

UNITIZATION PROCEDURES[•] FOR 5X25 INCH SINGLE ROUND CONTAINERS ON 4-WAY ENTRY PALLET

• **CAUTION:** THE PROCEDURES DEPICTED HEREIN ARE FOR INTRA-INSTALLATION MOVEMENT ONLY.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY OPERATIONS SUPPORT COMMAND <i>MLH</i>		ENGINEER	BASIC REV.	LAURA FIEFFER	DO NOT SCALE			
<i>David A. Piskarik</i> AMSIA-AR-WEP-RP		TECHNICIAN	BASIC REV.		WEBSITE: HTTP://WWW.DAC.ARMY.MIL			
		DRAFTSMAN	BASIC REV.		SEPTEMBER 2001			
<i>Trinity Fore</i> AMSOS-TM		TRANSPORTATION ENGINEERING DIVISION		<i>Laura G. Fieffer</i>				
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND		VALIDATION ENGINEERING DIVISION		<i>William R. French</i> TESTED	CLASS	DIVISION	DRAWING	FILE
<i>J. P. White</i>		ENGINEERING DIRECTORATE		<i>William R. French</i>	19	48	4542	CB20PM3
U.S. ARMY DEFENSE AMMUNITION CENTER								

PROJECT CB 97-01

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 (CHAPTER 5) AND CONFORMS TO MIL-STD-1660.
- B. FOR DETAILS OF THE 5 X 25 INCH SINGLE ROUND CONTAINER, SEE DAC DRAWING ACV00640.

CONTAINER DIMENSIONS
 DIAMETER - - - - - 8.50"
 LENGTH - - - - - 28.13"
 GROSS WEIGHT - - - - - 70 LBS (APPROX)

- C. 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.
- D. UNLESS OTHERWISE SPECIFIED, A PLUS OR MINUS 1/4" IS ALLOWED ON OVERALL LENGTH AND WIDTH DIMENSIONS OF ANY DUNNAGE ASSEMBLY. HOWEVER, SIMILAR PIECES IN AN ASSEMBLY MUST BE WITHIN 1/8" OF THE SAME DIMENSION. FOR THICKNESS DIMENSIONS, A PLUS ZERO, MINUS 1/8" IS ALLOWED.
- E. WHEN ASSEMBLING A PALLET UNIT, CARE SHALL BE TAKEN TO ENSURE THAT THE ASSEMBLIES ARE EVENLY ALIGNED HORIZONTALLY AND VERTICALLY SO THAT THE SIDES AND ENDS OF THE PALLET UNIT DO NOT EXCEED A 1/2" TOLERANCE.
- F. DIMENSIONS GIVEN FOR DUNNAGE ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY. CONTAINERS MUST FIT SNUGLY IN THE DUNNAGE ASSEMBLIES. THIS GUIDANCE MUST BE APPLIED PRIOR TO BEGINNING A PALLETIZED OPERATION. ALSO, DUE TO VARIATION OF CONTAINER DIMENSIONS AND CONTAINER HANDLES, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES ON SOME DUNNAGE ASSEMBLIES.
- G. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS DRAWING.

 ON-DEPOT RAIL/TRUCK - 19-48-4306-5-11Q1000
 STORAGE - - - - - 19-48-4543-CB1-14-22PML
- H. WHEN INSTALLING THE COVER ASSEMBLY ON THE PALLET UNIT, CARE SHOULD BE EXERCISED TO PRECLUDE INTERFERENCE WITH THE CONTAINER HANDLES. THE COVER ASSEMBLY HAS BEEN DESIGNED SO THAT THE HANDLES WILL FIT AGAINST THE STOP PIECES IF CORRECTLY ALIGNED.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

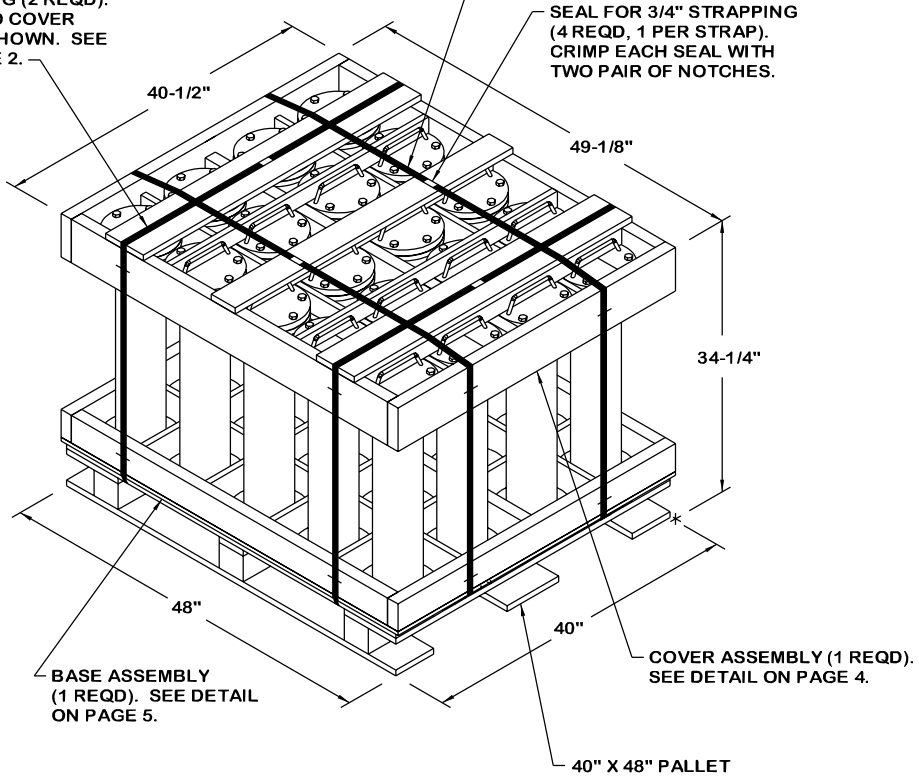
- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMS) AND PALLET NAIL (NLPL-03). ALT (FOR COMMON NAILS ONLY): UNDERLAYMENT NAIL (NLUL), PALLET NAIL (NLPL), OR COOLER NAIL (NLCL) OF SAME SIZE.
- PALLET - - - - - : MIL SPEC MIL-P-15011; 4-WAY ENTRY, STYLE 1, TYPE I, CLASS 1, PRESERVATIVE TREATED. SEE GENERAL NOTE "N".
- PLYWOOD - - - - - : COMMERCIAL ITEM DESCRIPTION A-A-55057, INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
- STAPLE - - - - - : ASTM F1667; STFC-189 OR STFC-207, 15/16" OR 1" CROWN WIDTH X 3/4" LEG LENGTH, TYPE IV, STYLE 3.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 3/4" X .035" OR .031".
- SEAL, STRAP - - - - : ASTM D3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, III, OR IV. ALTERNATIVE SEAL FINISH: SIGNODE PAINTED SEALS MAY BE USED AS AN ALTERNATIVE IF ALL SURFACES ARE PAINTED. GRITTED BACKING IS NOT PERMITTED.

- J. 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 DUNNAGE ASSEMBLIES AND THE PALLET DECK. AFTER TENSIONING, ALL STRAPS WILL BE SECURED USING ONE SEAL AND TWO PAIR OF NOTCHES PER SEAL. ALL STRAPPING MUST BE STRAIGHT WITHIN 2" ON ANY SURFACE OF THE UNITIZED LOAD I.E., TOP, BOTTOM, SIDES, OR ENDS THAT IT ENCOMPASSES.
- K. 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 MANUAL OR PNEUMATIC FEEDWHEEL TYPE TENSIONING TOOL AND THE APPLICATION OF ONE ADDITIONAL SEAL.
- L. THE LOAD STRAPS MAY BE THREADED THROUGH THE STRAP SLOTS OF A PALLET OR PRE-POSITIONED ON THE PALLET DECK PRIOR TO PLACING THE BASE ASSEMBLY ON THE PALLET. LOAD STRAPS MUST BE TENSIONED AND SEALED PRIOR TO APPLICATION OF TIEDOWN STRAPS.
- M. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE TOP DECK BOARDS OF THE PALLET. NOTE THAT THE STRAPS WILL BE LOCATED AS SHOWN, IN ALIGNMENT WITH THE TIE PIECES ON THE COVER ASSEMBLY. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE LOAD STRAPS HAVE BEEN TENSIONED AND SEALED.
- N. THE STYLE 1 PALLET DELINEATED IN THE DETAIL ON PAGE 3 NEED NOT HAVE CHAMFERS OR STRAP SLOTS AS SPECIFIED WITHIN MILITARY SPECIFICATION MIL-P-15011 WHEN USED FOR THE UNITIZATION OF ITEMS COVERED BY THIS DRAWING.
- O. EMPTY OR REJECT 5X25 INCH SINGLE ROUND CONTAINERS MAY BE USED AS FILLERS AS NECESSARY. WHEN (EMPTY/REJECT) CONTAINERS ARE USED IN PLACE OF OMITTED CONTAINERS TO COMPLETELY FILL OUT A LAYER ON A PALLET, THEY WILL BE MARKED AS SPECIFIED IN ARDEC DRAWING 12982865.
- P. DUE TO PALLET UNIT DESIGN, A MAXIMUM OF 12 CONTAINERS MAY BE OMITTED FROM A PALLET UNIT TO SATISFY A LESS-THAN-FULL PALLET UNIT REQUIREMENT. ONLY THE MIDDLE THREE ROWS ON THE 48" SIDES OF THE PALLET MAY BE OMITTED, DO NOT OMIT THE OUTER TWO ROWS. CAUTION: THIS METHOD OF LESS-THAN-FULL PALLET UNIT CONSTRUCTION SHOULD BE AVOIDED IF AT ALL POSSIBLE, AND FILLER CONTAINERS, AS DESCRIBED IN GENERAL NOTE "O" ABOVE SHOULD BE UTILIZED INSTEAD.
- Q. ALL WOODEN DUNNAGE USED IN UNIT LOADS SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN MIL-B-2427 FOR CLEATED WOODEN BOXES. IF THE DUNNAGE CONSISTS OF MORE THAN ONE COMPONENT, IT MUST BE ASSEMBLED PRIOR TO TREATMENT. THE LETTERS PA DENOTING PQ56 (COPPER-8-QUINOLINOLATE), PB DENOTING M-GARD W550 (ZINC NAPHTHENATE EMULSIFIABLE) OR PC DENOTING M-GARD W510 OR CUNAPSOL 5 (COPPER NAPHTHENATE) MUST BE APPLIED TO THE WOOD DUNNAGE IN LETTERS AT LEAST ONE INCH HIGH.
- R. 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.

TIEDOWN STRAP, 3/4" X .035" OR .031" X 12'-8" LONG STEEL STRAPPING (2 REQD). STAPLE TIEDOWN STRAPS TO COVER AND BASE ASSEMBLIES AS SHOWN. SEE GENERAL NOTE "M" ON PAGE 2.

LOAD STRAP, 3/4" X .035" OR .031" X 14'-1" LONG STEEL STRAPPING (2 REQD). STAPLE LOAD STRAPS TO COVER AND BASE ASSEMBLIES AS SHOWN. SEE GENERAL NOTE "L" ON PAGE 2.

SEAL FOR 3/4" STRAPPING (4 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.

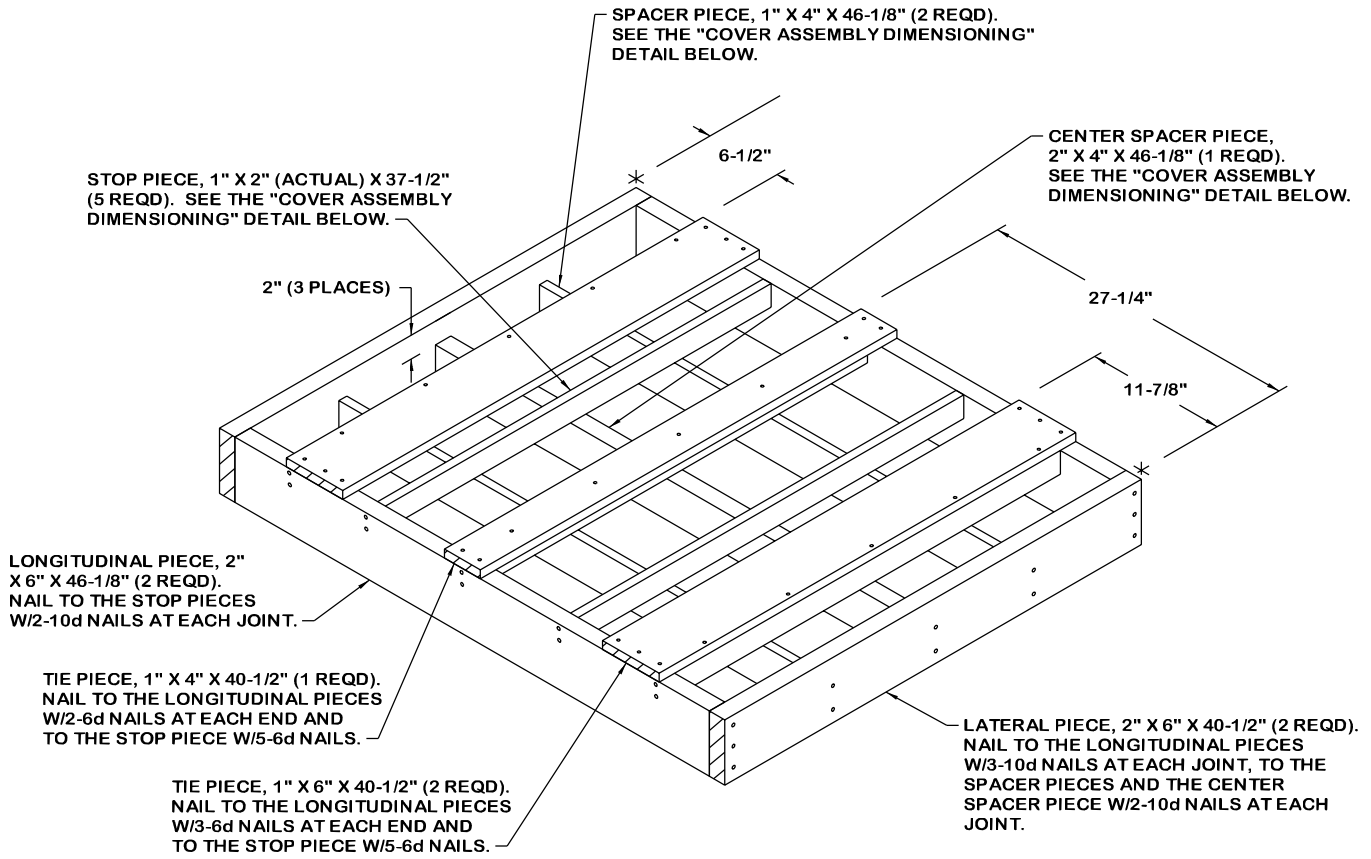


PALLET UNIT

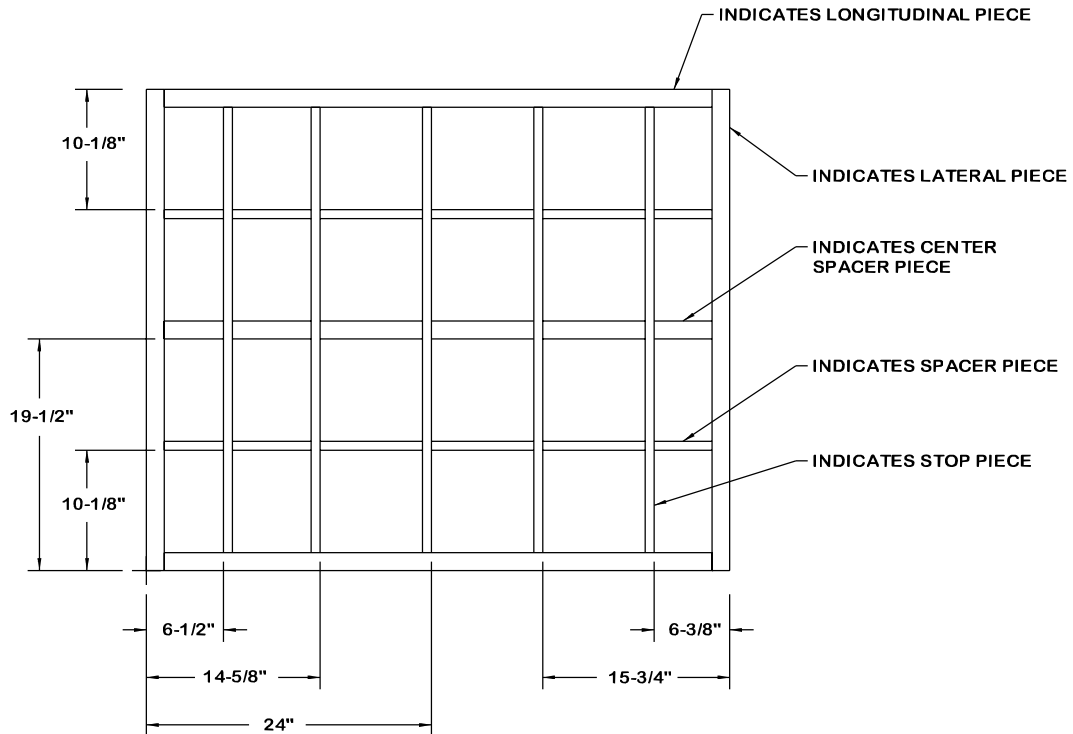
20 5X25 INCH SRCs @ 70 LBS - - - - - 1,400 LBS (APPROX)
 DUNNAGE - - - - - 120 LBS
 PALLET - - - - - 80 LBS

TOTAL WEIGHT - - - - - 1,600 LBS (APPROX)
 CUBE - - - - - 39.5 CU FT (APPROX)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 2" (ACTUAL)	16	4
1" X 4"	32	11
1" X 6"	7	4
2" X 4"	23	15
2" X 6"	15	15
NAILS	NO. REQD	POUNDS
2" PALLET NAILS	42	1/2
6d (2")	31	1/4
10d (3")	80	1-1/4
PALLET, 40" X 48"	1 REQD	80 LBS
STEEL STRAPPING, 3/4"	53.50' REQD	4.78 LBS
SEAL FOR 3/4" STRAPPING	4 REQD	NIL
PLYWOOD, 1/2"	13.82 SQ FT REQD	19.00 LBS
STAPLE, 15/16" X 3/4"	16 REQD	NIL

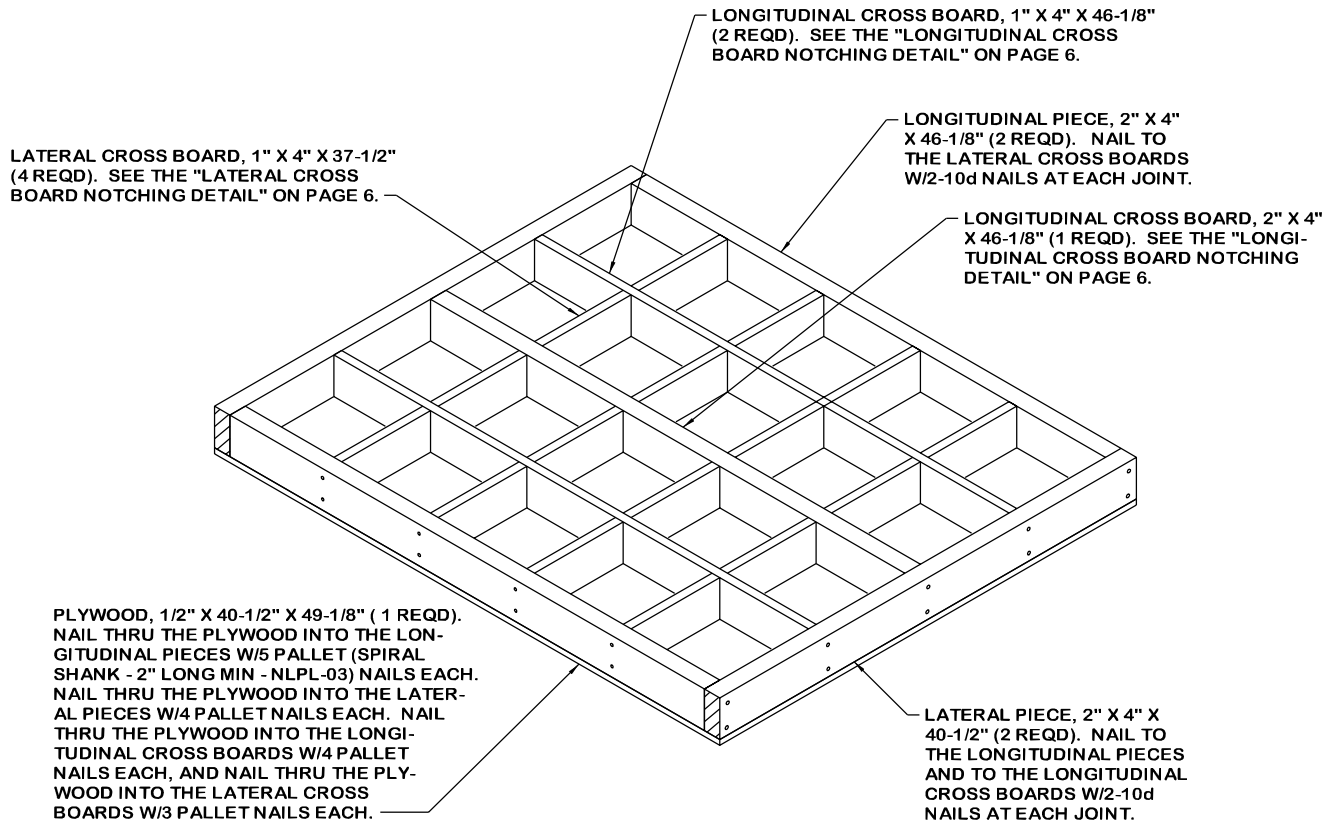


COVER ASSEMBLY



COVER ASSEMBLY DIMENSIONING

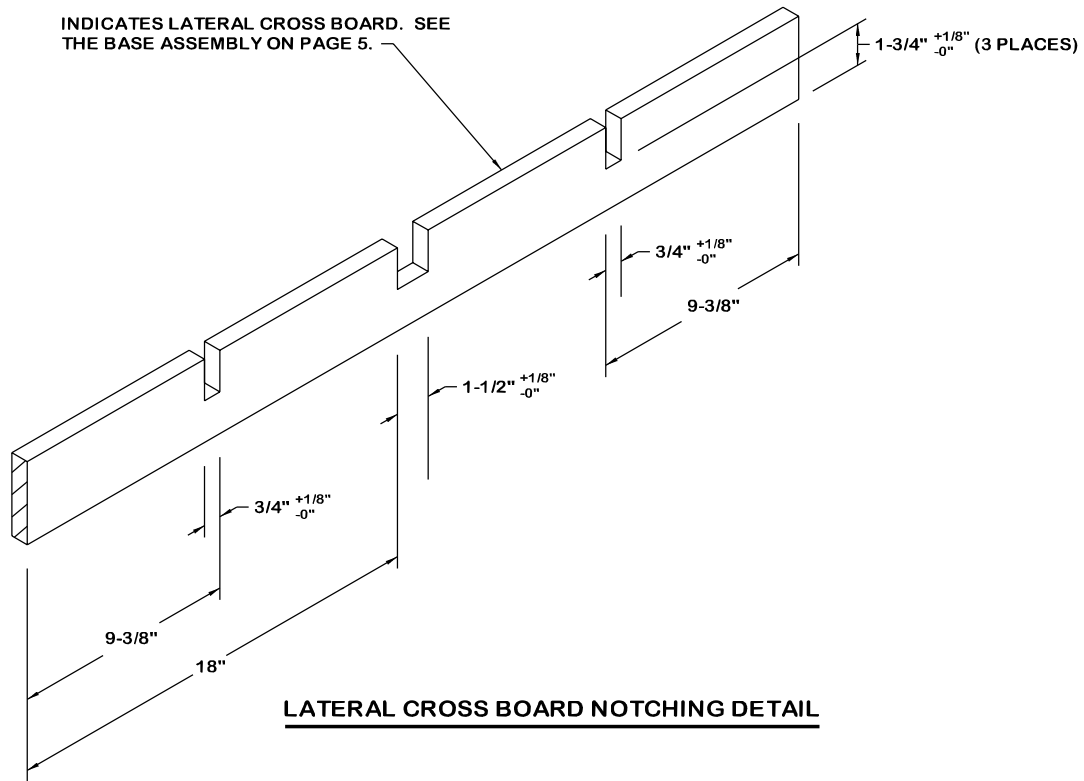
TIE PIECES OMITTED FOR CLARITY PURPOSES.



BASE ASSEMBLY

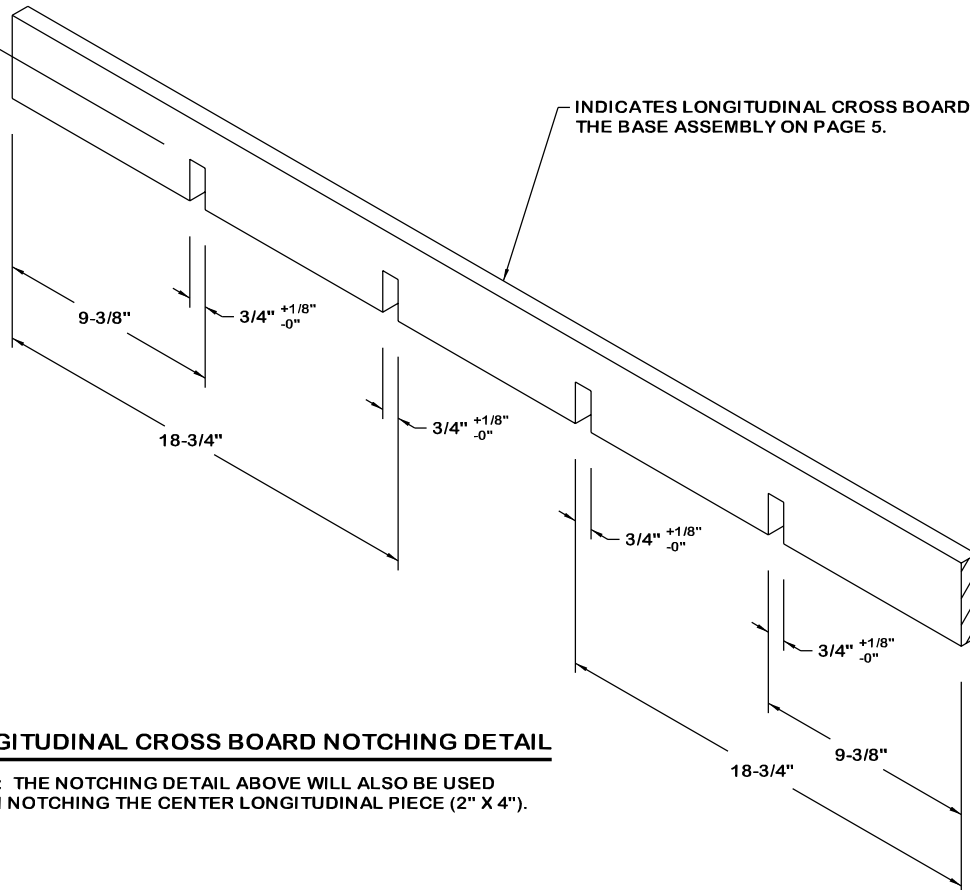
THE ASSEMBLY DEPICTED ABOVE SHOULD BE CONSTRUCTED IN THREE STAGES. FIRST, ASSEMBLE THE LONGITUDINAL AND LATERAL PIECES WITH THE PLYWOOD INTO A FRAME. SECOND, AFTER ALL THE CROSS BOARDS HAVE BEEN NOTCHED, ASSEMBLE THE CROSS BOARDS IN AN "EGG-CRATE" CONFIGURATION. THIRD, INSTALL THE COMPLETED FRAME OVER THE "EGG-CRATE", AND NAIL IN PLACE.

INDICATES LATERAL CROSS BOARD. SEE THE BASE ASSEMBLY ON PAGE 5.



1-3/4" ^{+1/8"}_{-0"} (4 PLACES)

INDICATES LONGITUDINAL CROSS BOARD. SEE THE BASE ASSEMBLY ON PAGE 5.



LONGITUDINAL CROSS BOARD NOTCHING DETAIL

NOTE: THE NOTCHING DETAIL ABOVE WILL ALSO BE USED WHEN NOTCHING THE CENTER LONGITUDINAL PIECE (2" X 4").