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Date: 2009.11.19 07:56:11 -06'00'

APPENDIX 52

LOADING AND BRACING * PROCEDURES FOR STRATEGIC CONFIGURED LOAD (SCL) ON CONTAINER ROLL IN/OUT PLATFORM (CROP)

SCL #52 – 155MM HE-ER M982 (EXCALIBUR)

INDEX

NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC CROP OUTLOADING PROCEDURES DRAWING 19-48-4905-CA17Q6.

***LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.**

U.S. ARMY MATERIEL COMMAND DRAWING

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JOINT MUNITIONS COMMAND

RUS.ALLEN.J.1230354282

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Date: 2010.01.19 10:04:12 -06'00'

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DO NOT SCALE

SEPTEMBER 2009

ENGINEER OR TECHNICIAN	BASIC	RICHARD GARSIDE
	REV.	

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GENERAL, U.S ARMY MATERIEL COMMAND

CARNEY.GARY.BURTON.1038708038

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Date: 2010.02.01 15:42:49 -06'00'

U.S. ARMY DEFENSE AMMUNITION CENTER

TRANSPORTATION ENGINEERING DIVISON	FIEFFER.LAURA.A.1230375727	Digitally signed by FIEFFER.LAURA.A.1230375727 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FIEFFER.LAURA.A.1230375727 Date: 2009.11.03 15:11:07 -06'00'	
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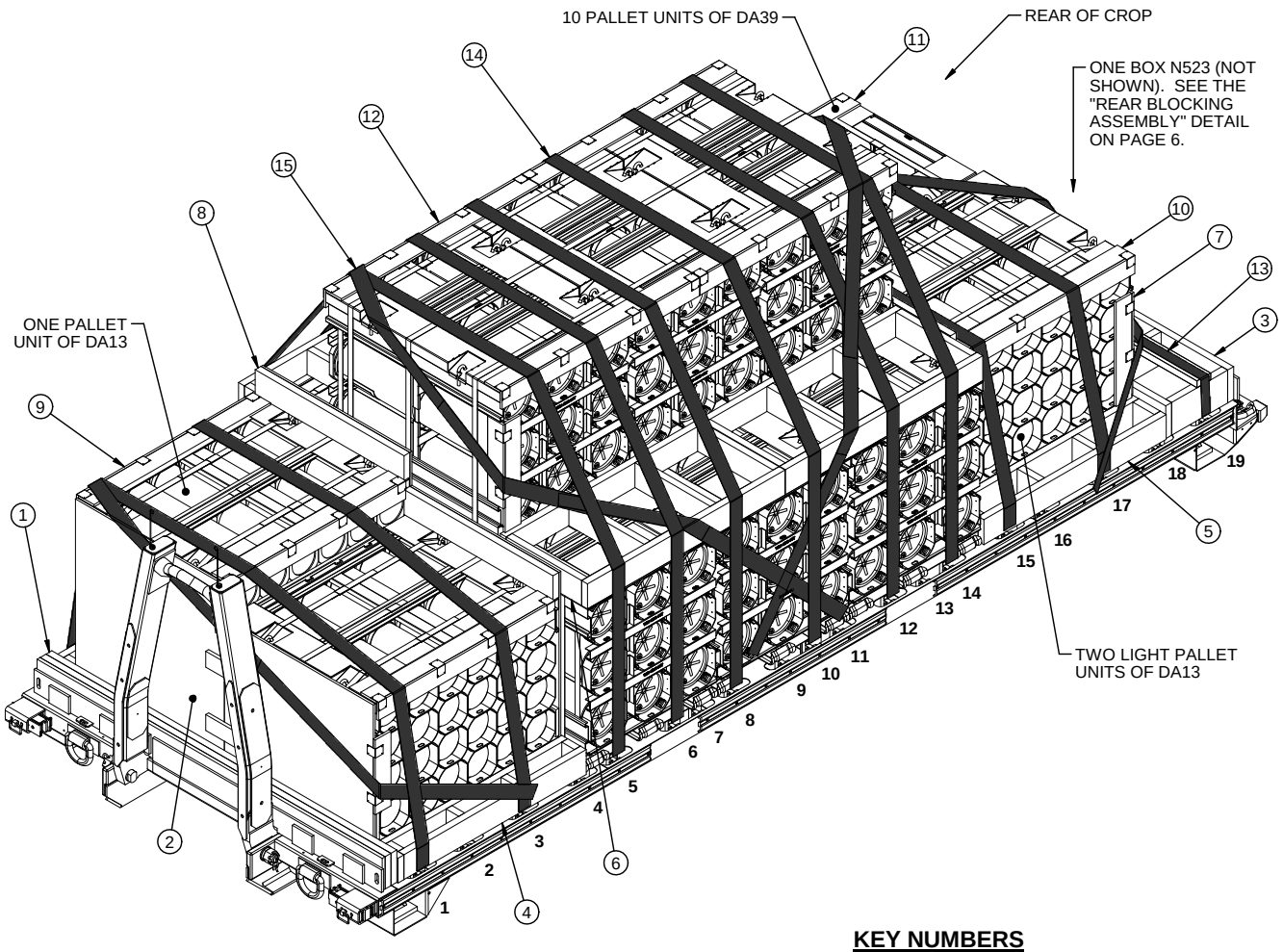
ENGINEERING DIRECTORATE	BEAVER.JERRY.W.1230949952	Digitally signed by BEAVER.JERRY.W.1230949952 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=BEAVER.JERRY.W.1230949952 Date: 2009.09.30 16:42:08 -05'00'	

CLASS	DIVISION	DRAWING	FILE
19	48	4905/52	CA17Q6

PROJECT CAP-TV 6/52-00



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 6.

② FORWARD END SUPPORT GATE (1 REQD). SEE DETAIL ON PAGE 10.

③ REAR BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 6.

④ SIDE BLOCKING ASSEMBLY A (2 REQD). SEE DETAIL ON PAGE 7.

⑤ SIDE BLOCKING ASSEMBLY B (2 REQD). SEE DETAIL ON PAGE 7.

⑥ SIDE BLOCKING ASSEMBLY C (4 REQD). SEE DETAIL ON PAGE 7.

⑦ CORNER STRAPPING ASSEMBLY (1 MACS AND 2 EXCALIBUR REQD). SEE DETAIL ON PAGE 9.

⑧ SEPARATOR ASSEMBLY (2 "A", 1 "B", AND 1 "C" REQD). INSTALL ONE SEPARATOR "A" BETWEEN EACH DA13 LIGHT PALLET UNIT AND ADJACENT DA39 PALLET UNIT, WITH CLEATS FACING THE DA13 LIGHT PALLET UNIT. INSTALL SEPARATOR "B" BETWEEN REARMOST DA39 PALLET UNIT AND ADJACENT DA39 PALLET UNIT, WITH CLEATS FACING THE REAR OF THE CROP. INSTALL SEPARATOR "C" BETWEEN THE DA13 PALLET UNIT AND ADJACENT DA39 PALLET UNIT, WITH CLEATS FACING FORWARD END OF CROP. SEE DETAILS ON PAGE 8.

⑨ FORWARD END STRAPPING ASSEMBLY (3 REQD). INSTALL ON BOTH EDGES OF DA13 PALLET UNIT AND OUTER EDGE OF DA13 LIGHT PALLET UNIT. SEE DETAIL ON PAGE 9.

⑩ AFT END STRAPPING ASSEMBLY A (1 REQD). SEE DETAIL ON PAGE 9.

⑪ AFT END STRAPPING ASSEMBLY B (1 REQD). SEE DETAIL ON PAGE 9.

⑫ CENTER STRAPPING ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 9.

⑬ RETAINER STRAP, 2" WIDE WEB STRAP TIEDOWN ASSEMBLY (1 REQD). INSTALL TO EXTEND FROM THE NINETEENTH TIEDOWN ANCHOR ON ONE SIDE OF THE CROP, OVER THE TOP OF THE REAR BLOCKING ASSEMBLY STRAPPING BOARD, TO THE NINETEENTH TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP.

⑭ HOLD-DOWN STRAP, 3" WIDE WEB STRAP TIEDOWN ASSEMBLY (10 REQD). INSTALL EACH HOLD-DOWN STRAP TO EXTEND FROM THE DESIGNATED TIEDOWN ANCHOR ON ONE SIDE OF CROP, OVER THE TOP OF THE PALLET UNITS, TO THE CORRESPONDING TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP.

⑮ HOLD-DOWN STRAP, 3" WIDE WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH HOLD-DOWN STRAP TO EXTEND FROM THE DESIGNATED TIEDOWN ANCHOR ON ONE SIDE OF CROP, AROUND THE END AND OVER THE TOP OF THE DESIGNATED PALLET UNITS, TO THE DESIGNATED TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP.

GENERAL NOTES

A. THIS APPENDIX CANNOT STAND ALONE, BUT MUST BE USED IN CONJUNCTION WITH THE BASIC LOADING PROCEDURES DRAWING 19-48-4905-CA17Q6. TO PRODUCE AN APPROVED 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. THE OUTLOADING PROCEDURES DEPICTED IN THIS DRAWING ARE APPLICABLE TO LOADS OF SCL #52. SEE PAGES 4 AND 5 FOR DETAILS OF THE BOX AND PALLET UNITS. A M3A1 (HYUNDAI) CROP IS SHOWN AS TYPICAL. OTHER MANUFACTURER'S CROPS CAN BE USED FOR THE LOAD SHOWN ON PAGE 2. THE SEQUENTIAL LOADING PROCEDURES DEPICTED AT RIGHT DESCRIBE THE SEQUENCE USED TO LOAD A M3A1 CROP. FOR A M3 (SUMMA) CROP, SEQUENTIAL LOADING PROCEDURES 2 THRU 8 MUST BE REVERSED. ACTUAL CROP CONFIGURATION WILL DETERMINE WHETHER THE SEQUENTIAL LOADING STARTS AT THE AFT OR THE FORWARD END OF THE CROP.

C. THE LOADING PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR OUTLOADING SIMILAR SCL LOADS WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN WHAT IS SHOWN ON PAGE 4, PROVIDED THE OVERALL PALLET UNIT DIMENSIONS DO NOT VARY FROM WHAT IS DELINEATED HEREIN.

D. LIGHT PALLET UNITS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDELINES DELINEATED IN THE BASIC UNITIZATION PROCEDURES DRAWING APPLICABLE TO THAT PALLET UNIT.

E. DIMENSIONS, CUBE AND WEIGHT OF THE PALLET UNITS WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE CONTAINERS AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.

F. DIMENSIONS GIVEN FOR DUNNAGE ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY. PALLET UNITS MUST FIT SNUGLY AGAINST THE DUNNAGE ASSEMBLIES. THIS GUIDANCE MUST BE APPLIED PRIOR TO BEGINNING AN OUTLOADING OPERATION. ALSO, DUE TO VARIATION OF PALLET UNIT DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES ON DUNNAGE ASSEMBLIES.

G. ALL WEB STRAP TIEDOWN ASSEMBLIES MUST HAVE THE EXCESS LENGTH OF THE STRAP SECURED. ROLL UP AND BUNDLE THE EXCESS LENGTH OF WEB STRAP, SECURING WITH CABLE TIES. SEE THE "STRAP END SECUREMENT" DETAIL AND GENERAL NOTE "K.12" IN THE BASIC PROCEDURE DRAWING 19-48-4905-CA17Q6.

H. EACH END OF THE SIDE BLOCKING ASSEMBLIES MUST BE SECURED BY NAILING A 10d NAIL THRU A 3" WEBSTRAP HOOK SLOT. SEE THE "STRAP HOOK DETAIL" AND GENERAL NOTE "G.2" IN THE BASIC PROCEDURE DRAWING 19-48-4905-CA17Q6.

J. THE METAL CORNER BRACKETS USED IN THE FORWARD END SUPPORT GATE MUST BE SIGNODE MODEL 7 OR EG3A OR EQUIVALENT.

K. 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.

RECOMMENDED SEQUENTIAL PROCEDURES

1. PREFABRICATE FORWARD BLOCKING ASSEMBLY, REAR BLOCKING ASSEMBLY, TWO SIDE BLOCKING ASSEMBLIES "A", TWO SIDE BLOCKING ASSEMBLIES "B", FOUR SIDE BLOCKING ASSEMBLIES "C", TWO SEPARATOR ASSEMBLIES "A", ONE SEPARATOR ASSEMBLY "B", ONE SEPARATOR ASSEMBLY "C", FOUR CORNER STRAPPING ASSEMBLIES, THREE FORWARD END STRAPPING ASSEMBLIES, ONE AFT END STRAPPING ASSEMBLY "A", ONE AFT END STRAPPING ASSEMBLY "B", AND FOUR CENTER STRAPPING ASSEMBLIES.
2. INSTALL THE REAR BLOCKING ASSEMBLY AGAINST THE REAR GATE OF THE CROP, WITH THE N523 WOODEN BOX PLACED INSIDE.
3. LOAD ONE DA13 LIGHT PALLET UNIT AND THE FORWARD DA39 PALLET UNIT TIGHT AGAINST REAR BLOCKING ASSEMBLY. PLACE ONE SIDE BLOCKING ASSEMBLY B ON EACH SIDE OF THE ROW OF PALLET UNITS AND CENTER ROW ON CROP.
4. INSTALL SEPARATOR ASSEMBLIES (SEE KEY NUMBER 7 ON PAGE 2).
5. LOAD THREE ROWS OF TWO DA39 PALLET UNITS TIGHT AND CENTERED AGAINST PRIOR ROW OF PALLET UNITS. LOAD LAST THREE DA39 PALLET UNITS CENTERED ON TOP OF PRIOR DA39 PALLET UNITS, AND PLACE TWO OF SIDE BLOCKING ASSEMBLY C ON EACH SIDE OF THE TOP PALLET UNITS.
6. INSTALL SEPARATOR ASSEMBLIES (SEE KEY NUMBER 7 ON PAGE 2).
7. LOAD THE DA13 PALLET UNIT AND ONE DA13 LIGHT PALLET UNIT TIGHT AND CENTERED AGAINST THE DA39 PALLET UNITS, AND PLACE ONE SIDE BLOCKING ASSEMBLY A ON EACH SIDE OF THE ROW.
8. INSTALL THE FORWARD BLOCKING ASSEMBLY, PLYWOOD SUPPORT PIECES AND FILLER PIECES AND NAIL W/2-12d NAILS THRU THE CROP END GATE, LEAVING THE NAIL HEADS PROTRUDING TO PROVIDE LATERAL AND VERTICAL RESTRAINT.
9. INSTALL THE STRAPPING ASSEMBLIES AND THE 2" AND 3" STRAPS AS SHOWN ON PAGE 2.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 8"	7	5
2" X 4"	19	13
2" X 6"	110	110
2" X 8"	47	62
NAILS	**NO. REQD**	**POUNDS**
6d (2")	176	1
10d (3")	350	5-1/2

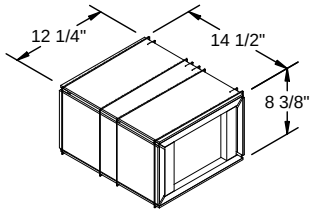
CORNER BRACKET - - - - - 44 REQD - - - 4.40 LBS
PLYWOOD, 1/2" - 93.71 SQ FT REQD - - 128.85 LBS
2" WIDE WEB STRAP - - - - 1 REQD - - - 5.50 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
DA13 PALLET UNIT	1	1,835 LBS
DA13 LIGHT PALLET UNIT	2	3,010 LBS
DA39 PALLET UNIT	10	16,490 LBS
N523 BOX	1	34 LBS
DUNNAGE		524 LBS
CROP		3,800 LBS
	TOTAL WEIGHT	25,693 LBS

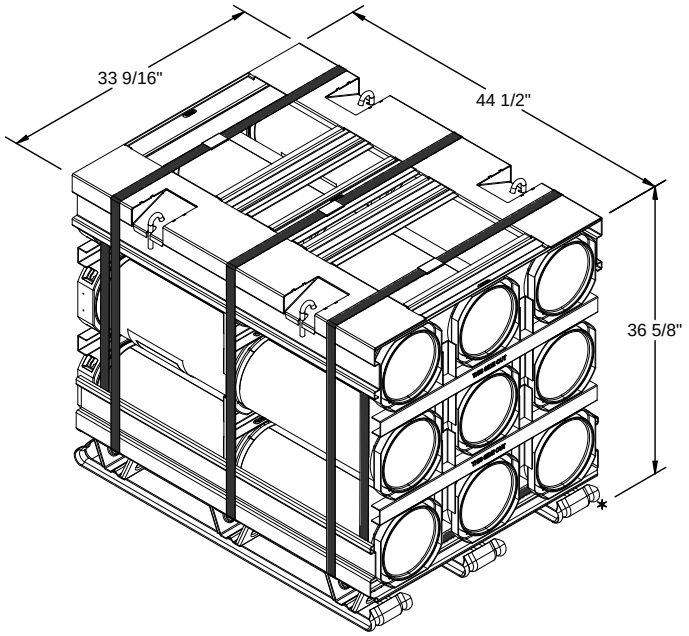
SCL #52 COMPOSITION CHART

DODIC	NSN	NOMENCLATURE	UNIT DWG	REQD	UNITS REQD	HC
DA13	1320-01-457-4063	MODULAR ARTILLERY CHARGE SYSTEM (MACS), M232	4326/50A	150	1 PALLET	1.3C
DA13	1320-01-457-4063	MODULAR ARTILLERY CHARGE SYSTEM (MACS), M232	4326/50A	240	2 LIGHT PLTS	1.3C
DA39	1320-01-534-2535	PROJ, 155MM HE-ER PG UNITARY M982 EXCALIBUR	4231/55	90	10 PALLETS	1.1D
N523	1390-01-481-2024	PRIMER, PERCUSSION M82	4116/158G	200	1 BOX	1.4S



N523 BOX

GROSS WEIGHT - - - - - - - - - 34 LBS (APPROX)
CUBE - - - - - - - - - - - - - 0.9 CU FT (APPROX)



DA39 PALLET UNIT

GROSS WEIGHT - - - - - - - - - 1,649 LBS (APPROX)
CUBE - - - - - - - - - - - - - 31.7 CU FT (APPROX)

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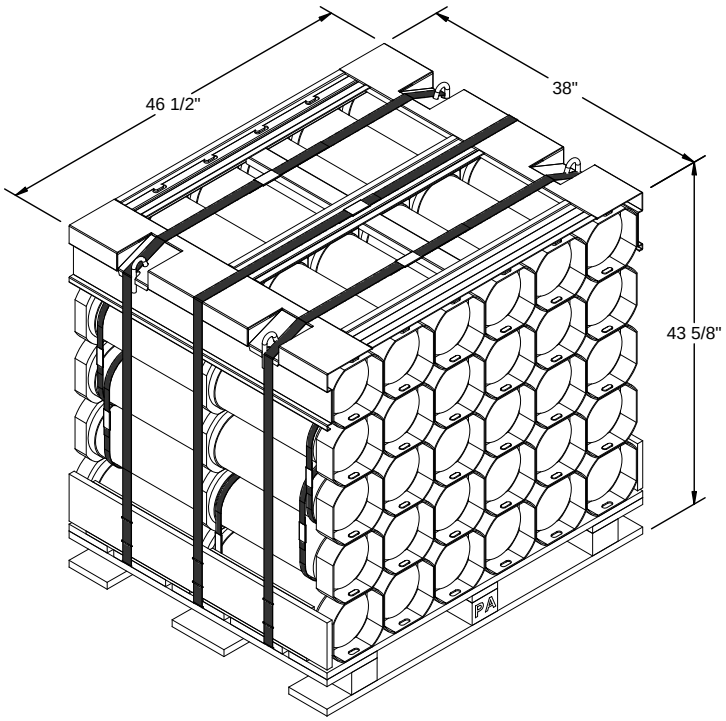
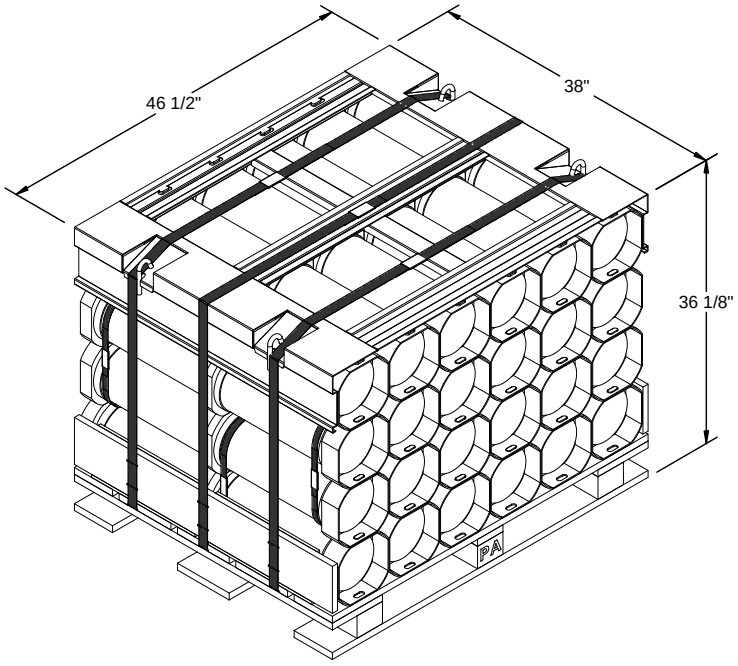


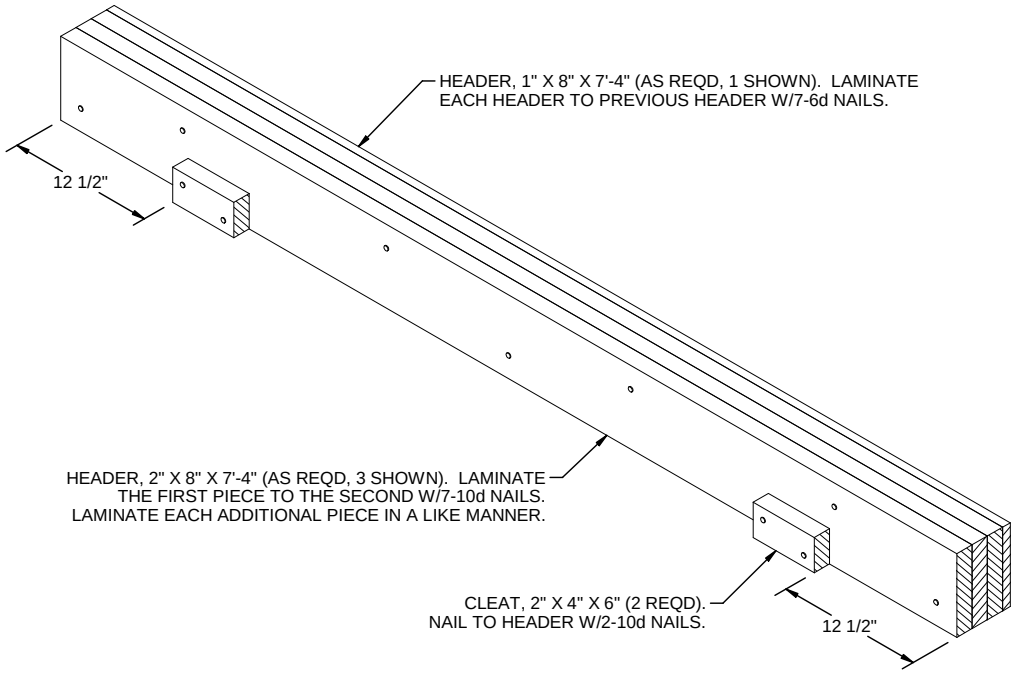
DA13 PALLET UNIT

GROSS WEIGHT - - - - - - - - - 1,835 LBS (APPROX)
CUBE - - - - - - - - - - - - - 44.6 CU FT (APPROX)

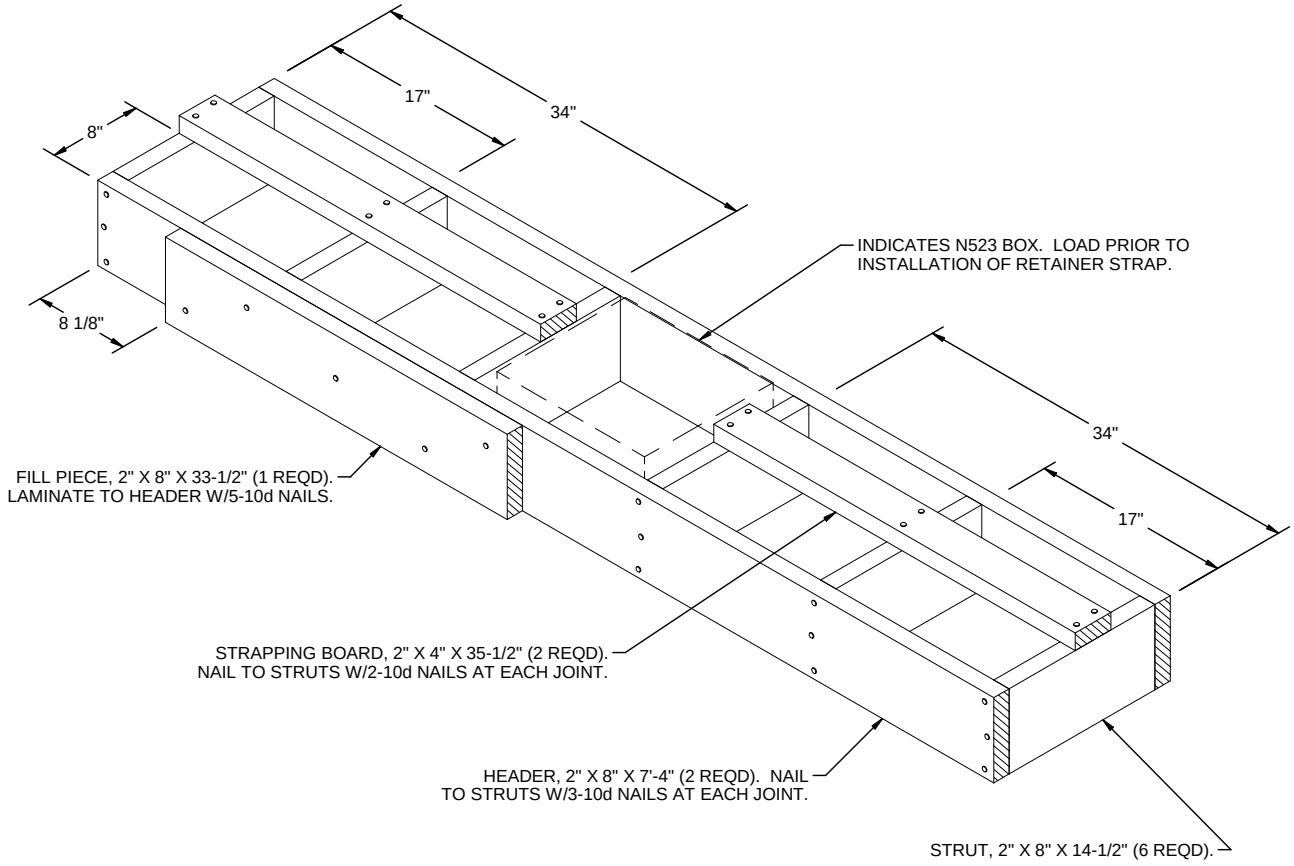


DA13 LIGHT PALLET UNIT

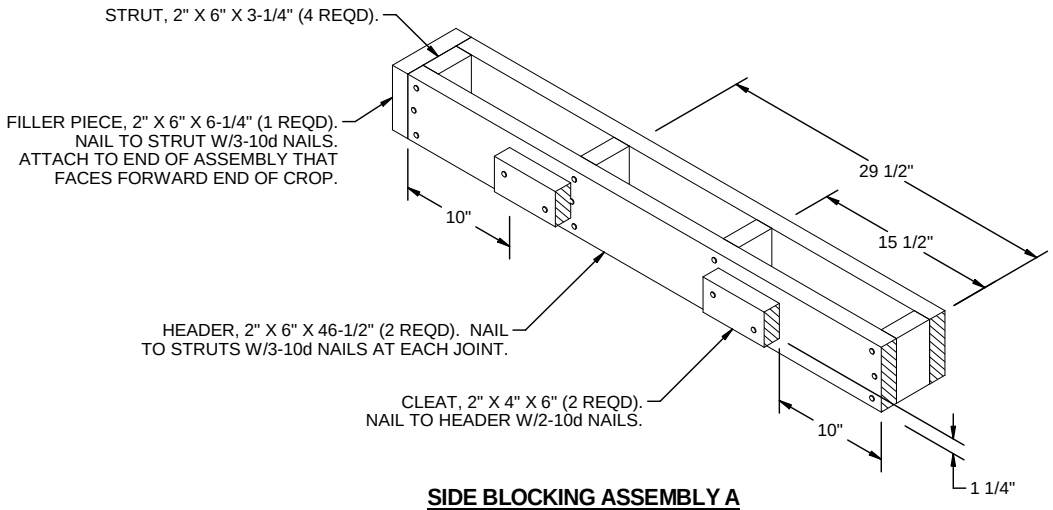
GROSS WEIGHT - - - - - - - - - 1,505 LBS (APPROX)
CUBE - - - - - - - - - - - - - 37.0 CU FT (APPROX)



FORWARD BLOCKING ASSEMBLY

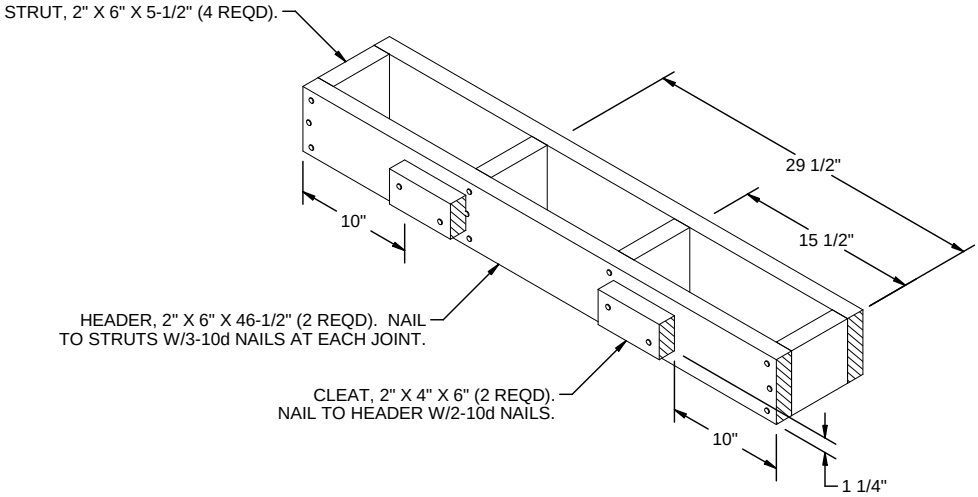


REAR BLOCKING ASSEMBLY

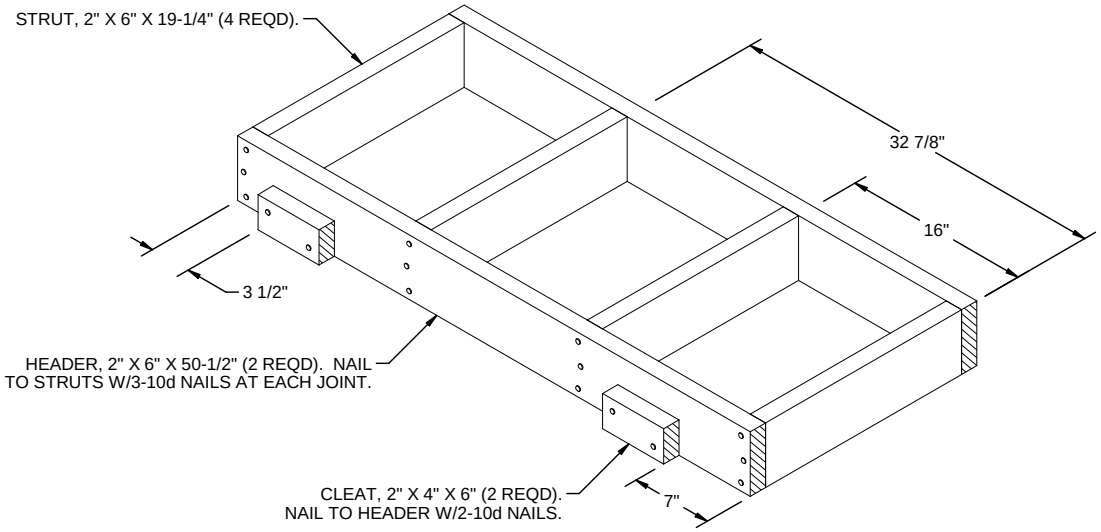


SIDE BLOCKING ASSEMBLY A

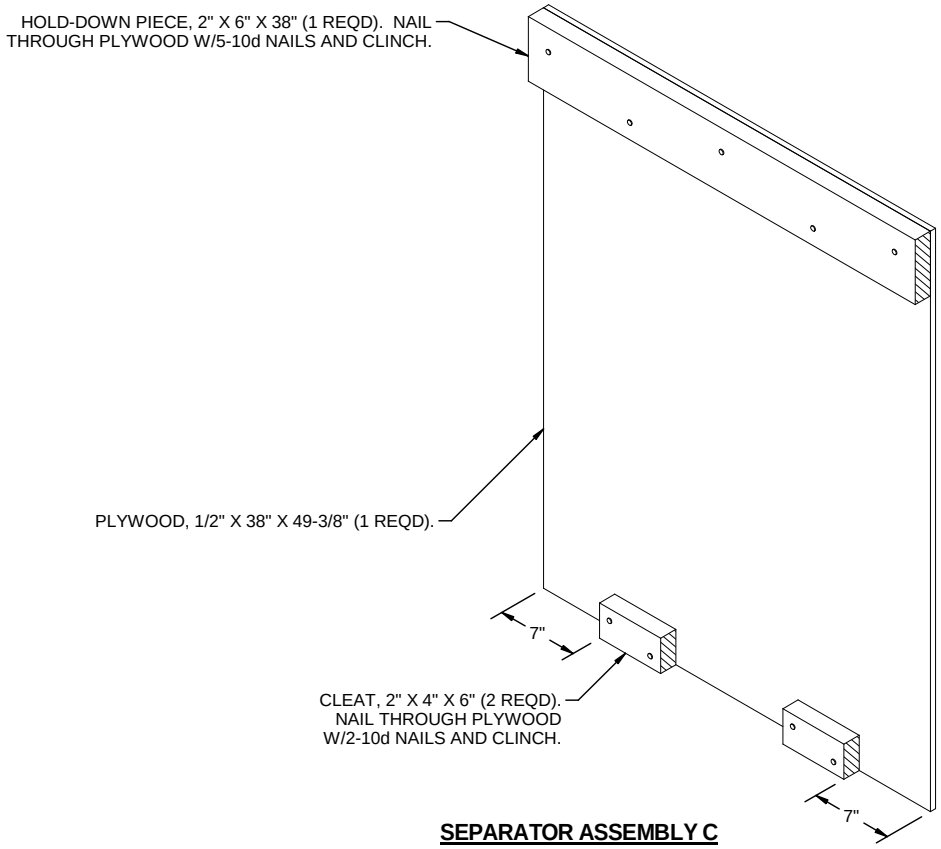
(A LEFT HAND ASSEMBLY IS DEPICTED ABOVE, A RIGHT HAND ASSEMBLY IS ALSO NEEDED)



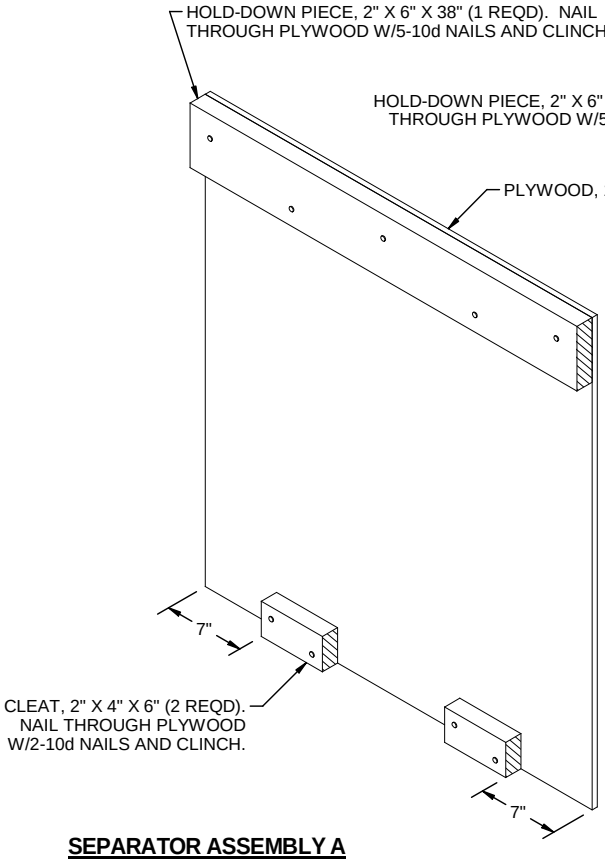
SIDE BLOCKING ASSEMBLY B



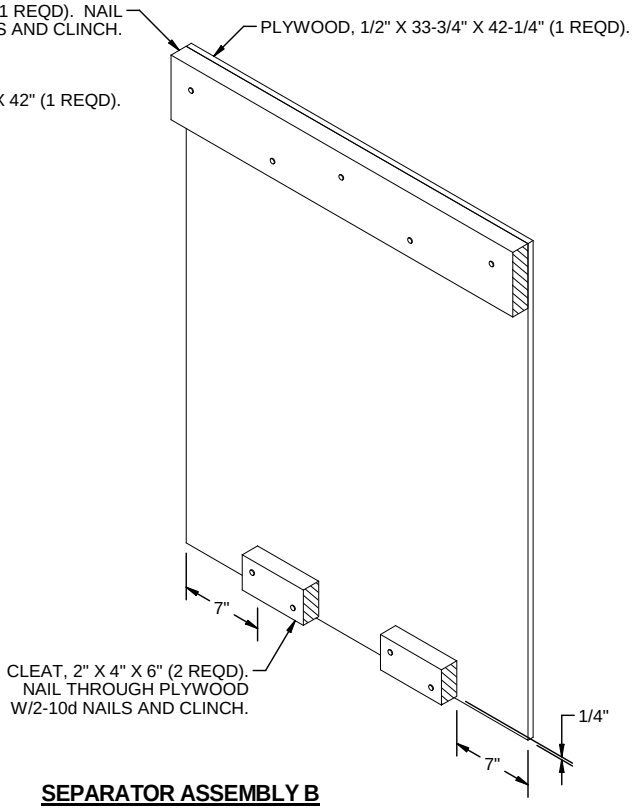
SIDE BLOCKING ASSEMBLY C



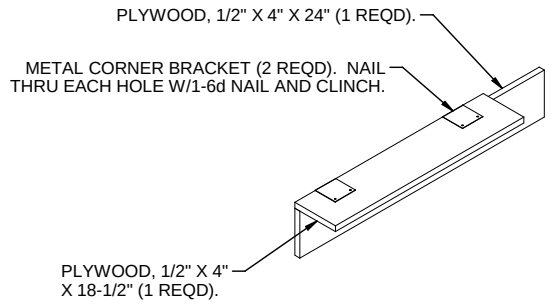
SEPARATOR ASSEMBLY C



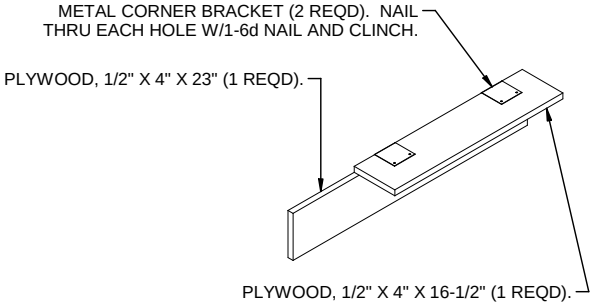
SEPARATOR ASSEMBLY A



SEPARATOR ASSEMBLY B

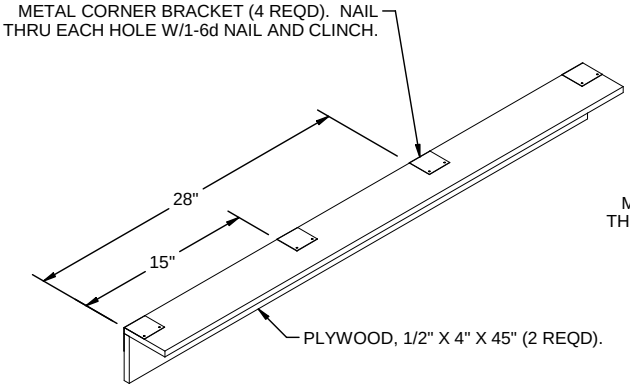


EXCALIBUR

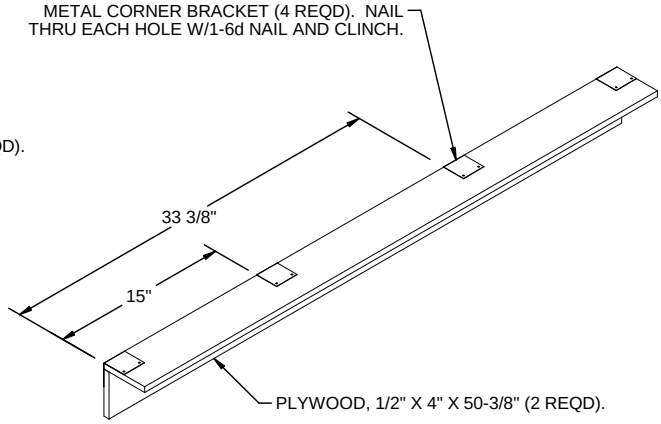


MACS

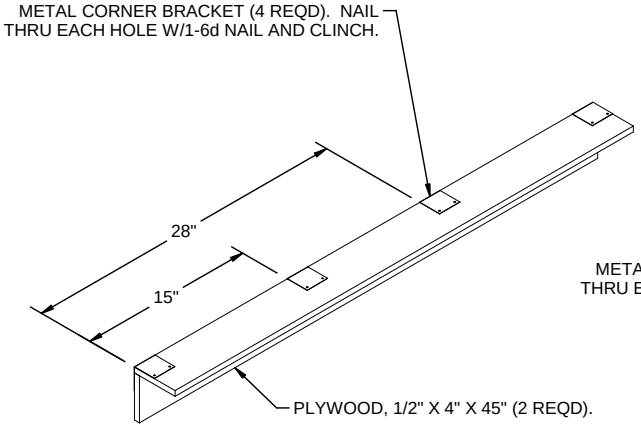
CORNER STRAPPING ASSEMBLY



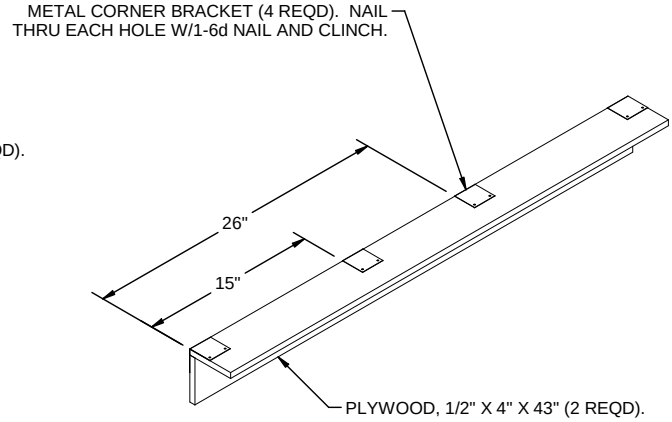
FORWARD END STRAPPING ASSEMBLY



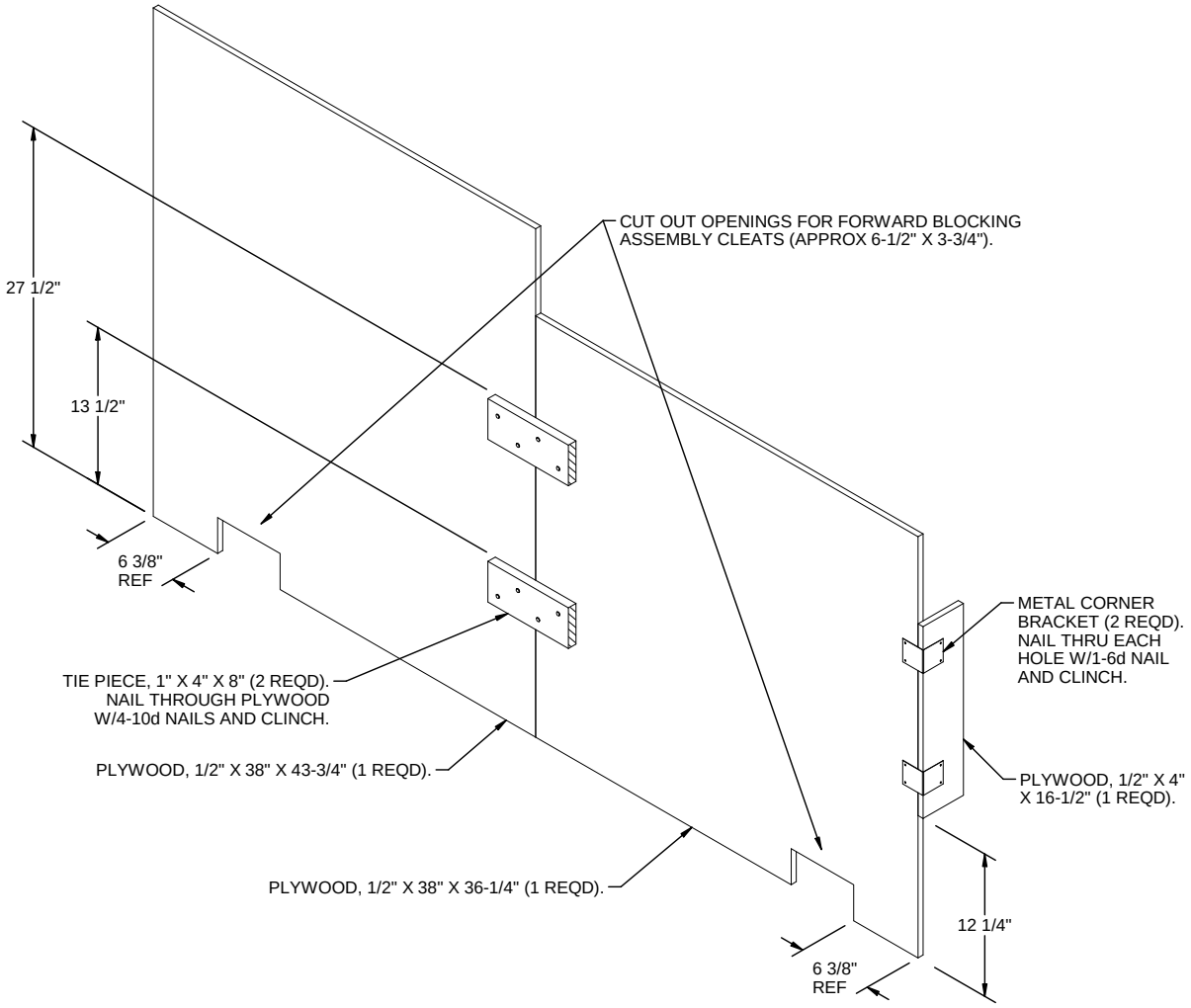
CENTER STRAPPING ASSEMBLY



AFT END STRAPPING ASSEMBLY A



AFT END STRAPPING ASSEMBLY B



FORWARD END SUPPORT GATE