONTAINER IS SMOOTH AND FLAT.
- H. **CAUTION:** DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

(CONTINUED AT LEFT)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	216	144
2" X 6"	952	952
4" X 4"	55	73
NAILS	NO. REQD	POUNDS
8d (2-1/2")	18	1/4
10d (3")	1,506	23-1/2
12d (3-1/4")	56	1
DOOR POST VERTICAL RETAINER ----- 2 REQD ----- 64 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT -----	12 -----	37,152 LBS
DUNNAGE -----		2,427 LBS
CONTAINER -----		4,700 LBS
TOTAL WEIGHT -----		44,279 LBS

MATERIAL SPECIFICATIONS

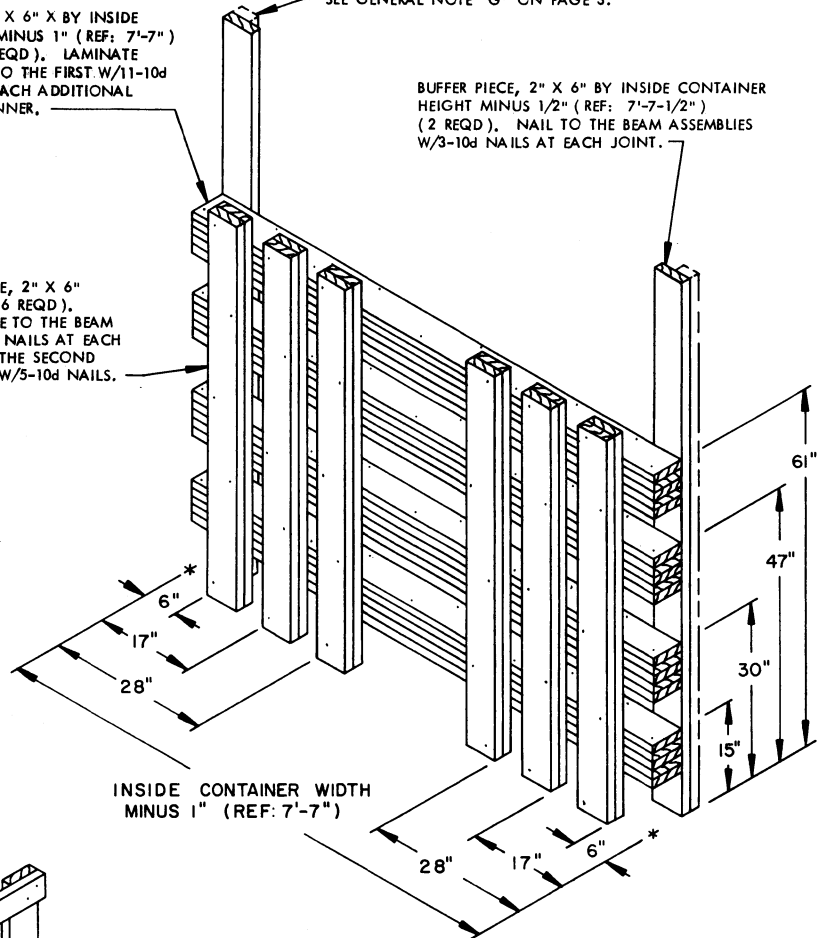
- LUMBER** ----- : TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS** ----- : FED SPEC FF-N-105; COMMON.
- STEEL, STRUCTURAL** ----- : FED SPEC QQ-S-741; SQUARE STRUCTURAL TUBING AND HOT-ROLLED STRIP.

BEAM ASSEMBLY, 2" X 6" X BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (QUINTUPLED) (4 REQD). LAMINATE THE SECOND PIECE TO THE FIRST W/11-10d NAILS. LAMINATE EACH ADDITIONAL PIECE IN A LIKE MANNER.

SEE GENERAL NOTE "G" ON PAGE 3.

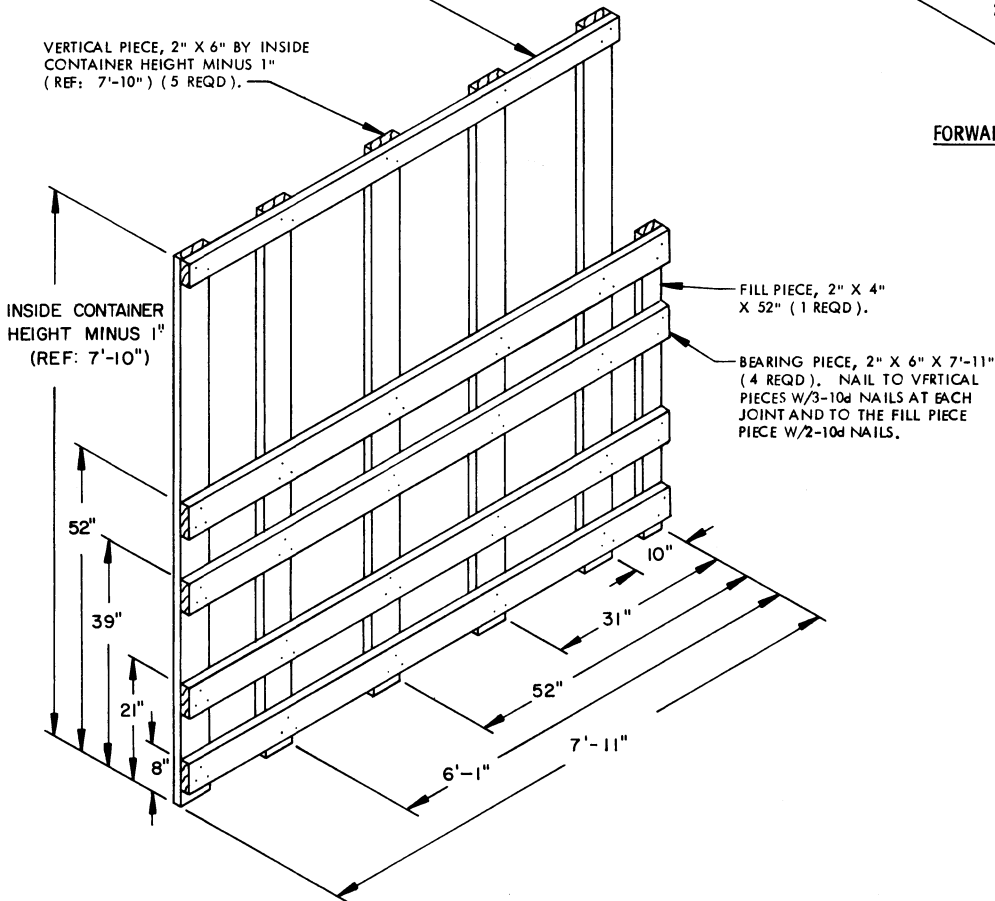
BUFFER PIECE, 2" X 6" BY INSIDE CONTAINER HEIGHT MINUS 1/2" (REF: 7'-7-1/2") (2 REQD). NAIL TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT.

LOAD BEARING PIECE, 2" X 6" X 66" (DOUBLED) (6 REQD). NAIL THE FIRST PIECE TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT. LAMINATE THE SECOND PIECE TO THE FIRST W/5-10d NAILS.



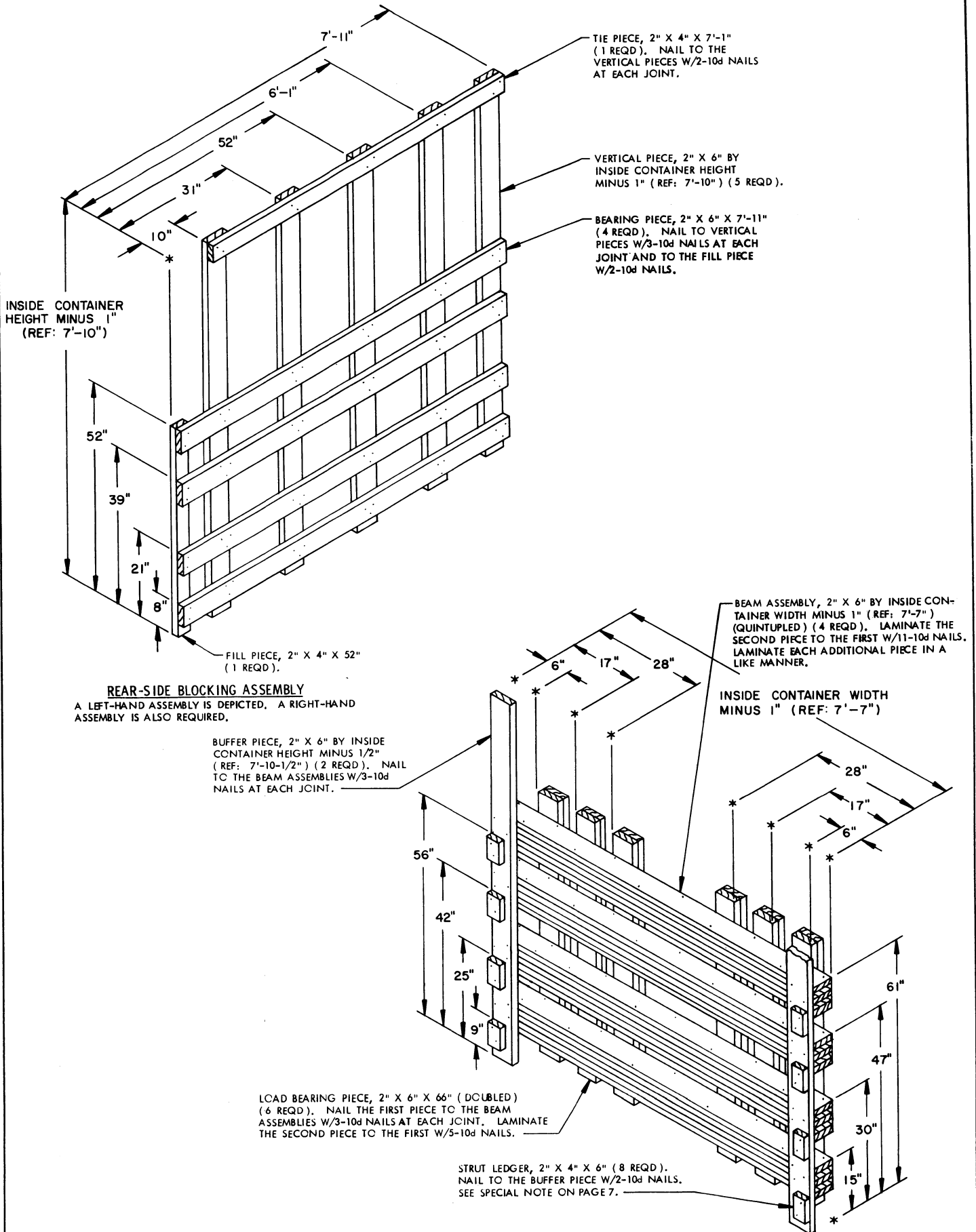
TIE PIECE, 2" X 4" X 7'-1" (1 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 6" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-10") (5 REQD).



FRONT-SIDE FILL ASSEMBLY

A LEFT-HAND ASSEMBLY IS DEPICTED. A RIGHT-HAND ASSEMBLY IS ALSO REQUIRED.



INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-10")

REAR-SIDE BLOCKING ASSEMBLY

A LEFT-HAND ASSEMBLY IS DEPICTED. A RIGHT-HAND ASSEMBLY IS ALSO REQUIRED.

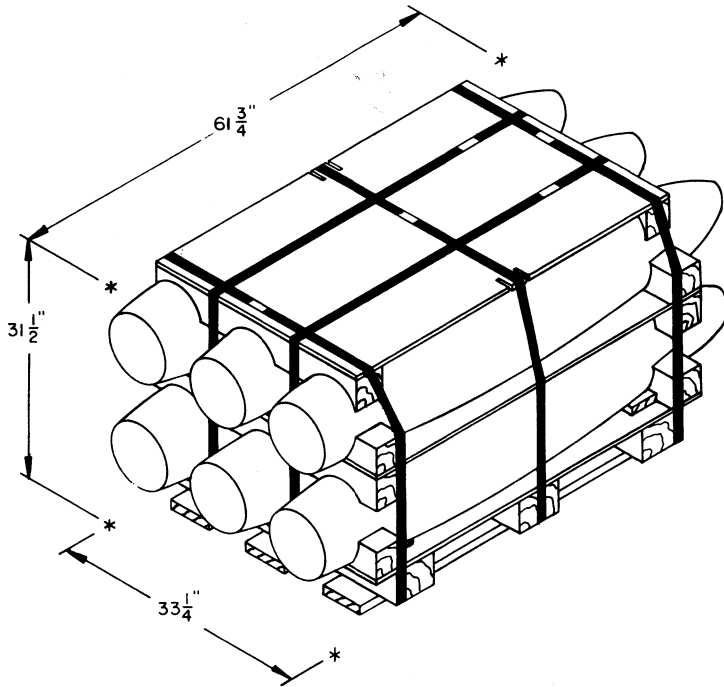
FILL PIECE, 2" X 4" X 52" (1 REQD).

BEAM ASSEMBLY, 2" X 6" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (QUINTUPLED) (4 REQD). LAMINATE THE SECOND PIECE TO THE FIRST W/11-10d NAILS. LAMINATE EACH ADDITIONAL PIECE IN A LIKE MANNER.

LOAD BEARING PIECE, 2" X 6" X 66" (DOUBLED) (6 REQD). NAIL THE FIRST PIECE TO THE BEAM ASSEMBLIES W/3-10d NAILS AT EACH JOINT. LAMINATE THE SECOND PIECE TO THE FIRST W/5-10d NAILS.

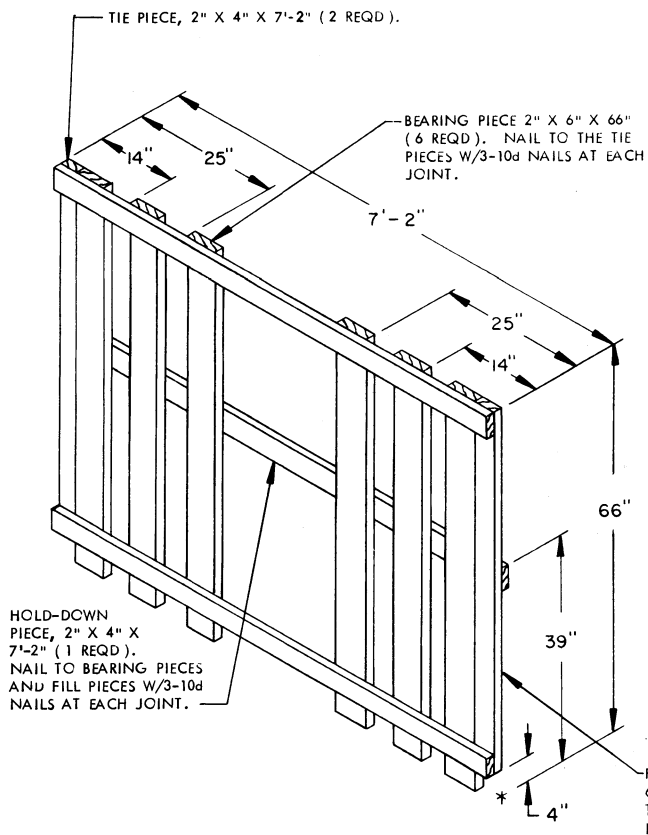
STRUT LEDGER, 2" X 4" X 6" (8 REQD). NAIL TO THE BUFFER PIECE W/2-10d NAILS. SEE SPECIAL NOTE ON PAGE 7.

REAR BLOCKING ASSEMBLY

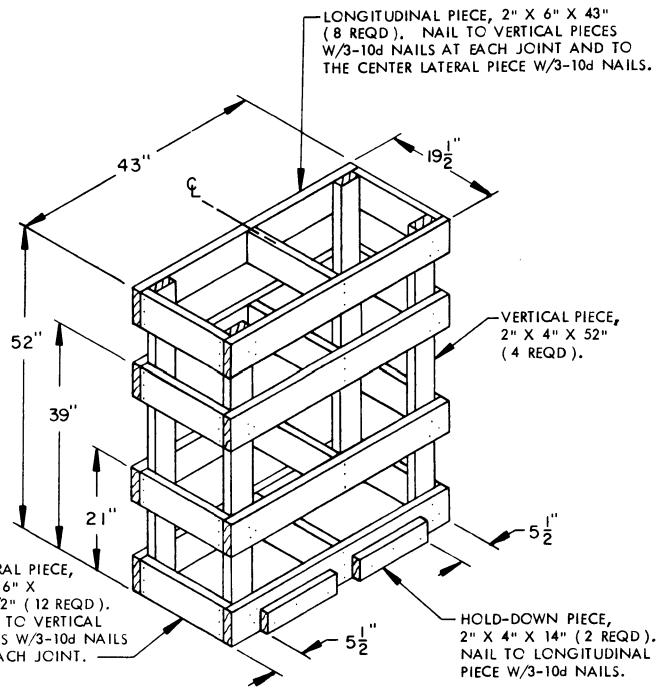


PALLET UNIT

UNIT WEIGHT ----- 3,096 LBS (APPROX)
 CUBE ----- 37.4 CUBIC FEET



SEPARATOR GATE



CENTER FILL ASSEMBLY

TIE PIECE, 2" X 4" X 7'-2" (2 REQD).

BEARING PIECE 2" X 6" X 66"
 (6 REQD). NAIL TO THE TIE
 PIECES W/3-10d NAILS AT EACH
 JOINT.

HOLD-DOWN
 PIECE, 2" X 4" X
 7'-2" (1 REQD).
 NAIL TO BEARING PIECES
 AND FILL PIECES W/3-10d
 NAILS AT EACH JOINT.

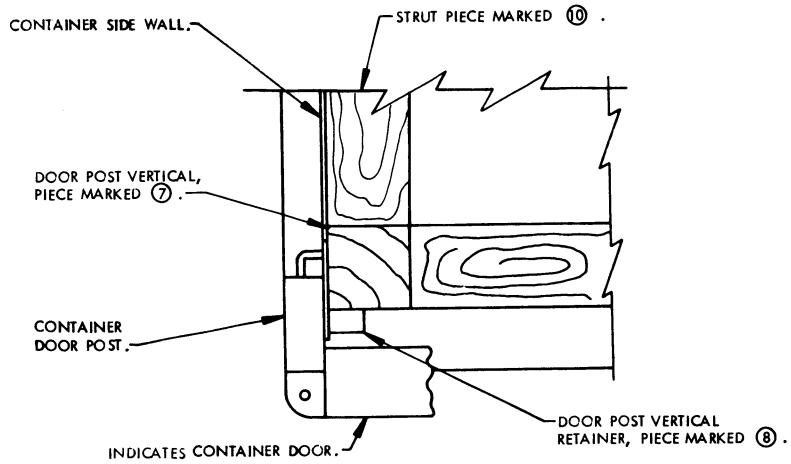
FILL PIECE, 2" X 4" X
 62" (2 REQD). NAIL
 TO THE TIE PIECES W/3-10d
 NAILS AT EACH JOINT.

LONGITUDINAL PIECE, 2" X 6" X 43"
 (8 REQD). NAIL TO VERTICAL PIECES
 W/3-10d NAILS AT EACH JOINT AND TO
 THE CENTER LATERAL PIECE W/3-10d NAILS.

VERTICAL PIECE,
 2" X 4" X 52"
 (4 REQD).

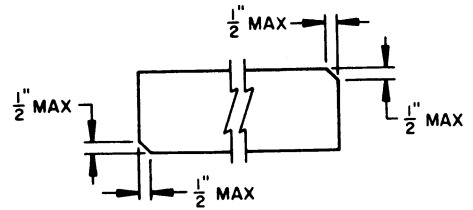
LATERAL PIECE,
 2" X 6" X
 16-1/2" (12 REQD).
 NAIL TO VERTICAL
 PIECES W/3-10d
 NAILS AT EACH JOINT.

HOLD-DOWN PIECE,
 2" X 4" X 14" (2 REQD).
 NAIL TO LONGITUDINAL
 PIECE W/3-10d NAILS.



DETAIL A

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

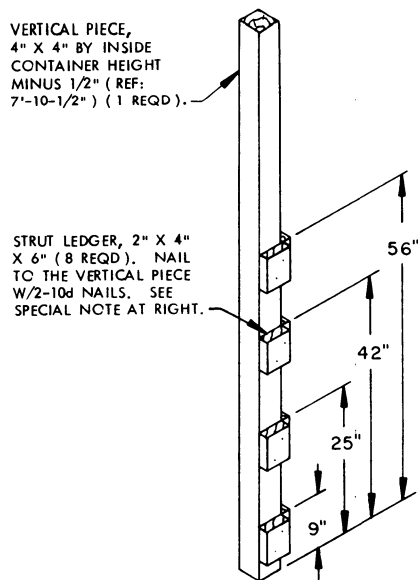


BEVEL-CUT

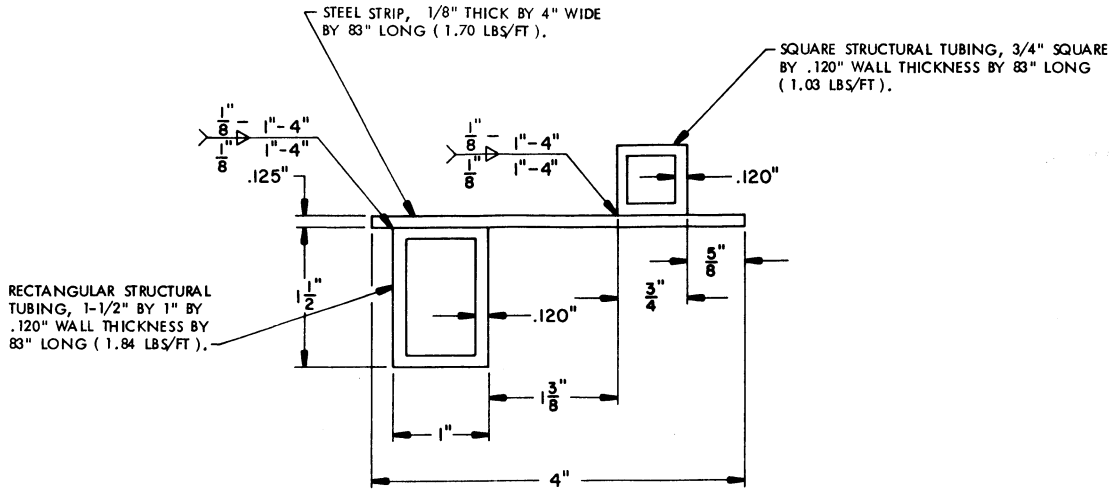
IF DESIRED, EACH END OF A DOOR SPANNER PIECE OR A STRUT MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE THE ACHIEVEMENT OF A TIGHT DOOR-POST-TO-DOOR-POST FIT OR A TIGHT REAR-OF-LOAD FIT.

SPECIAL NOTE:

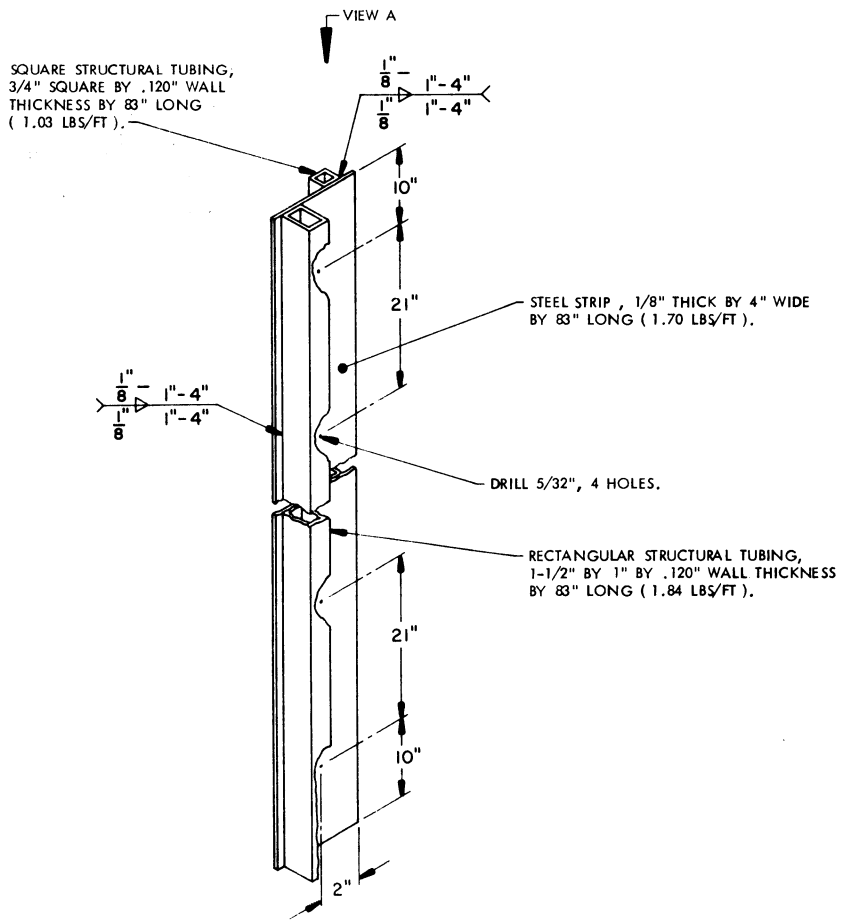
THE STRUT LEDGERS CAN ONLY BE PRE-NAILED TO THE DOOR POST VERTICAL ON ONE SIDE OF THE CONTAINER FOR THE DOOR SPANNER PIECES. ALSO, THE STRUT LEDGERS FOR THE STRUTS CAN ONLY BE PRE-NAILED TO THE REAR BLOCKING ASSEMBLY OR THE DOOR POST VERTICAL AT THE LOWEST DIMENSION.



DOOR POST VERTICAL



VIEW A



DOOR POST VERTICAL RETAINER