

APPENDIX 38A

UNITIZATION PROCEDURES FOR BOXED AMMUNITION AND COMPO- NENTS ON 4-WAY ENTRY PALLETS

**CARTRIDGE, 120MM MORTAR, PACKED TWO PER
PA154 METAL BOX, UNITIZED 24 BOXES PER 40" X
48" PALLET; APPROX BOX SIZE 12-3/8" L X 6-3/8" W
X 31-13/16" H**

**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION
PROCEDURES DRAWING 19-48-4116-20PA1002.**

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U.S. ARMY MATERIEL COMMAND DRAWING

| | | | | |
|--|---|---|--|---------------------------------|
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| <p>APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND</p> <p>RUS.ALLEN.J .1230354282</p> <p><small>Digitally signed by RUS.ALLEN.J.1230354282 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=RUS.ALLEN.J.1230354282 Date: 2017.11.02 10:37:46 -0500</small></p> <p style="text-align: right;">AMSJM-MMT</p> | <p>DO NOT SCALE</p> | <p>DESIGN ENGINEER</p> | <p>BASIC</p> | <p>SANDRA M. SCHULTZ</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: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=SHIMP.UPTON.R.1231257183 Date: 2017.11.17 13:45:23 -0500</small></p> <p style="text-align: right;">U.S. ARMY DEFENSE AMMUNITION CENTER</p> | <p>ENGINEERING DIVISION</p> | <p>TEST ENGINEER</p> | <p>REV.</p> | <p>SPENCER HOVEY</p> |
| <p>TEST REPORT</p> | <p>EXPLOSIVE SAFETY DIRECTORATE</p> | <p>FIEFFER.LAUR A.A.1230375727</p> <p><small>Digitally signed by FIEFFER.LAURA.A.1230375727 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=FIEFFER.LAURA.A.1230375727 Date: 2017.09.19 08:02:05 -0500</small></p> | <p>REVISION NO. 5</p> | <p>SEPTEMBER 2017</p> |
| <p>TEST REPORT</p> | <p>THOMAS.CARL.ANT HONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=THOMAS.CARL.ANTHONY.1104621372 Date: 2017.10.02 10:39:08 -0500</small></p> | <p>SEE THE REVISION LISTING ON PAGE 2</p> | | |
| <p>TEST REPORT</p> | <p>EXPLOSIVE SAFETY DIRECTORATE</p> | <p>THOMAS.CARL.ANT HONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=THOMAS.CARL.ANTHONY.1104621372 Date: 2017.10.02 10:39:08 -0500</small></p> | <p>CLASS</p> | <p>DIVISION</p> |
| <p>TEST REPORT</p> | <p>EXPLOSIVE SAFETY DIRECTORATE</p> | <p>THOMAS.CARL.ANT HONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=THOMAS.CARL.ANTHONY.1104621372 Date: 2017.10.02 10:39:08 -0500</small></p> | <p>DRAWING</p> | <p>FILE</p> |
| <p>TEST REPORT</p> | <p>EXPLOSIVE SAFETY DIRECTORATE</p> | <p>THOMAS.CARL.ANT HONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=THOMAS.CARL.ANTHONY.1104621372 Date: 2017.10.02 10:39:08 -0500</small></p> | <p>19</p> | <p>48</p> |
| <p>TEST REPORT</p> | <p>EXPLOSIVE SAFETY DIRECTORATE</p> | <p>THOMAS.CARL.ANT HONY.1104621372</p> <p><small>Digitally signed by THOMAS.CARL.ANTHONY.1104621372 DN: cn=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, c=US, email=THOMAS.CARL.ANTHONY.1104621372 Date: 2017.10.02 10:39:08 -0500</small></p> | <p>4116/ 38A</p> | <p>20PA1002</p> |

| PALLET UNIT DATA | | | | |
|------------------|-------|----------------------------|----------------------|---------------------|
| ITEMS INCLUDED | | *HAZARD CLASS AND DIVISION | *COMPATIBILITY GROUP | APPROX WEIGHT (LBS) |
| NSN | DODIC | | | |
| 1315- | | | | |
| 01-335-5016 | C379 | 1. 1 | E | 2, 479 |
| 01-343-1941 | C623 | 1. 1 | E | 2, 479 |
| 01-343-1942 | C625 | 1. 2. 1 | G | 2, 479 |
| 01-558-5201 | C625 | 1. 2. 1 | G | 2, 479 |
| 01-624-2864 | C625 | 1. 2. 1 | G | 2, 479 |
| 01-418-4363 | CA04 | 1. 1 | E | 2, 479 |
| 01-518-5947 | CA04 | 1. 1 | E | 2, 479 |
| 01-446-2904 | CA07 | 1. 2. 1 | G | 2, 479 |
| 01-624-2862 | CA07 | 1. 2. 1 | G | 2, 479 |
| 01-541-0588 | CA44 | 1. 1 | E | 2, 479 |
| 01-618-5864 | CA44 | 1. 1 | E | 2, 479 |

*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).

REVISIONS

REVISION NO. 1, DATED NOVEMBER 1995, CONSISTS OF:

1. ADDING REFERENCE DRAWING NUMBER.
2. UPDATING GENERAL NOTES.
3. CHANGING SPACER ASSEMBLY.
4. CHANGING CONTAINER WEIGHT.

REVISION NO. 2, DATED APRIL 1998, CONSISTS OF:

ADDING ITEM BY NATIONAL STOCK NUMBER (NSN) TO THE "PALLET UNIT DATA" CHART.

REVISION NO. 3, DATED JANUARY 2002, CONSISTS OF:

1. CHANGING CONTAINER WEIGHT.
2. UPDATING DRAWING FORMAT.

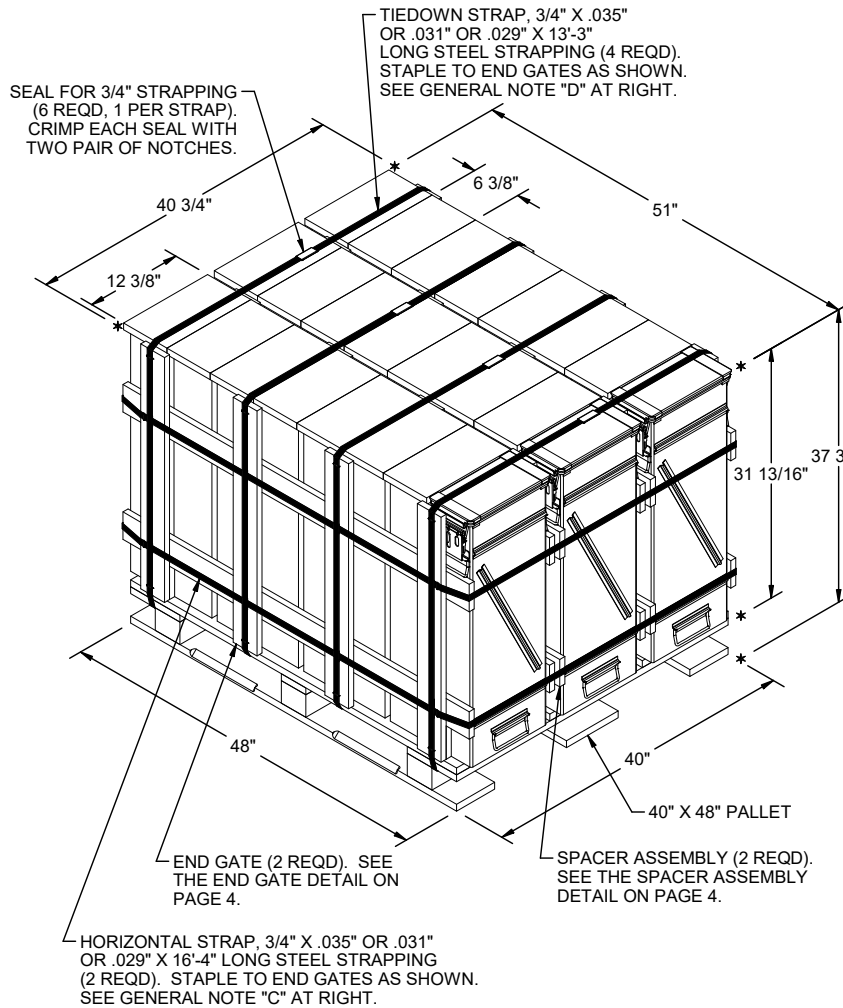
REVISION NO. 4, DATED JANUARY 2005, CONSISTS OF:

1. ADDING ITEM BY NATIONAL STOCK NUMBER (NSN) TO THE "PALLET UNIT" CHART.
2. UPDATING HAZARD CLASS AND DIVISION FOR C625 AND CA07 IN THE "PALLET UNIT DATA" CHART.

REVISION NO. 5, DATED SEPTEMBER 2017, CONSISTS OF:

1. ADDING ITEMS BY NATIONAL STOCK NUMBER TO THE "PALLET UNIT DATA" CHART.
2. ADDING ".029" TO STRAP THICKNESS OPTIONS ON PALLET UNIT NOTES.
3. CHANGING FROM "MIL-P-15011" TO "MIL-DTL-15011" IN GENERAL NOTE "K".

GENERAL NOTES



- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC UNITIZATION PROCEDURES DRAWING 19-48-4116-20PA1002. TO PRODUCE AN APPROVED UNIT LOAD, ALL PERTINENT PROCEDURES, SPECIFICATIONS AND CRITERIA SET FORTH WITHIN THE BASIC DRAWING WILL APPLY TO THE PROCEDURES DELINEATED IN THIS APPENDIX. ANY EXCEPTIONS TO THE BASIC PROCEDURES ARE SPECIFIED IN THIS APPENDIX.
- 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. INSTALL EACH HORIZONTAL STRAP TO BE LOCATED AS SHOWN. HORIZONTAL STRAPS MUST BE TENSIONED AND SEALED AFTER THE APPLICATION OF TIEDOWN STRAPS.
- D. INSTALL EACH TIEDOWN STRAP TO PASS UNDER THE DECK/STRINGER BOARDS OF THE PALLET AND TO BE LOCATED AS SHOWN.
- E. 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 |

- F. IF ITEMS COVERED HEREIN ARE UNITIZED PRIOR TO ISSUANCE OF THIS REVISION TO THIS APPENDIX, THE BOXES NEED NOT BE REUNITIZED SOLELY TO CONFORM TO THIS REVISION.
- G. THE UNITIZATION PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR UNITIZING 120MM MORTAR CARTRIDGES WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN WHAT IS SHOWN ON PAGE 2, 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.
- H. THE STYLE 1 PALLET DELINEATED IN THE DETAIL AT LEFT NEED NOT HAVE CHAMFERS OR STRAP SLOTS AS SPECIFIED WITHIN MILITARY SPECIFICATION MIL-DTL-15011 WHEN USED FOR THE UNITIZATION OF ITEMS COVERED BY THIS APPENDIX.

PALLET UNIT
SEE GENERAL NOTE "B" AT RIGHT.

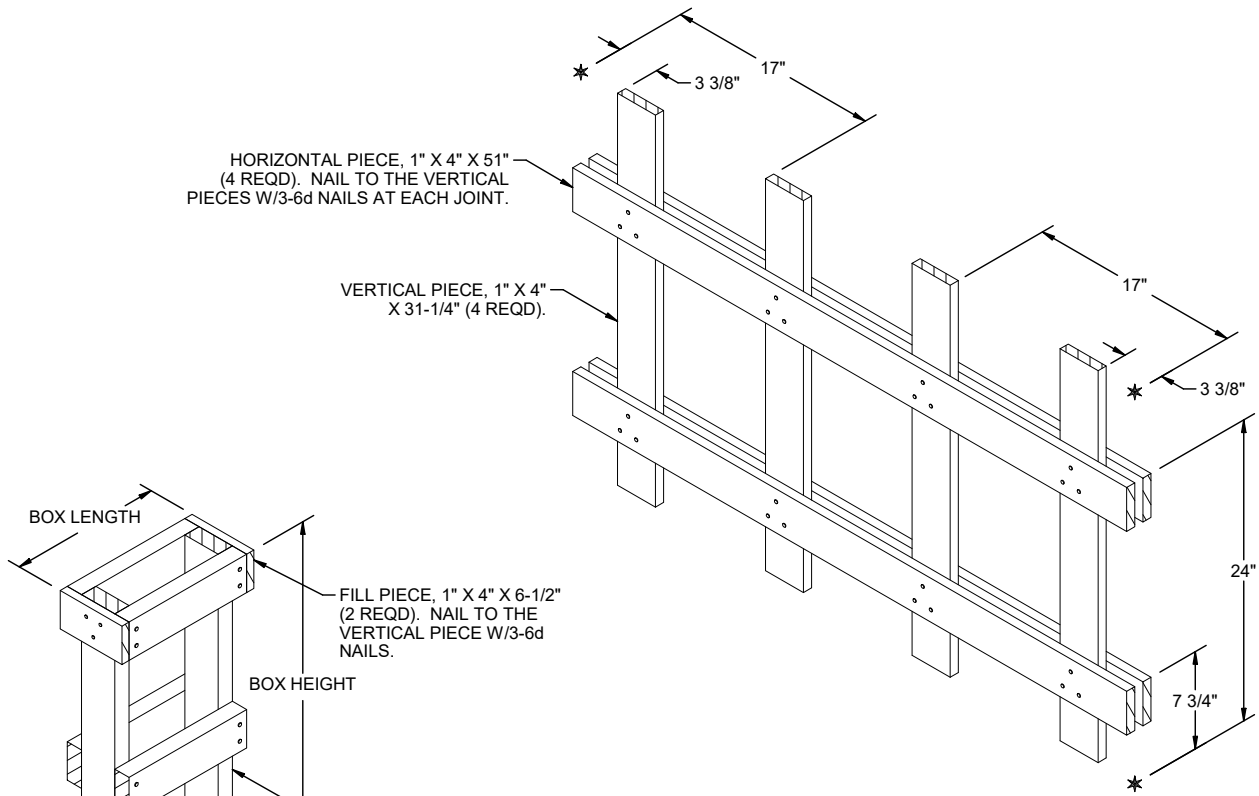
| | | |
|---|---------|---------------------|
| 24 BOXES OF 120MM MORTAR CTG (2 PER BOX) @ 97 LBS | - - - - | 2,328 LBS (APPROX) |
| DUNNAGE | - - - - | 71 LBS |
| PALLET | - - - - | 80 LBS |
| TOTAL WEIGHT | | 2,479 LBS (APPROX) |
| CUBE | | 45.0 CU FT (APPROX) |

- J. BOXES MUST ALL BE ORIENTED IN THE SAME DIRECTION ON THE PALLET TO ALLOW THE INTERLOCKING DEVICES TO PROPERLY ENGAGE.
- K. ALL WOODEN DUNNAGE SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH GENERAL NOTE "AA" IN THE BASIC PROCEDURES, AND HEAT TREATED IN ACCORDANCE WITH GENERAL NOTE "JJ" IN THE BASIC PROCEDURES.
- L. IF THERE IS NEED FOR FILLER ASSEMBLIES AND AT LEAST TWO PALLET UNITS ARE BEING CONSTRUCTED, NOT MORE THAN 20 FILLERS WILL BE INSTALLED IN ANY ONE PALLET UNIT. ADDITIONAL FILLERS CAN BE PUT IN A SECOND PALLET UNIT AS REQUIRED WHEN THE QUANTITY OF 20 FILLERS IN THE FIRST REDUCED PALLET UNIT IS INSUFFICIENT TO SATISFY THE TOTAL REDUCTION NEEDED. USING TWO PALLET UNITS TO SATISFY THE PALLETIZATION CRITERIA APPLICABLE TO LESS-THAN-FULL PALLET UNITS IS AN EXCEPTION TO THE BASIC PROCEDURES. HOWEVER, THE EXCEPTION IS NECESSARY FOR THE AMMUNITION PACK COVERED BY THIS APPENDIX TO MOST EFFECTIVELY GET AN ACCEPTABLE, COMPACT AND SOUND PALLET UNIT.

| BILL OF MATERIAL | | |
|--|-------------|------------|
| LUMBER | LINEAR FEET | BOARD FEET |
| 1" X 4" | 94.00 | 31 |
| NAI LS | NO. REQD | POUNDS |
| 6d (2") | 152 | 1 |
| PALLET, 40" X 48" - - - - - 1 REQD - - - - - 80 LBS | | |
| STEEL STRAPPING, 3/4" - 85.67' REQD - - - - - 7.65 LBS | | |
| SEAL FOR 3/4" STRAPPING - - - 6 REQD - - - - - NIL | | |
| STAPLE, 15/16" X 3/4" - - - 24 REQD - - - - - NIL | | |

- M. DIMENSIONS GIVEN FOR DUNNAGE PIECES ARE APPROXIMATE AND MUST BE VERIFIED IN ACCORDANCE WITH GENERAL NOTE "Z" IN THE BASIC PROCEDURES. THESE ASSEMBLIES MUST NOT PROTRUDE PAST THE TOPS AND/OR SIDES OF THE PA154 BOXES. THEY MAY BE SHORTER, PROVIDED THE TIEDOWN STRAPS ARE PREVENTED FROM DAMAGING THE EDGES OF THE BOXES. THE HORIZONTAL PIECE MUST FIT AGAINST THE HANDLE OFR LATCH ASSEMBLY.

N. FOR DETAILS OF THE PA154 BOX SEE ARDEC DRAWING 12577569.



HORIZONTAL PIECE, 1" X 4" X 51"
(4 REQD). NAIL TO THE VERTICAL
PIECES W/3-6d NAILS AT EACH JOINT.

VERTICAL PIECE, 1" X 4"
X 31-1/4" (4 REQD).

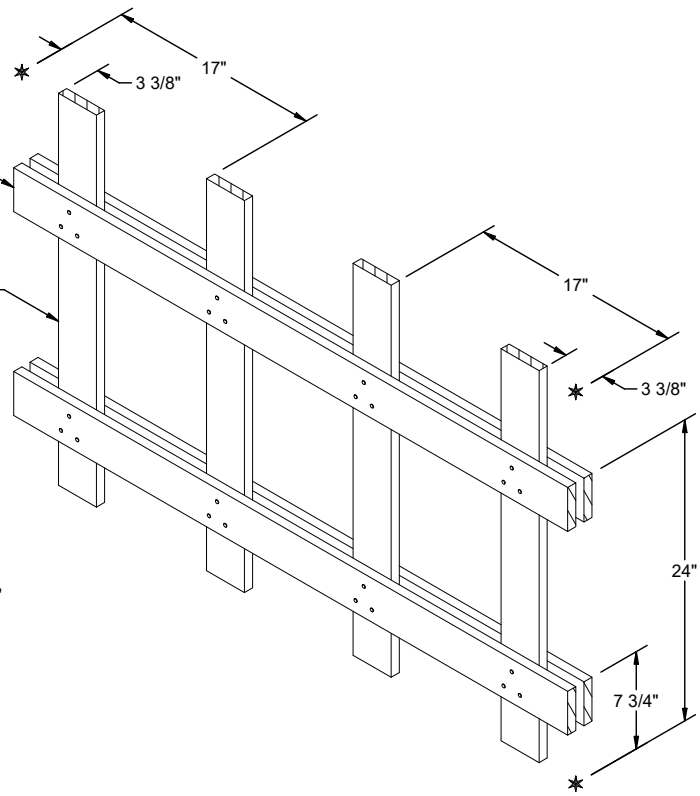
FILL PIECE, 1" X 4" X 6-1/2"
(2 REQD). NAIL TO THE
VERTICAL PIECE W/3-6d
NAILS.

VERTICAL PIECE, 2" X 4"
X BOX HEIGHT (2 REQD).

HORIZONTAL PIECE, 2" X 4" X
BOX LENGTH MINUS 1-1/2"
(6 REQD). NAIL TO THE VER-
TICAL PIECES W/2-10d NAILS
AT EACH END.

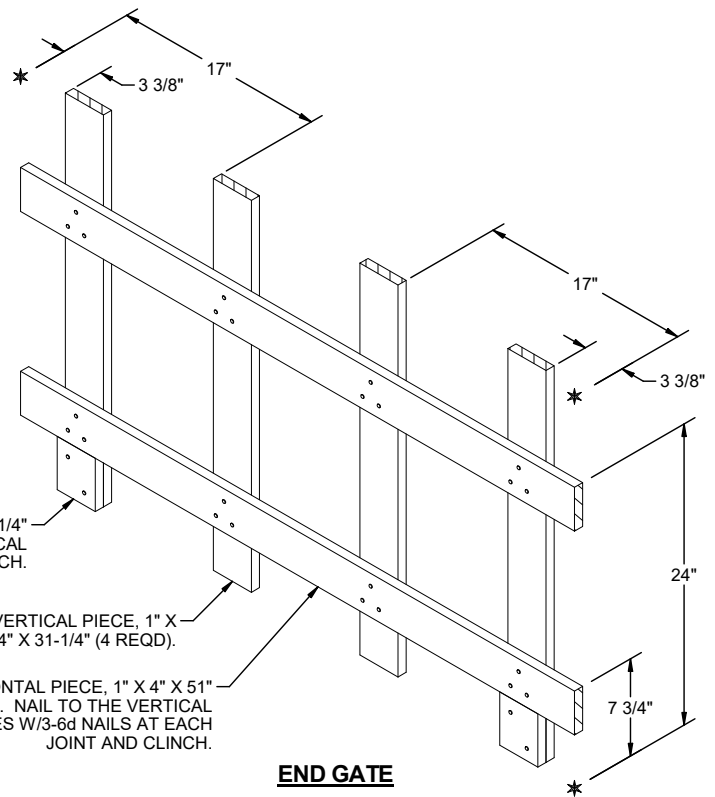
FILLER ASSEMBLY

(FOR MINUS ONE BOX)



SPACER ASSEMBLY

(2 REQD)
SEE GENERAL NOTE "M" ON PAGE 3.



SUPPORT PIECE, 1" X 4" X 4-1/4"
(2 REQD). NAIL TO VERTICAL
PIECE W/2-6d NAILS AND CLINCH.

VERTICAL PIECE, 1" X
4" X 31-1/4" (4 REQD).

HORIZONTAL PIECE, 1" X 4" X 51"
(2 REQD). NAIL TO THE VERTICAL
PIECES W/3-6d NAILS AT EACH
JOINT AND CLINCH.

END GATE

(2 REQD)
SEE GENERAL NOTE "M" ON PAGE 3.