

# UNITIZATION PROCEDURES FOR PALLET BOX PACKING OF AMMU- NITION AND COMPONENTS PACKED IN FIBERBOARD BOXES

**CARTRIDGE, 40MM, PRACTICE, M781, PACKED  
40 PER FIBERBOARD BOX, UNITIZED 105 BOXES  
PER PALLET BOX; APPROX BOX SIZE 15" L X  
9-1/2" W X 5-1/2" H**

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## U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND PENNOCK.AM Digitally signed by PENNOCK.AMANDA.C.1 ANDA.C.13800 380042157 42157 Date: 2018.08.13 16:05:51 -05'00' RDAR-EIL-TP		<b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://mhp.redstone.army.mil">HTTPS://MHP.REDSTONE.ARMY.MIL</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.</b>						
APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND RUS.ALLEN.J Digitally signed by RUS.ALLEN.J.1230354282 .1230354282 Date: 2018.09.17 14:14:12 -05'00' AMSJM-MMT		<b>DO NOT SCALE</b>		<b>NOVEMBER 2011</b>				
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND SHIMP.UPTON Digitally signed by SHIMP.UPTON.R.1231257183 .R.1231257183 Date: 2018.09.27 08:15:14 -05'00' U.S. ARMY DEFENSE AMMUNITION CENTER		DESIGN ENGINEER	BASIC REV.	CANH TRAN SPENCER HOVEY				
		ENGINEERING DIVISION	FIEFFER.LAUR A.A.1230375727 Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2018.07.26 13:24:05 -05'00'		REVISION NO. 1	JULY 2018		
		TEST ENGINEER TEST REPORT	08-19	FELICIANO.ADI N.1259200373 Digitally signed by FELICIANO.ADI.1259200373 Date: 2018.07.27 12:50:53 -05'00'		SEE THE REVISION LISTING ON PAGE 2		
		EXPLOSIVE SAFETY DIRECTORATE	THOMAS.CARL.AN THONY.1104621372 Digitally signed by THOMAS.CARL.ANTHONY.11046 21372 Date: 2018.08.13 10:13:38 -05'00'		CLASS	DIVISION	DRAWING	FILE
				19	48	4359/1	20PA1013	

**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. FOR DETAILS OF THE FIBERBOARD BOX, SEE ARDEC DRAWING 13022728.
- C. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS APPENDIX.
  - CARLOADING - - - - 19-48-4115-5PA1002
  - TRUCKLOADING - - - - 19-48-4117-11PA1003
  - STORAGE - - - - - 19-48-4118-1-2-3-4-14-22PA1002
  - END OPENING ISO
  - CONTAINER - - - - - 19-48-4153-15PA1002
  - MILVAN - - - - - 19-48-4166-15PA1003
  - SIDE OPENING ISO
  - CONTAINER - - - - - 19-48-4267-15PA1009
- D. UNLESS OTHERWISE SPECIFIED, A MANUFACTURING TOLERANCE OF PLUS-OR-MINUS 1/4" IS ALLOWED ON ALL DIMENSIONS. HOWEVER, SIMILAR PIECES IN AN ASSEMBLY MUST BE WITHIN 1/8" OF THE SAME DIMENSION.
- E. INSTALL EACH HORIZONTAL, LOAD OR TIEDOWN STRAP TO BE LOCATED AS SHOWN. HORIZONTAL STRAPS MUST BE TENSIONED AND SEALED PRIOR TO THE APPLICATION OF TIEDOWN AND LOAD STRAPS. LOAD STRAPS MUST BE TENSIONED AND SEALED AFTER THE HORIZONTAL STRAPS AND PRIOR TO THE TIEDOWN STRAPS. SEAL LOCATIONS MAY BE ON THE SIDES OR TOP OF THE PALLET BOX.
- F. 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.
- G. IN ORDER TO OBTAIN COMPACT AND SOUND UNITS, ALL STRAPS SHALL BE LOCATED IN PROPER ALIGNMENT AND TENSIONED UNTIL THEY CUT INTO THE EDGE OF THE PALLET BOX AND THE PALLET DECK. AFTER TENSIONING, ALL STRAPS WILL BE SECURED USING ONE SEAL AND TWO PAIR OF NOTCHES PER SEAL.
- H. CLIP-LOK™ AND QUICK-CRATE® PALLET BOXES, HARDBOARD, FIBERBOARD, AND PLYWOOD ARE MANUFACTURED WOOD AND THEREFORE DO NOT REQUIRE HEAT TREATMENT.
- J. UNIT LOAD MARKING MUST BE APPLIED IN ACCORDANCE WITH DAC DRAWING ACV00561, TO INCLUDE THE MARKING "OVERPACK" IN 1 INCH HIGH CAPITAL LETTERS NEAR THE IDENTIFICATION MARKINGS ON TWO ADJACENT SIDES OF THE PALLET BOX. THE PALLET BOX HAS NOT BEEN POP TESTED, POP MARKING CANNOT BE APPLIED TO THE PALLET BOX. LIGHT PALLET BOX MARKING SHALL BE IAW 12982865.
- K. FIBERBOARD BOXES MUST FIT SNUGLY WITHIN THE PALLET BOX. THE UNBLOCKED SPACE WITHIN THE PALLET BOX MUST NOT EXCEED 1/2" IN ANY DIRECTION. FILLERS SUCH AS PLYWOOD, FIBERBOARD, HONEYCOMB FILLER, FOAM CUSHIONING MATERIAL OR HARDBOARD SHALL BE ADDED AS REQUIRED TO OBTAIN A TIGHT PACK.
- L. LIGHT PALLET BOX PROCEDURES SHALL BE IAW AMC 19-48-4169-20PA1006.
- M. ANTI-CHAFING MATERIAL MAY BE INSTALLED BETWEEN THE FIBERBOARD BOXES AND THE PALLET BOX TO PREVENT CHAFING DAMAGE TO BOX MARKINGS.
- N. 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.

PALLET UNIT DATA				
ITEMS INCLUDED		*HAZARD CLASS AND DIVISION	*COMPATIBILITY GROUP	APPROX WEIGHT (LBS)
NSN	DODIC			
1310-01-589-4275	B519	1.4	S	2,341

\*HAZARD CLASSIFICATION DATA CONTAINED IN THE ABOVE CHART IS FOR GUIDANCE AND INFORMATIONAL PURPOSES ONLY. VERIFICATION OF THE SPECIFIED DATA SHOULD BE MADE BY CONSULTING THE MOST RECENT JOINT HAZARD CLASSIFICATION SYSTEM LISTING OR OTHER APPROVED LISTING(S).

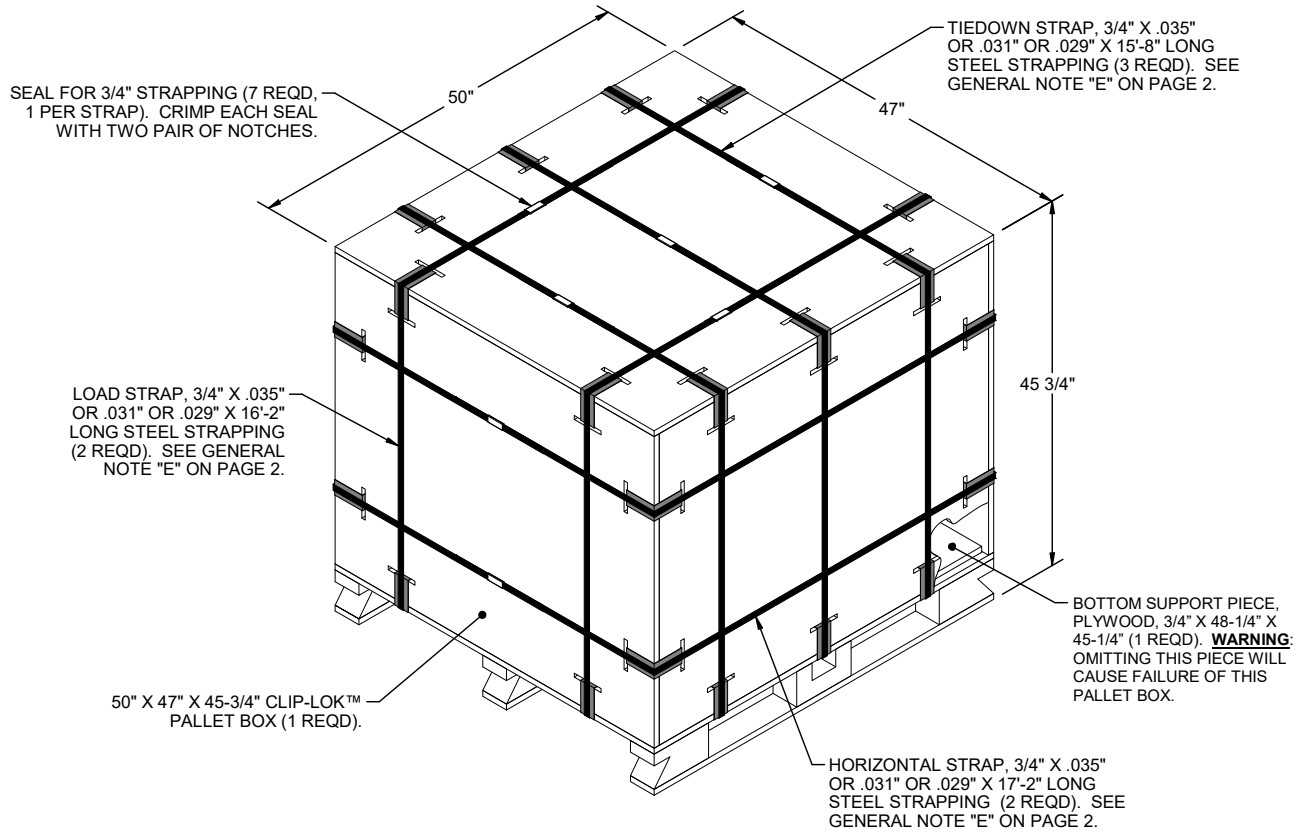
**REVISION**

REVISION NO. 1, DATED JULY 2018, CONSISTS OF CHANGES PER ECP R16S2046-1 INCLUDING:

1. UPDATING GENERAL NOTE "E" TO ADD SEAL LOCATION.
2. UPDATING GENERAL NOTE "J" TO ADD LIGHT PALLET BOX MARKING.
3. ADDING GENERAL NOTE "L" ADDRESSING LIGHT PALLET BOX PROCEDURES.

**MATERIAL SPECIFICATIONS**

- PALLET BOX** - - - - -: CLIP-LOK™ PART NUMBER PICT48, 5-45, 5-39, 75; CLIP-LOK™ SIMPAK USA, INC. ALTERNATIVE: LEAGUE MANUFACTURING QUICK-CRATE® PART NUMBER USA-0711-A.
- 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.
- STRAPPING, STEEL** - - -: ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 3/4" X .035" OR .031" OR .029" OR 1-1/4" X .035" OR .031". **NOTE:** BRITTE OR SLIT EDGES SHALL HAVE FINISH A OVERLAY.
- SEAL, STRAP** - - - - -: ASTM D3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, III, OR IV. ALTERNATIVE SEAL FINISH: SIGNODE OR DELTA PAINTED SEALS MAY BE USED AS AN ALTERNATIVE IF ALL SURFACES ARE PAINTED. GRIDDED BACKING IS NOT PERMITTED.
- HARDBOARD** - - - - -: ANSI/AHA A135.4, CLASS 1.
- FIBERBOARD** - - - - -: ASTM D4727.
- HONEYCOMB FILLER** - - -: FIBERBOARD, FACING PAPER WEIGHT 69 POUNDS/1,000 SQUARE FEET, CORE PAPER WEIGHT 33 POUNDS/1,000 SQUARE FEET, 1/2" CORE CELL CENTERS, PACTIV CORPORATION (OR EQUAL).
- FOAM CUSHIONING MATERIAL** - - - - -: COMMERCIAL ITEM DESCRIPTION A-A-59136, CLASS 1, TYPE III, GRADE A, OR COMMERCIAL EQUIVALENT.
- ANTI-CHAFING MATERIAL** - - - - -: MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.



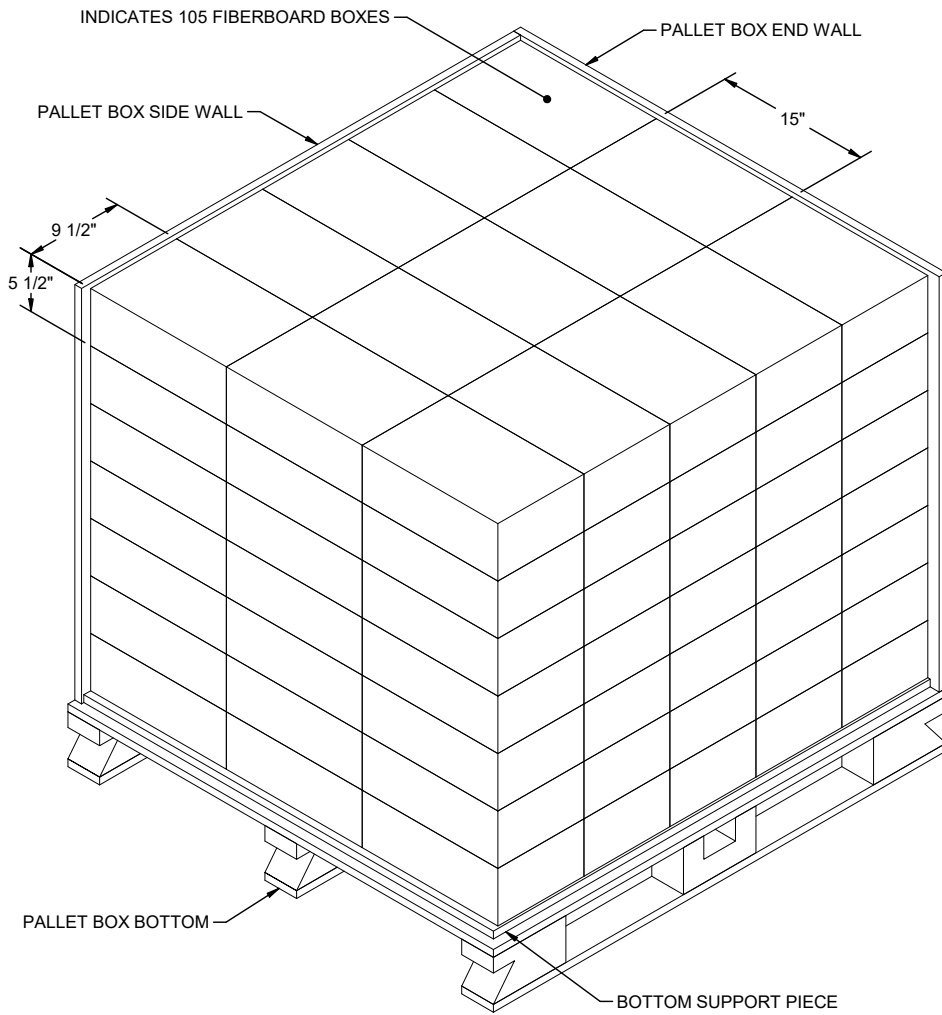
**PALLET UNIT**

105 BOXES OF 40MM CARTRIDGES (40 PER BOX) @ 20 LBS	--	2, 100 LBS (APPROX)
DUNNAGE	- - - - -	11 LBS
PALLET BOX	- - - - -	230 LBS (APPROX)
<b>TOTAL WEIGHT</b>		<b>2, 341 LBS (APPROX)</b>
<b>CUBE</b>		<b>62.2 CU FT (APPROX)</b>

BILL OF MATERIAL			
PALLET BOX, CLIP-LOK™	- - - - -	1 REQD	- - - - - 230 LBS
STEEL STRAPPING, 3/4"	- -	113.67' REQD	- - - 10.15 LBS
SEAL FOR 3/4" STRAPPING	- - - - -	7 REQD	- - - - - NIL

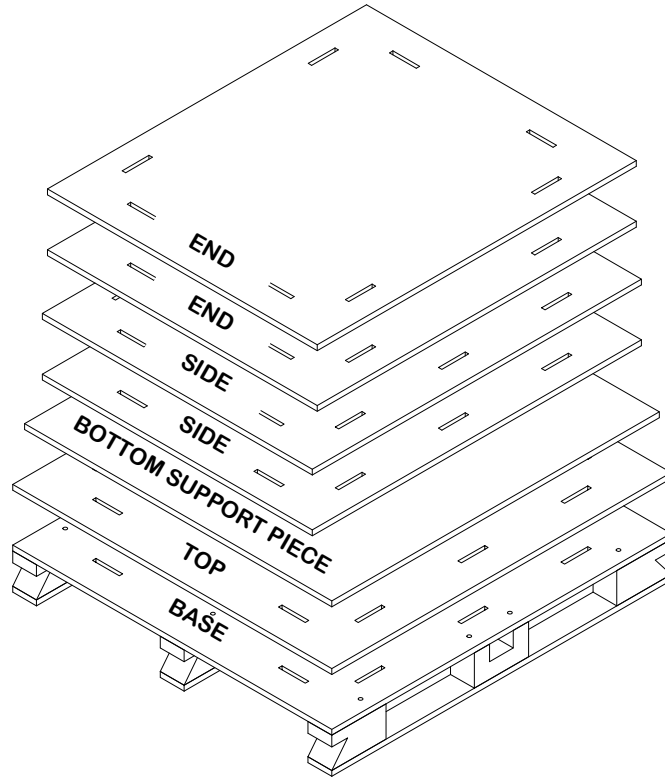
**SPECIAL NOTES:**

1. SOURCES OF SUPPLY: THE CLIP-LOK™ PALLET BOX, PART NUMBER PICT48.5-45.5-39.75, IS APPROVED FOR USE. THIS PALLET BOX CAN BE OBTAINED FROM CLIP-LOK SIMPAK™ USA, INC., 1-800-448-CLIP. THE LEAGUE MANUFACTURING QUICK-CRATE® PALLET BOX, PART NUMBER USA-0711-A, IS ALSO APPROVED FOR USE AND CAN BE OBTAINED FROM LEAGUE MANUFACTURING, PO BOX 3626, GREENVILLE, SC, 29608, 1-800-362-4569.
2. OTHER VENDORS' PALLET BOXES MAY BE QUALIFIED FOR USE BY SUBMITTING SAMPLE BOXES TO THE DEFENSE AMMUNITION CENTER, 1 C TREE ROAD, MCALESTER, OK 74501-9053. CONTACT THE DAC TRANSPORTATION ENGINEERING DIVISION, JMAC-DET, TELEPHONE 918-420-8927, E-MAIL USARMY.MCALESTER.USAMC.LIST.DAC-DET@MAIL.MIL.

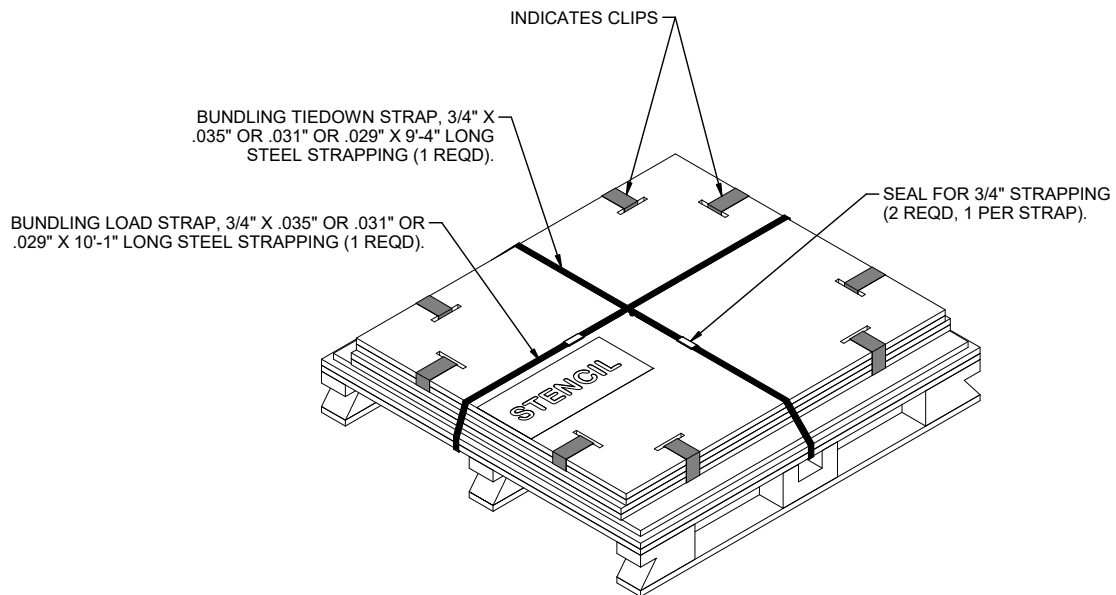


**PALLET UNIT INTERNAL DUNNAGE**

SEE GENERAL NOTE "K" ON PAGE 2.

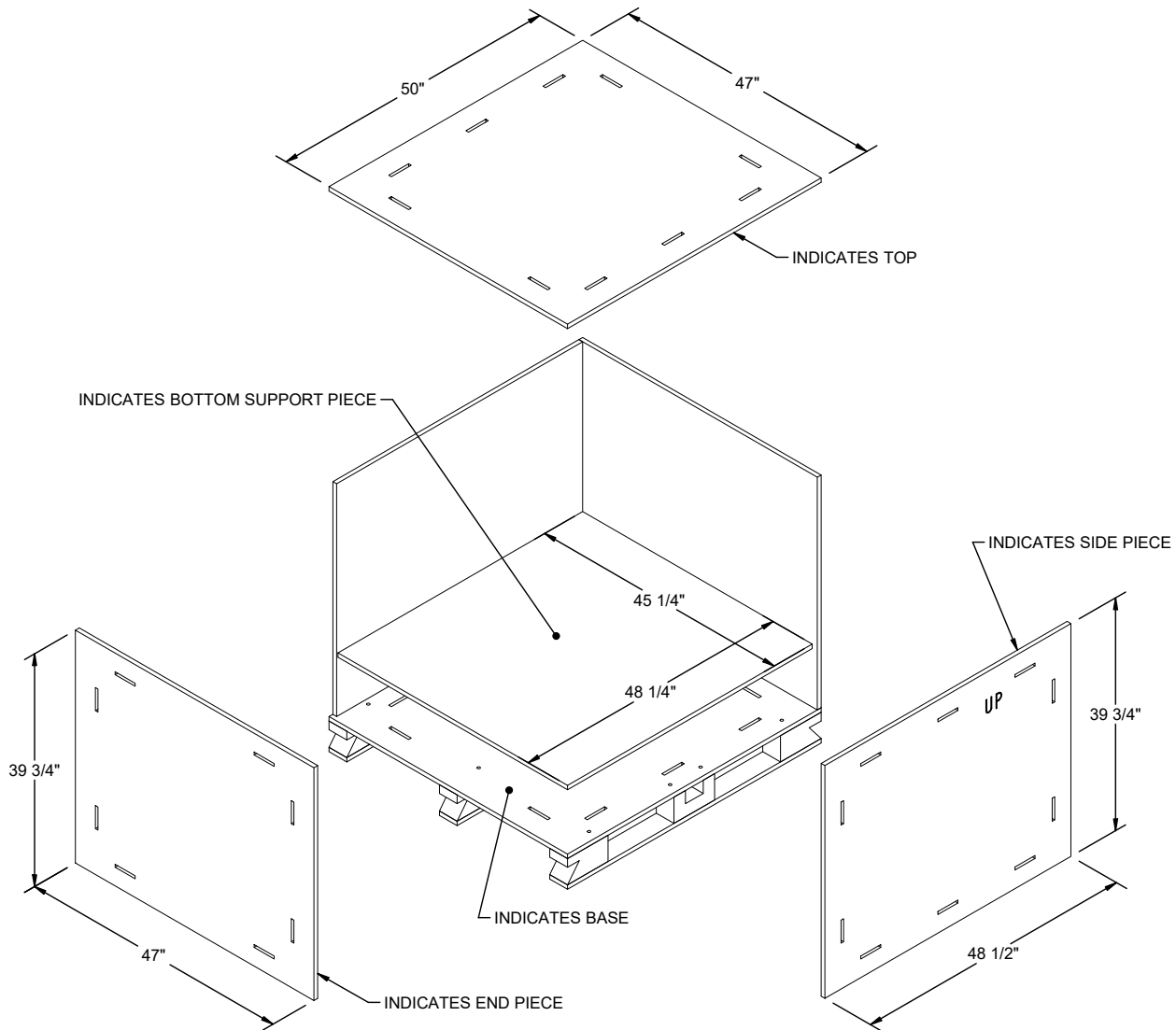


**STACKING FOR COLLAPSED CLIP-LOK™ BOX**



**COLLAPSED BOX**

SEE THE STENCIL DETAIL ON PAGE 6.



**STENCIL (FOR APPLICATION TO END PIECE)**

**SPECIAL NOTES:**

1. THE DETAIL DEPICTED ABOVE WILL BE STENCILED ON THE END PIECE TO SHOW ASSEMBLY INSTRUCTIONS. SEE THE "COLLAPSED BOX" DETAIL ON PAGE 5.
2. AN ARROW WITH "UP" WILL BE STENCILED ON THE SIDE PIECES AS SHOWN TO ENSURE THE STACKING SLOTS ARE ON TOP.