

UNITIZATION PROCEDURES FOR BULK EXPLOSIVES PACKED IN FI- BERBOARD BOXES UNITIZED 36 BOXES PER 40" X 48" PALLET; APPROX BOX SIZE* 18-3/4" L X 15-1/4" W X 7-5/8" H

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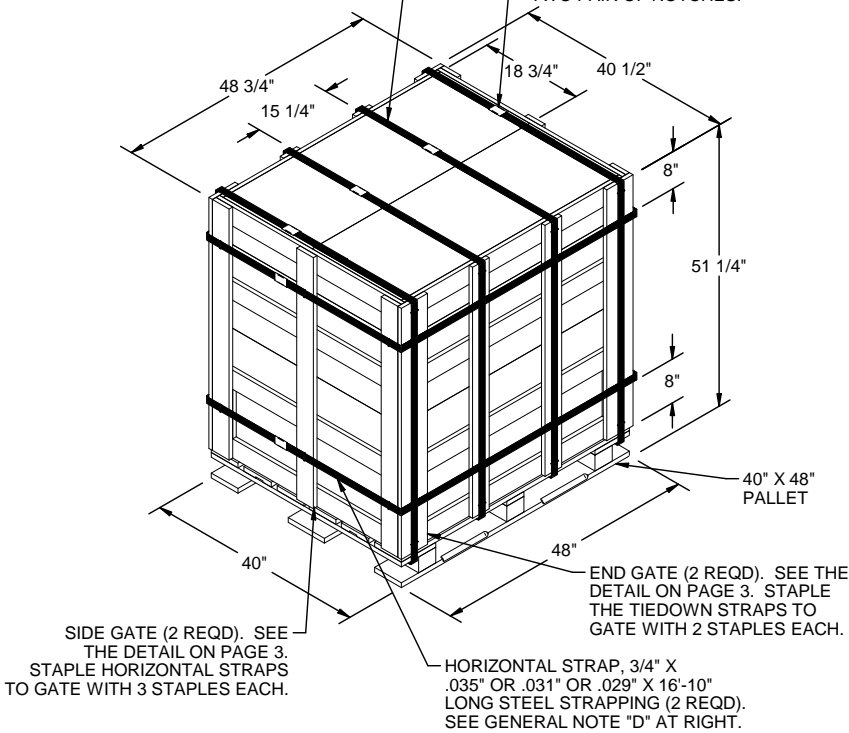
* THE PROCEDURES DELINEATED IN THIS DRAWING ARE APPLICABLE TO MULTIPLE BOX SIZES. THE BOX SIZE
DEPICTED IN THE TITLE ABOVE IS ONE OF FOUR CONFIGURATIONS. SEE PAGE 2 FOR ADDITIONAL CONFIGUATIONS.

U.S. ARMY MATERIEL COMMAND DRAWING

<p>APPROVED, U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND</p> <p>REHMSTEDT.MA RK.J.1230548400</p> <p><small>Digitally signed by REHMSTEDT.MARK.J.1230548400 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=REHMSTEDT.MARK.J.1230548400 Date: 2013.04.30 16:01:13 -05'00'</small></p> <p style="text-align: right;">RDAR-EIL-TP</p>	<p>CAUTION: VERIFY PRIOR TO USE AT HTTPS://MHP.REDSTONE.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 4.</p>		<p>OCTOBER 1970</p>	
<p>APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND</p> <p>CASILLAS.GILBE RT.J.1230393644</p> <p><small>Digitally signed by CASILLAS.GILBERT.J.1230393644 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=CASILLAS.GILBERT.J.1230393644 Date: 2013.05.02 06:09:55 -05'00'</small></p> <p style="text-align: right;">AMSJM-LIT</p>	<p>DO NOT SCALE</p>	<p>REVISION NO. 1</p>		<p>DECEMBER 2012</p>
<p>APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</p> <p>SHIMP.UPTON .R.1231257183</p> <p><small>Digitally signed by SHIMP.UPTON.R.1231257183 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=SHIMP.UPTON.R.1231257183 Date: 2013.05.02 14:45:36 -05'00'</small></p> <p style="text-align: right;">U.S. ARMY DEFENSE AMMUNITION CENTER</p>	<p>ENGINEERING DIVISION</p>	<p>FIEFFER.LAUR A.A.1230375727</p> <p><small>Digitally signed by FIEFFER.LAURA.A.1230375727 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FIEFFER.LAURA.A.1230375727 Date: 2013.01.29 12:36:48 -05'00'</small></p>	<p>TESTED</p>	<p>SEE THE REVISION LISTING ON PAGE 4</p>
<p>TEST ENGINEER</p>	<p>EXPLOSIVE SAFETY DIRECTORATE</p>	<p>WILLIAMS.KENY ON.L.1231212392</p> <p><small>Digitally signed by WILLIAMS.KENYON.L.1231212392 DN: c=US, ou=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WILLIAMS.KENYON.L.1231212392 Date: 2013.04.29 12:31:15 -05'00'</small></p>	<p>AMXSV-4071</p>	

TIEDOWN STRAP, 3/4" X .035" OR .031" OR .029" X 15'-11" LONG STEEL STRAPPING (4 REQD). SEE GENERAL NOTE "E" AT RIGHT.

SEAL FOR 3/4" STRAPPING (6 REQD 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.



PALLET UNIT

THE PALLET UNIT SHOWN ABOVE DEPICTS THE PALLETIZATION OF BOX 4. PALLETIZATION OF BOX SIZES 1 THROUGH 3 CAN ALSO BE ACCOMPLISHED IN A SIMILAR MANNER. SEE THE DETAILS ON PAGES 3 AND 4.

36 BOXES OF BULK EXPLOSIVES @ 54 LBS	1,944 LBS
DUNNAGE	93 LBS
PALLET	80 LBS
TOTAL WEIGHT	2,117 LBS (APPROX)
CUBE	58.6 CU FT (APPROX)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	100.63	33.54
1" X 6"	15.25	7.63
NAI LS	NO. REQD	POUNDS
6d (2")	280	1-3/4
STEEL STRAPPING, 3/4" - -	93.58' REQD -	8.36 LBS
SEAL FOR 3/4" STRAPPING - - -	6 REQD - - -	NIL
STAPLE, 15/16" X 3/4" - - -	24 REQD - - -	NIL

(GENERAL NOTES CONTINUED)

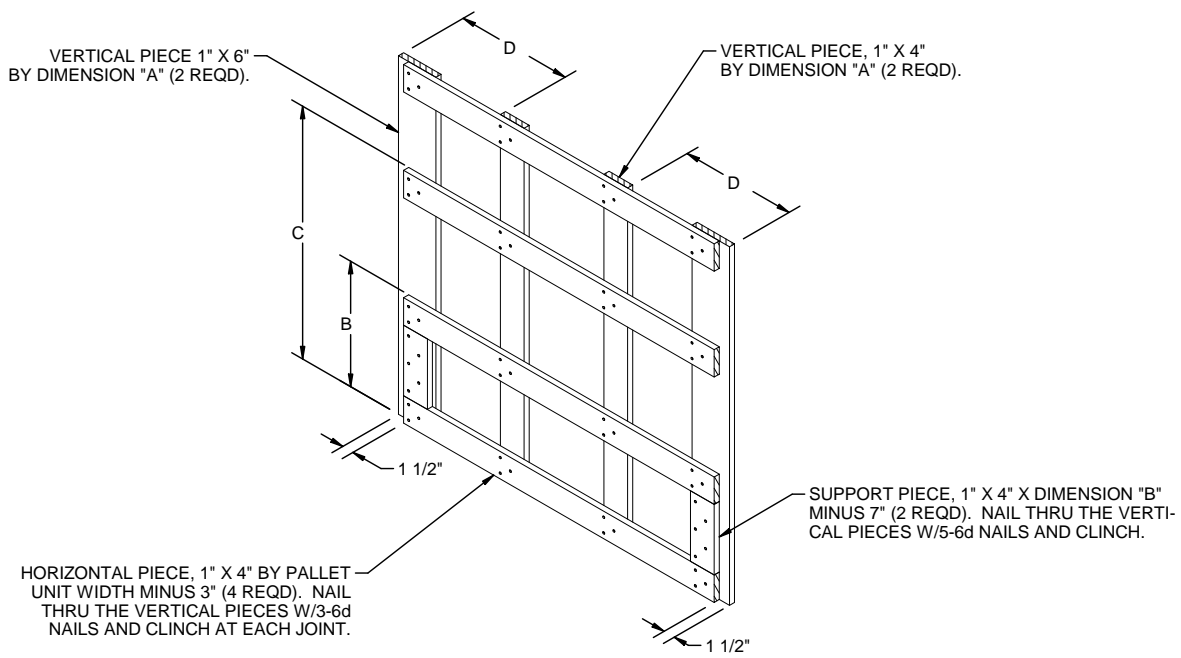
- P. ALL WOODEN DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN MIL-DTL-2427 FOR CLEATED WOODEN BOXES. IF THE DUNNAGE CONSISTS OF MORE THAN ONE COMPONENT, IT MUST BE ASSEMBLED PRIOR TO TREATMENT. THE LETTERS PA DENOTING PQ56 (COPPER-8-QUINOLINOLATE), PB DENOTING M-GARD W550 (ZINC NAPHTHENATE EMULSIFIABLE), OR PC DENOTING M-GARD W510 OR CUNAPSOL 5 (COPPER NAPHTHENATE) MUST BE APPLIED TO THE DUNNAGE IN LETTERS AT LEAST ONE INCH HIGH.
- Q. ALL NON-MANUFACTURED WOOD USED IN THE UNIT LOAD WILL BE HEAT TREATED TO SHOW CONFORMANCE TO THE INTERNATIONAL PLANT PROTECTION CONVENTION STANDARD (IPPC). SEE DAC DRAWING ACV00831 FOR ISPM-15 CERTIFICATION MARKING AND PLACEMENT DETAILS.
- R. FOR DETAILS OF THE FIBERBOARD BOX SEE ARDEC DRAWING 7548645.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. DIMENSIONS, CUBE AND WEIGHT OF A PALLET UNIT WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE BOXES AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- C. WHEN ASSEMBLING A PALLET UNIT, CARE SHALL BE TAKEN TO INSURE THAT BOXES AND FILLER ASSEMBLIES ARE EVELY ALIGNED HORIZONTALLY AND VERTICALLY SO THAT THE SIDES AND ENDS OF THE PALLET DO NOT EXCEED A 1/2" TOLERANCE.
- D. INSTALL EACH HORIZONTAL STRAP TO BE LOCATED AS SHOWN. HORIZONTAL STRAPS MUST BE TENSIONED AND SEALED AFTER THE APPLICATION OF TIEDOWN STRAPS.
- E. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE DECK/STRINGER BOARDS OF THE PALLET AND TO BE LOCATED AS SHOWN. TIEDOWN STRAPS WILL NOT BE APPLIED UNTIL THE HORIZONTAL STRAPS HAVE BEEN TENSIONED AND SEALED.
- F. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS APPENDIX.

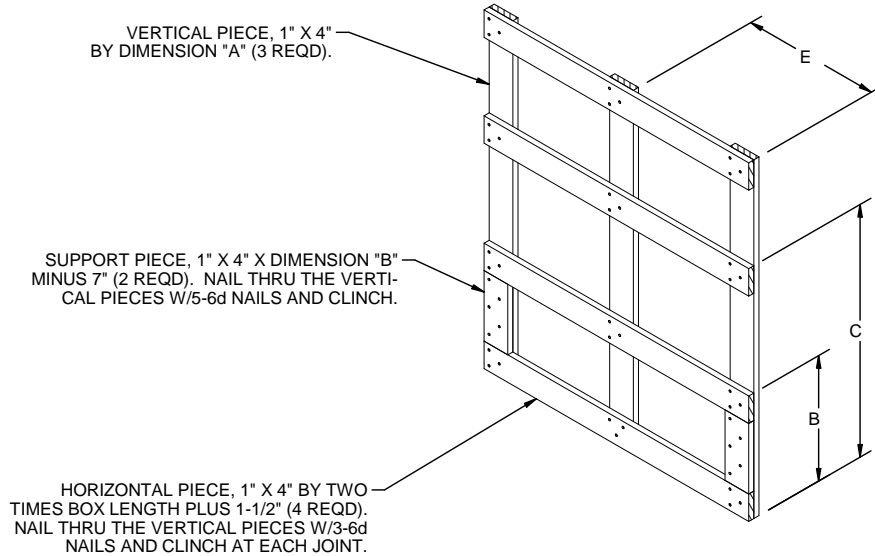
CARLOADING - - - -	19-48-4115-5PA1002
TRUCKLOADING - - - -	19-48-4117-11PA1003
STORAGE - - - -	19-48-4118-1-2-3-4-14-22PA1002
END OPENING ISO CONTAINER - - - -	19-48-4153-15PA1002
MILVAN - - - -	19-48-4166-15PA1003
SIDE OPENING ISO CONTAINER - - - -	19-48-4267-15PA1009
- G. IF LESS THAN 36 BOXES ARE TO BE LOADED ON A PALLET, IT SHALL BE ACCOMPLISHED BY SUBSTITUTING FILLER ASSEMBLIES, AS DEPICTED ON PAGE 4 FOR OMITTED BOXES. IF MORE THAN SIX BOXES ARE TO BE OMITTED FROM THE PALLET UNIT, IT CAN BE ACCOMPLISHED BY USING A COMBINATION OF OMITTING A COMPLETE LAYER OF BOXES AND SUBSTITUTING FILLER ASSEMBLIES AS NECESSARY, TO SATISFY THE REDUCED QUANTITY OF BOXES TO BE UNITIZED.
- H. ALL FILLER ASSEMBLIES WILL BE POSITIONED IN THE TOP LAYER OR LAYERS OF THE CENTER STACK OF A UNIT LOAD.
- J. A PLUS-OR-MINUS 1/4" IS ALLOWED ON OVERALL DIMENSIONS OF A FILLER ASSEMBLY, SPACER ASSEMBLY OR ANY OTHER DUNNAGE ASSEMBLY. HOWEVER, SIMILAR PIECES IN AN ASSEMBLY MUST BE WITHIN 1/8" OF THE SAME DIMENSION.
- K. DIMENSIONAL LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF 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.
- L. WHEN LOADING BOXES, THEY ARE TO BE POSITIONED TIGHT AGAINST AND FLUSH OR SLIGHTLY ABOVE THE TOP OF THE SIDE AND END GATES. EXCESS SLACK CAN BE ELIMINATED BY INSERTING APPROPRIATELY SIZED PIECE OF PLYWOOD OR 1" X 4" MATERIAL STAPLED UNDER TIEDOWN STRAPS WHEN BOXES ARE NOT FLUSH WITH OR SLIGHTLY ABOVE SIDE OR END GATES.
- M. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING BULK EXPLOSIVES ITEMS IN FIBERBOARD BOXES PROVIDED THE BOX PACK DOES NOT VARY FROM WHAT IS DELINEATED HEREIN. THE EXPLOSIVE CLASSIFICATION OF OTHER ITEMS MAY BE DIFFERENT THAN WHAT IS SHOWN.
- 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.
- O. THE STYLE 1 PALLET DELINEATED IN THE DETAIL AT LEFT (OR STYLE 1A PALLET FOR BOX SIZE 1 THRU 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 DOCUMENT.

(CONTINUED AT LEFT)



END GATE

THE DETAIL ABOVE DEPICTS THE TYPICAL END PANEL ASSEMBLY FOR A SIX HIGH PALLET UNIT. THE DIMENSIONS LISTED CORRESPOND TO THE "DIMENSION CHART" ON PAGE 4.

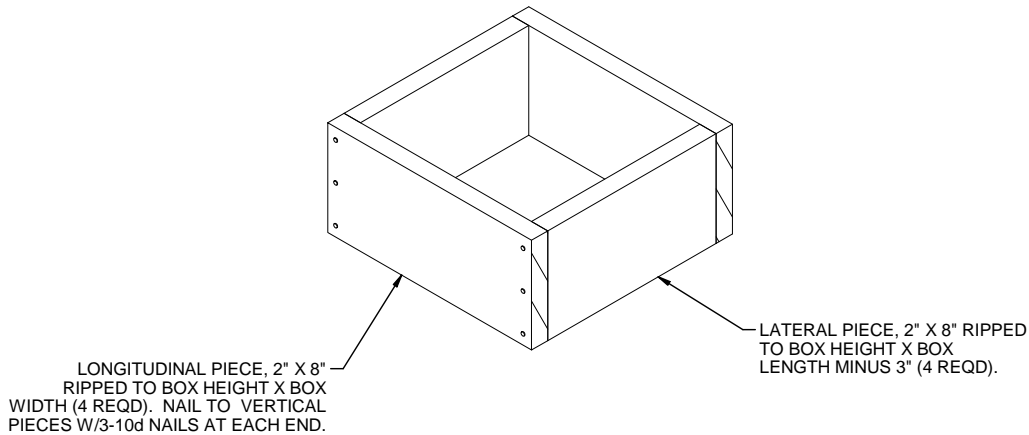


SIDE GATE

THE DETAIL ABOVE DEPICTS THE TYPICAL SIDE PANEL ASSEMBLY FOR A SIX HIGH PALLET UNIT. THE DIMENSIONS LISTED CORRESPOND TO THE "DIMENSION CHART" ON PAGE 4.

DIMENSION CHART								
6-HIGH PALLET UNIT	PALLET UNIT WIDTH	PALLET UNIT LENGTH	PALLET UNIT HEIGHT	A	B	C	D	E
BOX 1*	50-1/4"	33-3/4"	51-1/4"	45-3/4"	17"	32-1/4"	15-3/8"	13-5/8"
BOX 2*	51-3/4"	35-1/2"	54-1/4"	48-3/4"	17"	34-3/8"	16-1/4"	14-1/2"
BOX 3*	51-3/4"	35-1/2"	48-1/4"	42-3/4"	17"	30-1/8"	16-1/4"	14-1/2"
BOX 4*	48-3/4"	40-1/2"	51-1/4"	45-3/4"	17"	32-1/4"	15-1/4"	17-3/4"
5-HIGH PALLET UNIT	PALLET UNIT WIDTH	PALLET UNIT LENGTH	PALLET UNIT HEIGHT	A	B	C	D	E
BOX 1*	50-1/4"	33-3/4"	43-5/8"	38-1/8"	17"	32-1/4"	15-3/8"	13-5/8"
BOX 2*	51-3/4"	35-1/2"	46-1/8"	40-5/8"	17"	34-3/8"	16-1/4"	14-1/2"
BOX 3*	51-3/4"	35-1/2"	41-1/8"	35-5/8"	17"	30-1/8"	16-1/4"	14-1/2"
BOX 4*	48-3/4"	40-1/2"	43-5/8"	38-1/8"	17"	32-1/4"	15-1/4"	17-3/4"
4-HIGH PALLET UNIT	PALLET UNIT WIDTH	PALLET UNIT LENGTH	PALLET UNIT HEIGHT	A	B	C	D	E
BOX 1*	50-1/4"	33-3/4"	36"	30-1/2"	17"	---	15-3/8"	13-5/8"
BOX 2*	51-3/4"	35-1/2"	38"	32-1/2"	17"	---	16-1/4"	14-1/2"
BOX 3*	51-3/4"	35-1/2"	34"	28-1/2"	17"	---	16-1/4"	14-1/2"
BOX 4*	48-3/4"	40-1/2"	36"	30-1/2"	17"	---	15-1/4"	17-3/4"
3-HIGH PALLET UNIT	PALLET UNIT WIDTH	PALLET UNIT LENGTH	PALLET UNIT HEIGHT	A	B	C	D	E
BOX 1*	50-1/4"	33-3/4"	28-3/8"	22-7/8"	17"	---	15-3/8"	13-5/8"
BOX 2*	51-3/4"	35-1/2"	29-7/8"	24-3/8"	17"	---	16-1/4"	14-1/2"
BOX 3*	51-3/4"	35-1/2"	26-7/8"	21-3/8"	17"	---	16-1/4"	14-1/2"
BOX 4*	48-3/4"	40-1/2"	28-3/8"	22-7/8"	17"	---	15-1/4"	17-3/4"
2-HIGH PALLET UNIT	PALLET UNIT WIDTH	PALLET UNIT LENGTH	PALLET UNIT HEIGHT	A	B	C	D	E
BOX 1*	50-1/4"	33-3/4"	20-3/4"	15-1/4"	---	---	15-3/8"	13-5/8"
BOX 2*	51-3/4"	35-1/2"	21-3/4"	16-1/4"	---	---	16-1/4"	14-1/2"
BOX 3*	51-3/4"	35-1/2"	19-3/4"	14-1/4"	---	---	16-1/4"	14-1/2"
BOX 4*	48-3/4"	40-1/2"	20-3/4"	15-1/4"	---	---	15-1/4"	17-3/4"

*BOXES 1, 2, AND 3 USE THE 35" X 45-1/2" (TYPE 1A) PALLET. FOR BOX 1, 1" OR 2" HORIZONTAL FILL PIECES WILL NEED TO BE LAMINATED TO THE HORIZONTAL PIECES OF THE END GATE TO MAKE THE LOAD FLUSH WITH THE SIDES OF THE PALLET.



FILLER ASSEMBLY
(FOR MINUS ONE BOX)

MATERIAL SPECIFICATIONS

- PALLET** -----: MIL SPEC MIL-P-15011; 4-WAY ENTRY, STYLE 1A, TYPE I, CLASS1 PRESERVATIVE TREATED. SEE GENERAL NOTES "P" AND "Q" ON PAGE 2.
- LUMBER** -----: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS20, AND GENERAL NOTES "P" AND "Q" ON PAGE 2.
- STRAPPING, STEEL** ---: ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH B (GRADE 2), SIZE 3/4" X .035" OR .031" OR .029".
- SEAL STRAP** -----: ASTM D3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, III OR IV.
- STAPLE** -----: ASTM F1667; STFCs-189, STFCs-198, STFCs-207, OR STFCs-216, 15/16" OR 1" CROWN LENGTH FOR 3/4" STRAPPING.

BOX SIZES			
	BOX LENGTH	BOX WIDTH	BOX HEIGHT
BOX 1	15-3/8"	15-3/8"	7-5/8"
BOX 2	16-1/4"	16-1/4"	8-1/8"
BOX 3	16-1/4"	16-1/4"	7-1/8"
BOX 4	18-3/4"	15-1/4"	7-5/8"

REVISION

REVISION NO. 1, DATED DECEMBER 2012, CONSISTS OF:

1. UPDATING DRAWING FORMAT.
2. ADDING ADDITIONAL BOX SIZES.