

# UNITIZATION PROCEDURES FOR CHEMICAL FILLED PROJECTILES, 105MM AND 4.2-INCH, UNITIZED 24 PROJECTILES PER SPECIAL 4-WAY ENTRY PALLET

THE PROCEDURES DELINEATED IN THIS DRAWING ARE FOR  
INTRA-INSTALLATION MOVEMENT ONLY.

REVISIONS		DRAFTSMAN	TYPIST	CHECKER	TECHNICIAN	ENGINEER
		81K BL	Tm	GAS		Fisher
		SMCAC-DEV		SMCAC-DEO		SMCAC-DE
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		SMCAR-ESK				AMSMC-TMO
		APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND				
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		SMCAR-ESK				AMSMC-TMO
		APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND (AMC)				
		U.S. ARMY MATERIEL COMMAND				
		JULY 1989				
		CLASS	DIVISION	DRAWING	FILE	
		19	48	4538	CB 20PEI	

DO NOT SCALE

## GENERAL NOTES

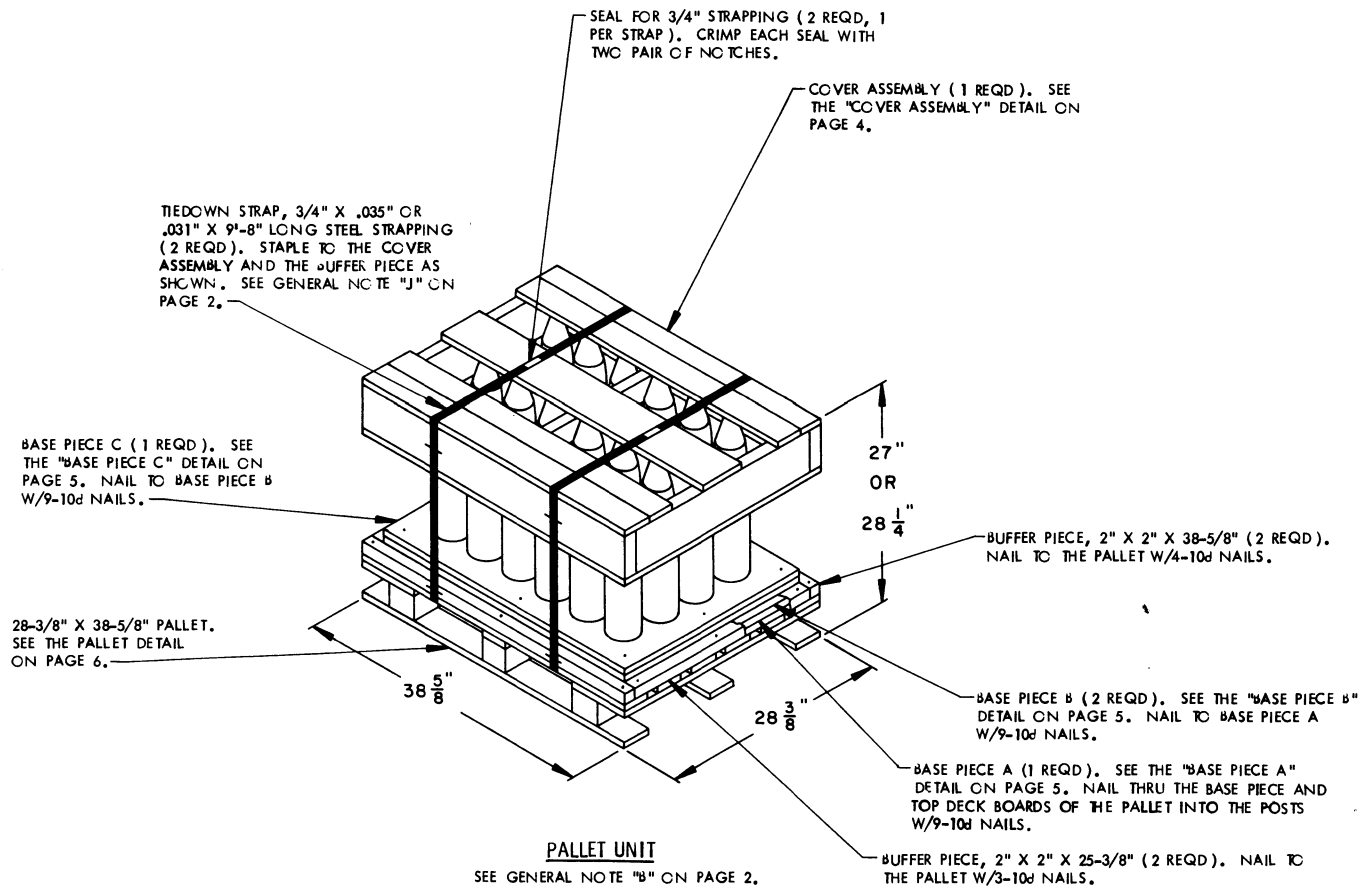
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5) AND CONFORMS TO MIL-STD-1660.
- B. DIMENSIONS, CUBE AND WEIGHT OF A PALLET UNIT WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE PROJECTILES AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- C. DETAILS OF THE 105MM AND 4.2" PROJECTILES
- |                    |                 |
|--------------------|-----------------|
| HEIGHT, 105MM----- | 19-1/2"         |
| WEIGHT, 105MM----- | 32 LBS (APPROX) |
| HEIGHT, 4.2"-----  | 18-1/2"         |
| WEIGHT, 4.2"-----  | 22 LBS (APPROX) |
- D. DIMENSIONAL LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF A NOMINAL SIZE, UNLESS OTHERWISE SPECIFIED. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.
- E. A PLUS OR MINUS 1/8" IS ALLOWED ON OVERALL DIMENSIONS OF THE PALLET OR ANY DUNNAGE ASSEMBLY, HOWEVER, SIMILAR PIECES IN AN ASSEMBLY MUST BE WITHIN 1/8" OF THE SAME DIMENSION. HOLE DIMENSION TOLERANCES ARE PLUS 0", MINUS 1/16".
- F. WHEN ASSEMBLING A PALLET UNIT, CARE SHALL BE TAKEN TO INSURE THAT THE COVER ASSEMBLY AND PALLET ARE EVENLY ALIGNED HORIZONTALLY AND VERTICALLY SO THAT THE SIDES AND ENDS OF THE PALLET UNIT DO NOT EXCEED A 1/2" TOLERANCE.
- G. IN ORDER TO OBTAIN COMPACT (SOUND) UNITS, ALL STRAPS SHALL BE LOCATED IN PROPER ALIGNMENT AND TENSIONED UNTIL THEY CUT INTO THE EDGE OF THE COVER ASSEMBLY AND THE PALLET DECK. AFTER TENSIONING, ALL STRAPS WILL BE SECURED USING ONE SEAL CRIMPED WITH TWO PAIR OF NOTCHES PER SEAL.
- H. WHEN APPLYING ANY STRAP, CARE MUST BE EXERCISED TO ASSURE THAT THE END OF THE STRAP ON THE UNDERSIDE OF THE JOINT EXTENDS AT LEAST 6" BEYOND THE SEAL. THIS EXTRA MINIMUM LENGTH OF STRAP IS REQUIRED TO PERMIT SUBSEQUENT TIGHTENING OF LOOSENED STRAPPING. RETENSIONING CAN BE ACCOMPLISHED WITHOUT REPLACING STRAPPING OR SPLICING STRAPPING THROUGH THE USE OF A FEEDWHEEL TYPE TENSIONING TOOL, MANUAL OR PNEUMATIC, AND THE APPLICATION OF ONE ADDITIONAL SEAL.
- J. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE TOP DECK BOARDS OF THE PALLET AND TO BE LOCATED AS SHOWN.
- K. DUE TO PALLET UNIT DESIGN, A MAXIMUM OF 20 PROJECTILES MAY BE OMITTED FROM A PALLET TO SATISFY A LESS THAN-FULL PALLET UNIT REQUIREMENT. NO FILLER ASSEMBLIES ARE REQUIRED FOR THE OMITTED PROJECTILES PROVIDED THE FOUR REMAINING ONES ARE PLACED IN THE FOUR CORNER LOCATIONS.
- L. FOR STORAGE OF THE ITEMS COVERED BY THIS DRAWING, REFER TO AMC DRAWING 19-48-4539-CB1-14PE2.

## REVISION

REVISION NO. 1, DATED JULY 1989, CONSISTS OF:  
CHANGING DIMENSIONS ON THE BASE PIECES AND THE SPACER PIECE.

## MATERIAL SPECIFICATIONS

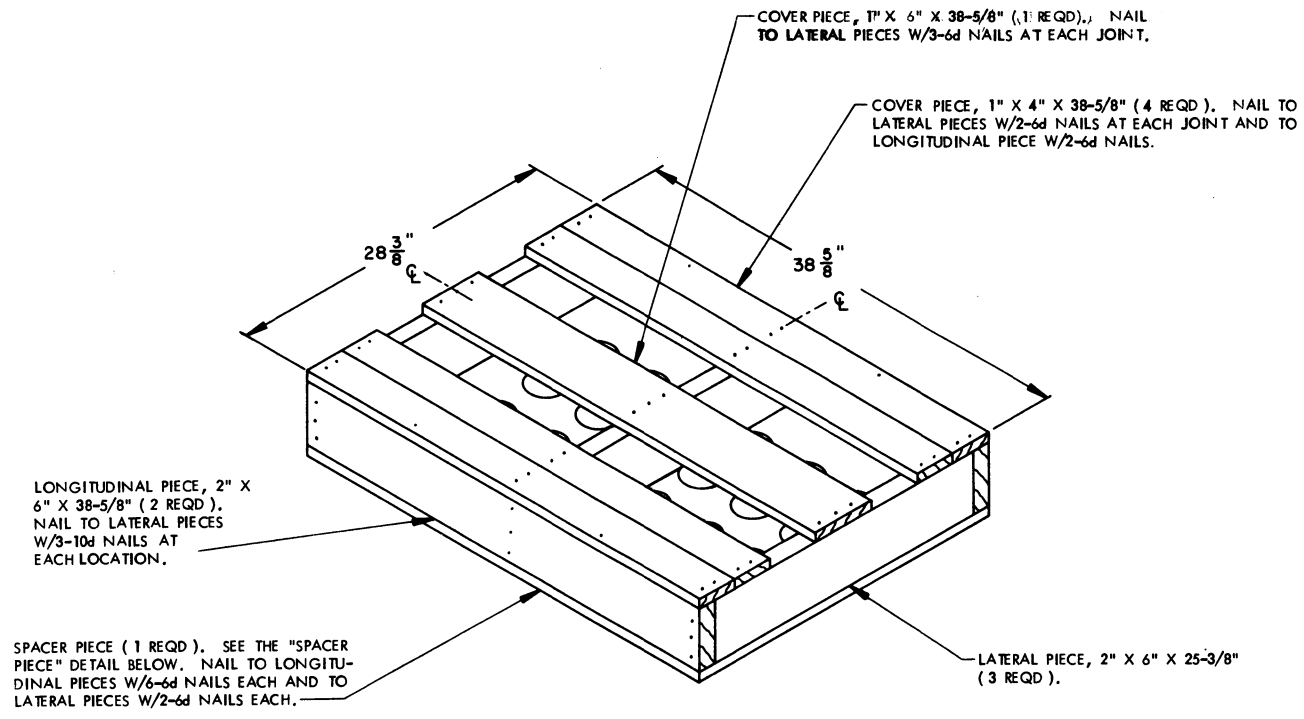
<u>LUMBER</u> -----	: TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
<u>NAILS</u> -----	: FED SPEC FF-N-105; COMMON. ALT: ANNULAR- RING TYPE NAIL OR PALLET TYPE (MECHANICALLY DEFORMED) NAIL OF THE SAME SIZE.
<u>STRAPPING, STEEL</u> -----	: FED SPEC QQ-S-781; CLASS 1, TYPE I OR <u>IX</u> , HEAVY DUTY, FINISH B (GRADE 2), SIZE 3/4" X .035" OR .031".
<u>SEAL, STRAP</u> -----	: FED SPEC QQ-S-781; TYPE D, STYLE I, II, OR <u>IX</u> , CLASS H, FINISH B (GRADE 2).
<u>STAPLE, STRAP</u> -----	: FED SPEC FF-N-105; TYPE III, STYLE 3, SIZE 15/16" WIDE, 3/4" LEG LENGTH.
<u>PLYWOOD</u> -----	: GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR EXTERIOR GRADE MAY BE SUBSTITUTED; FED SPEC NN-P-530.
<u>PALLET</u> -----	: SPECIAL 4-WAY ENTRY, SIZE 28-3/8" LONG BY 38-5/8" WIDE. PALLET SHALL BE CONSTRUCTED OF WOODS FROM GROUPS 1, 2, OR 3, OR ANY COMBINATION THEREOF, AS SPECIFIED IN MIL-STD-731.



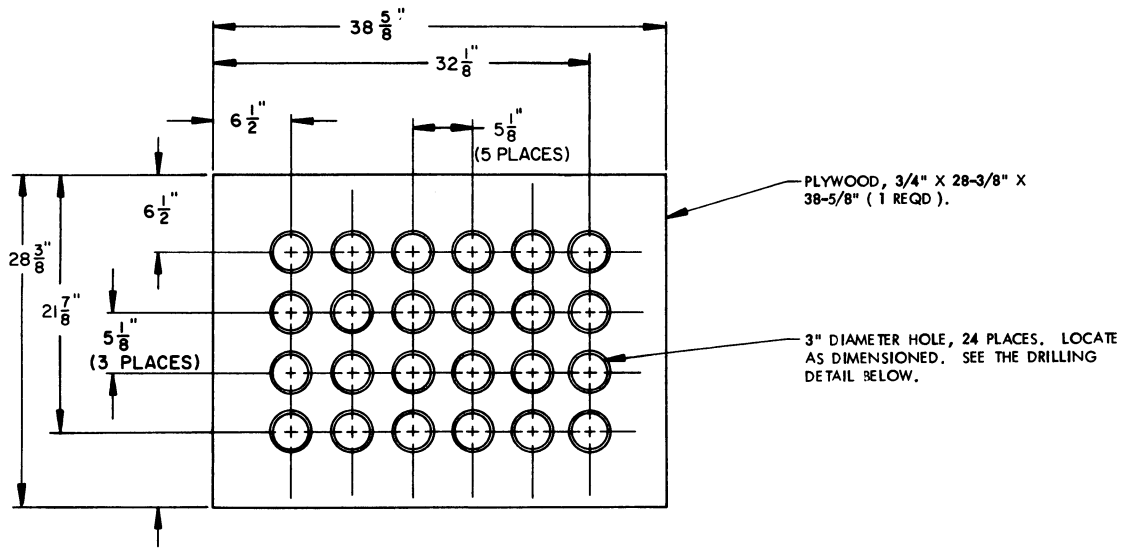
**PALLET UNIT DATA**

24 4.2" OR 105MM PROJECTILES @ 22 OR 32 LBS -----	528 OR 768 LBS
DUNNAGE -----	115 LBS
PALLET -----	35 LBS
TOTAL WEIGHT ----- 678 OR 918 LBS (APPROX)	
CUBE ----- 17.1 OR 17.9 CU FT (APPROX)	

BILL OF MATERIAL (PALLET UNIT)		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	12.88	4.30
1" X 6"	3.22	1.61
2" X 2"	10.67	3.56
2" X 6"	12.78	12.78
NAILS	NO. REQD	POUNDS
6d (2")	55	0.33
10d (3")	62	0.95
PALLET, 28-3/8" X 38-5/8" ----- 1 REQD ----- 35 LBS STEEL STRAPPING, 3/4" ----- 19.33' REQD ----- 1.38 LBS SEAL FOR 3/4" STRAPPING ----- 2 REQD ----- NIL STAPLES, 15/16" X 3/4" ----- 8 REQD ----- NIL PLYWOOD, 3/4" ----- 32.72 SQ FT REQD ----- 67.49 LBS		

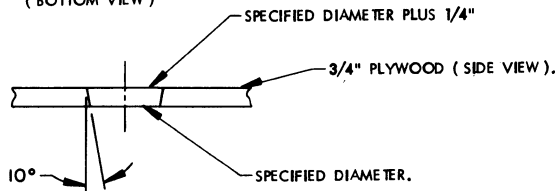


**COVER ASSEMBLY**

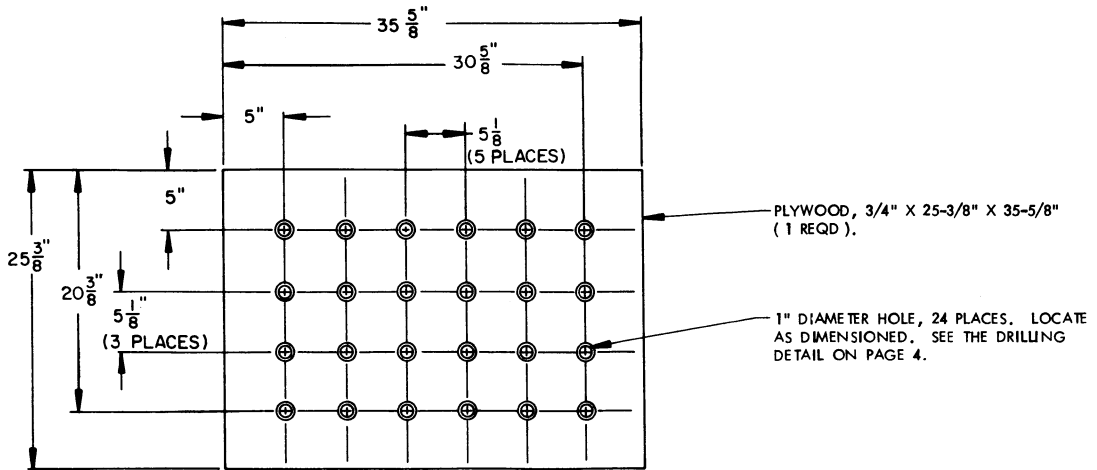


**SPACER PIECE**

(BOTTOM VIEW)



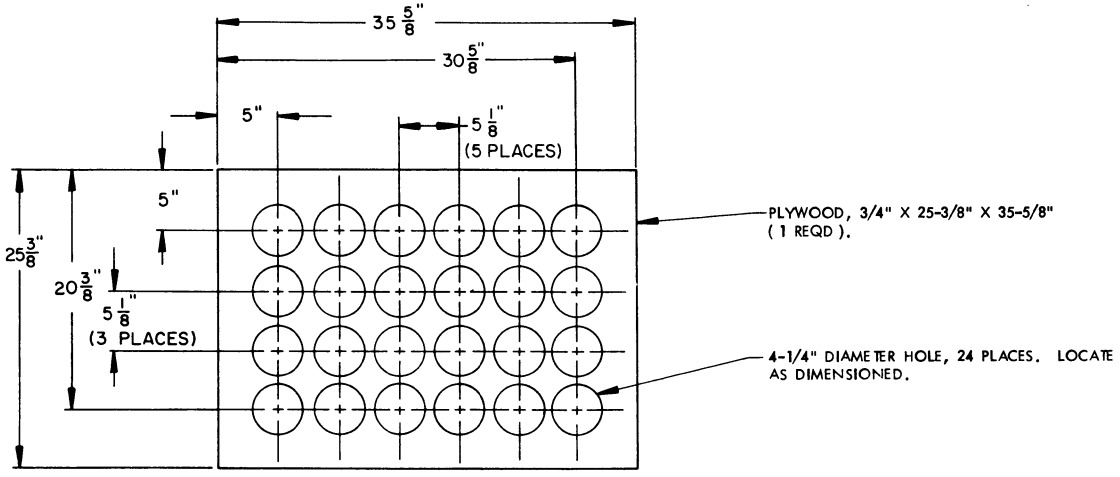
**DRILLING DETAIL**



PLYWOOD, 3/4" X 25-3/8" X 35-5/8"  
(1 REQD.).

1" DIAMETER HOLE, 24 PLACES. LOCATE  
AS DIMENSIONED. SEE THE DRILLING  
DETAIL ON PAGE 4.

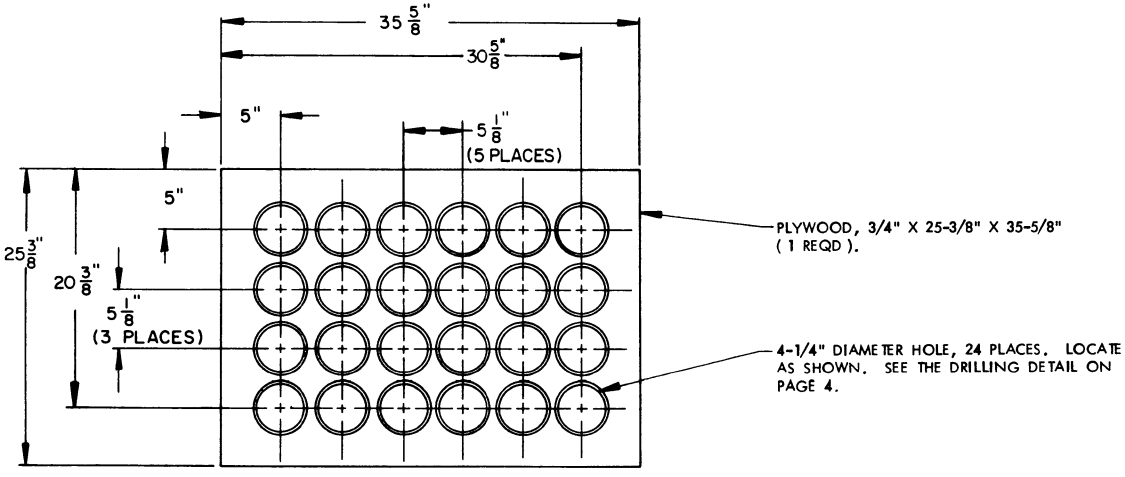
BASE PIECE A



PLYWOOD, 3/4" X 25-3/8" X 35-5/8"  
(1 REQD.).

4-1/4" DIAMETER HOLE, 24 PLACES. LOCATE  
AS DIMENSIONED.

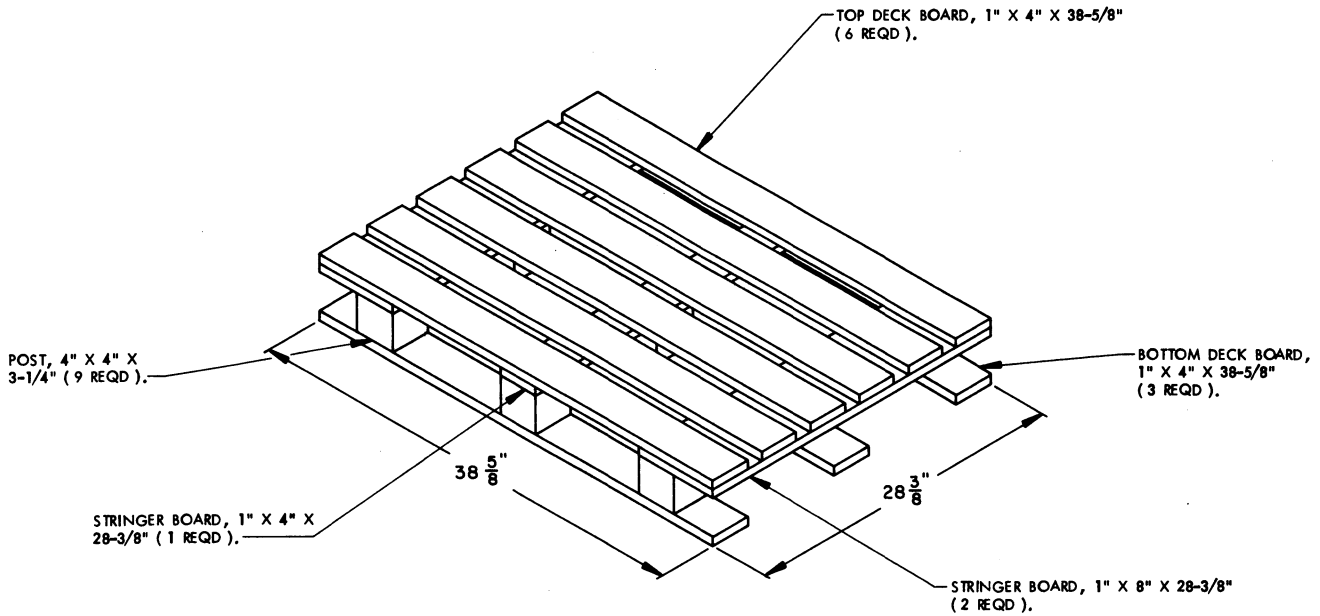
BASE PIECE B



PLYWOOD, 3/4" X 25-3/8" X 35-5/8"  
(1 REQD.).

4-1/4" DIAMETER HOLE, 24 PLACES. LOCATE  
AS SHOWN. SEE THE DRILLING DETAIL ON  
PAGE 4.

BASE PIECE C



**PALLET**

NOTE: THIS PALLET WILL BE CONSTRUCTED AND ASSEMBLED IN ACCORDANCE WITH MIL-P-15011, TYPE I, CLASS 1, STYLE IA PALLETS WITH THE FOLLOWING EXCEPTIONS.

- A. THE PALLET MAY BE CONSTRUCTED OF WOODS FROM GROUPS 1, 2, OR 3, OR ANY COMBINATION THEREOF, AS SPECIFIED IN MIL-STD-731.
- B. THE LUMBER WILL BE SIZED AS SPECIFIED ABOVE.
- C. NAILS MAY BE TYPE II, STYLE 10 OR TYPE II, STYLE 18, AS SPECIFIED IN FED SPEC FF-N-105.

BILL OF MATERIAL (PALLET)		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	31.33	10.45
1" X 8"	4.73	3.16
4" X 4"	2.44	3.25
NAILS *	NO. REQD	POUNDS
4d (1-1/2")	36	0.13
8d (2-1/2")	27	0.28
12d (3-1/4")	27	0.45

\* SEE PART C OF THE NOTE ABOVE.