LOADING AND BRACING⊕ IN SIDE OPENING ISO CONTAINERS OF GBU-31(V) 1/B AND 3/B BULK PACK COMPONENTS, KMU-572 C/B, DSU-33B/B, AND NOSE PLUGS

INDEX

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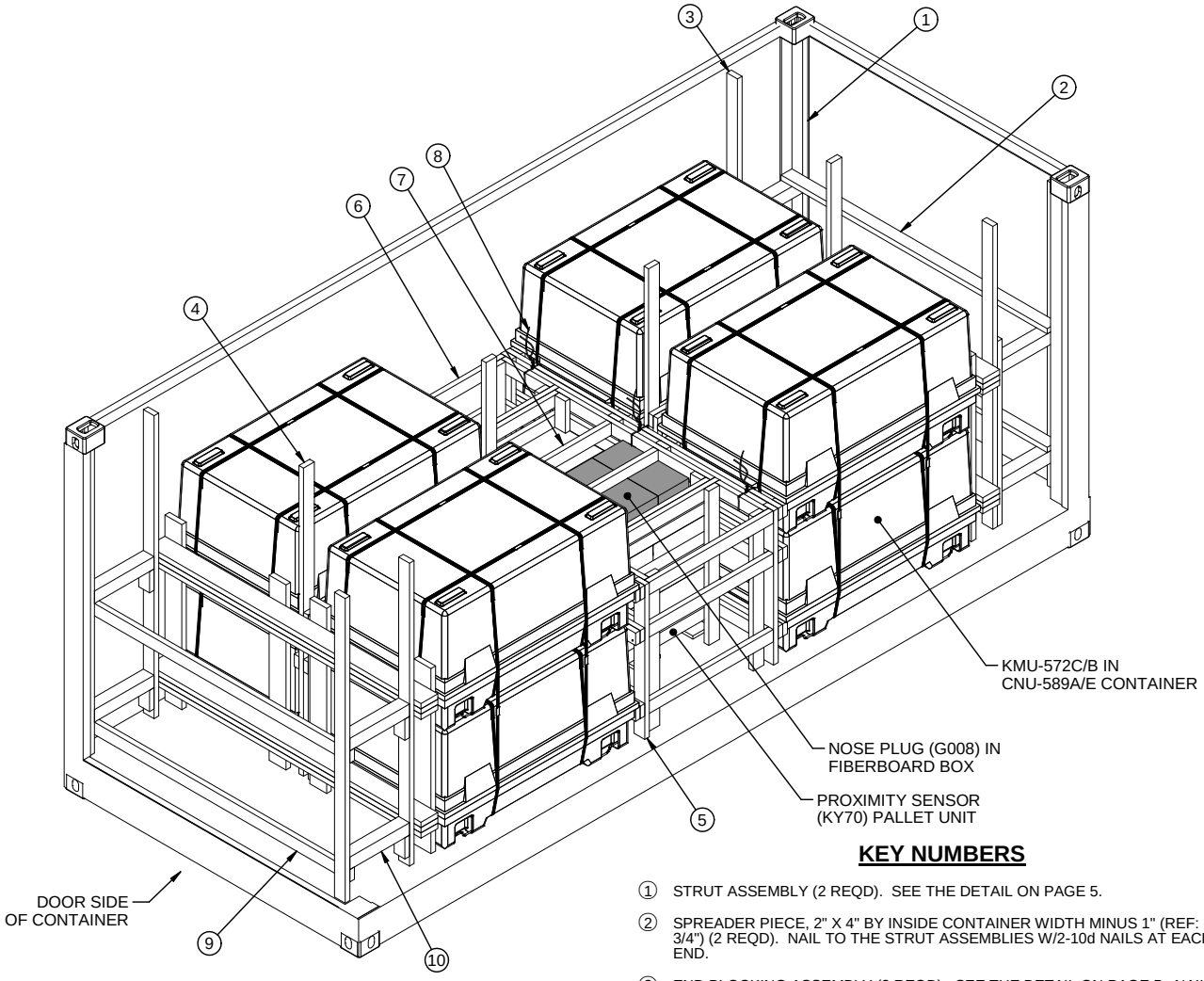
CLASS	DIVISION	DRAWING	FILE
19	48	8871	SP15M21

PROJECT SP 570-12



ISOMETRIC VIEW

KEY NUMBERS

① STRUT ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.

② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-2-3/4") (2 REQD). NAIL TO THE STRUT ASSEMBLIES W/2-10d NAILS AT EACH END.

③ END BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5. NAIL THROUGH THE BUFFER PIECES OF THE RIGHT END BLOCKING ASSEMBLY INTO THE VERTICAL PIECE OF THE STRUT ASSEMBLIES W/5-10d NAILS. **NOTE:** STRUT LEDGERS ARE ONLY REQUIRED ON THE LEFT END BLOCKING ASSEMBLY. DO NOT INSTALL STRUT LEDGERS ON THE RIGHT END BLOCKING ASSEMBLY.

④ CRIB FILL ASSEMBLY B (2 REQD). SEE THE DETAIL ON PAGE 6.

⑤ SEPARATOR GATE (2 REQD). SEE DETAIL ON PAGE 7. POSITION SEPARATOR GATE AS SHOWN.

⑥ CRIB FILL ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 6.

⑦ FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 7.

⑧ TIE WIRE, .0800" DIA WIRE 24" LONG (6 REQD, 2 PER CRIB FILL ASSEMBLY "A" AND FILLER ASSEMBLY). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND THE TOP LATERAL PIECE OF THE CRIB FILL ASSEMBLY A AND THE TOP HORIZONTAL PIECE OF THE SEPARATOR GATE. ALSO, INSTALL WIRE TO FORM A COMLETE LOOP AROUND THE LONGITUDINAL PIECE OF THE FILLER ASSEMBLY AND THE HORIZONTAL PIECE OF THE SEPARATOR GATE. BRING ENDS TOGETHER AND TWIST TAUT. SECURE W/1-10d NAIL BENT OVER WIRE OR WITH A STRAP STAPLE.

⑨ END GATE (1 REQD). SEE THE DETAIL ON PAGE 5.

⑩ STRUT, 4" X 4" BY CUT-TO-FIT (REF: 20") (4 REQD). TOENAIL TO THE VERTICAL PIECES OF THE LEFT END BLOCKING ASSEMBLY AND OF THE END GATE W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 4.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2″ X 4″	360	240
2″ x 6″	124	124
4″ X 4″	13	17
NAILS	NO. REQD	POUNDS
10d (3″)	474	7 1/4
12d(3-1/4″)	32	1/2
WIRE, .0800″ DIA GAGE - - - 12′ REQD - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PROX SENSOR PALLET UNIT	1	1,096 LBS
CNU-589A/E CONTAINER WITH EC45	8	9,896 LBS
G008 BOX	4	216 LBS
DUNNAGE		770 LBS
TOTAL WEIGHT		11,978 LBS (APPROX)

PROJECT SP 570-12

GENERAL NOTES

A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).

B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF GBU-31(V) 1/B AND 3/B BULK PACK COMPONENTS, KMU-572 C/B, DSU-33B/B, AND NOSE PLUGS. SUBSEQUENT REFERENCE TO CONTAINERS HEREIN MEANS THE CONTAINERS WITH THE GBU-31(V) 1/B AND 3/B COMPONENTS. SEE NAVY DRAWING 6214068 AND SPI F01-394-8480 FOR DETAILS OF THE CONTAINERS AND PALLET UNIT. **CAUTION:** REGARDLESS OF THE QUANTITY OF CONTAINERS AND PALLET UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.

C. THE LOAD AS SHOWN IS BASED ON A 6,500 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-6-1/4" LONG BY 90" WIDE BY 89" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE DIFFERENT INSIDE MEASUREMENTS, VERIFY INSIDE CONTAINER DIMENSIONS PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. **NOTICE:** OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN BE USED.

D. WHEN LOADING CONTAINERS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-1/2". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE HORIZONTAL PIECES ON THE CRIB FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS, OR QUANTITY OF THE VERTICAL OR HORIZONTAL PIECES IN THE CRIB FILL ASSEMBLIES MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINERS. THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL. EXCESSIVE SLACK CAN BE ELIMINATED BY INCREASING THE LENGTH OF THE STRUTS.

E. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

F. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

G. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE END GATE OR STRUT ASSEMBLIES TO PROVIDE A FLAT SURFACE FOR THE BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3" OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER ENDWALLS, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.

H. WHETHER A CONTAINER IS FULL OR IS LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CONTAINER.

J. **CAUTION:** DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.

K. **MAXIMUM LOAD WEIGHT CRITERIA:**

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

L. REQUIREMENTS CITED WITHIN THE ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:

1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.

2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

M. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.

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. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.

P. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN IN THE “TYPICAL STRUT BRACING” DETAIL ON PAGE 73 OF DRAWING AMC 19-48-4267-15PA1009. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 48". THE LENGTH OF THE LOAD-BLOCKING STRUTS SHOULD BE KEPT AS SHORT AS POSSIBLE (APPROX 18" MINIMUM), BUT IN THE EVENT IT IS NECESSARY TO USE STRUTS WHICH ARE 8'-0" OR MORE IN LENGTH, IT WILL BE NECESSARY TO APPLY AN ADDITIONAL SET OF HORIZONTAL AND VERTICAL STRUT BRACING PIECES. STRUT BRACING SHOULD BE APPLIED SO AS TO PROVIDE NEARLY EQUAL SPACES BETWEEN THE BRACING PIECES AND THE CENTER GATES AND/OR BETWEEN ADJACENT STRUT BRACING PIECES. NOTE THAT HORIZONTAL STRUT BRACING PIECES FOR THE UPPER LEVEL OF STRUTS FOR ALL BUT THE UPPERMOST TIER OF A LOAD MAY BE DIFFICULT TO APPLY TO THE TOP SURFACES OF THE STRUT AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.

Q. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE TWO STRUT ASSEMBLIES, TWO END BLOCKING ASSEMBLIES (ONE LEFT AND ONE RIGHT), ONE FILLER ASSEMBLY, TWO CRIB FILL ASSEMBLIES “A”, TWO CRIB FILL ASSEMBLIES “B”, TWO SEPARATOR GATES, AND ONE END GATE.

2. INSTALL THE TWO STRUT ASSEMBLIES AND TWO SPREADER PIECES.

3. INSTALL THE RIGHT END BLOCKING ASSEMBLY.

4. INSTALL FOUR CNU-589 CONTAINERS WITH CRIB FILL ASSEMBLY “B”.

5. INSTALL THE SEPARATOR GATE.

6. INSTALL THE PALLET UNIT WITH TWO CRIB FILL ASSEMBLIES “A”, THE FILLER ASSEMBLY, AND FOUR FIBERBOARD BOXES.

7. REPEAT STEP 5.

8. REPEAT STEP 4.

9. INSTALL THE LEFT END BLOCKING ASSEMBLY.

10. INSTALL THE END GATE.

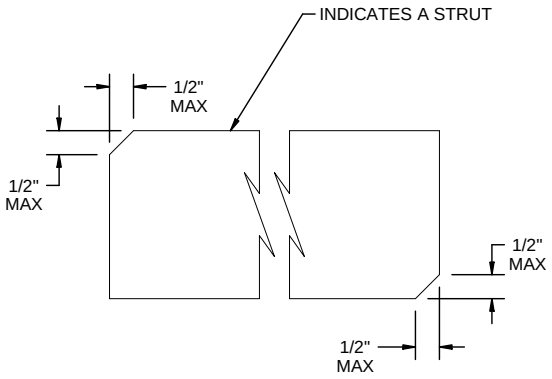
11. INSTALL THE FOUR STRUTS.

12. WIRE TIE THE CRIB FILL ASSEMBLIES “A” AND THE FILLER ASSEMBLY TO THE SEPARATOR GATES.

13. INSTALL FIBERBOARD BOXES INTO FILLER ASSEMBLY.

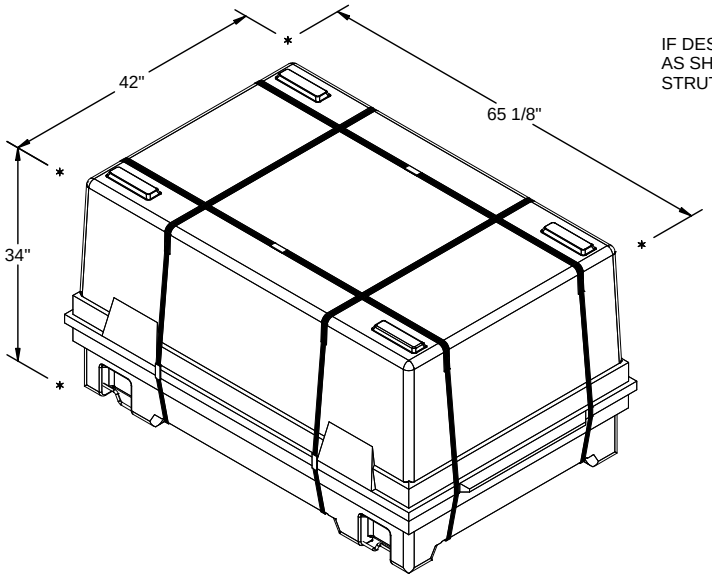
MATERIAL SPECIFICATIONS

LUMBER - - - - - - - -:	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
NAILS - - - - - - - -:	ASTM F1667; COMMON STEEL NAIL NLCMS OR NLCMMS).
WIRE, CARBON STEEL -:	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.
STAPLE - - - - - - - -:	ASTM F1667; STFCS-189 OR STFCS-207,15/16" OR 1" CROWN WIDTH X 3/4" LEG LENGTH FOR 3/4" STRAPPING, OR STFCS-224, 1-17/32" CROWN WIDTH X 3/4" LEG LENGTH FOR 1-1/4" STRAPPING.



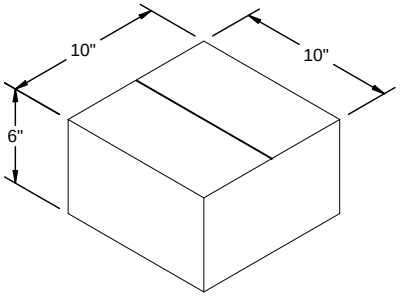
BEVEL CUT

IF DESIRED, EACH END OF A STRUT MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE INSTALLING THE STRUTS WITH A "DRIVE" FIT.



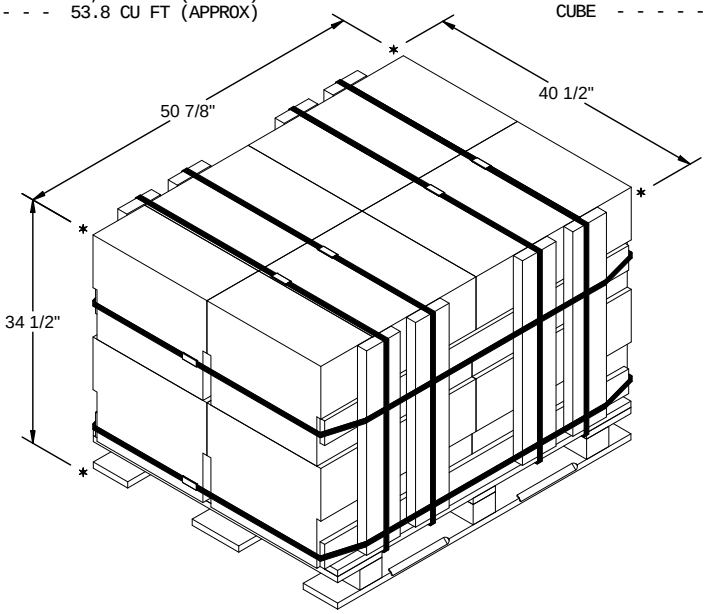
KMU-572C/B (EC45) IN CNU-589A/E CONTAINER

CNU-589 A/E CONTAINER WITH 6 EACH GUIDANCE SETS
GROSS WEIGHT - - - - - - - - - 1,237 LBS (APPROX)
CUBE - - - - - - - - - - - - - 53.8 CU FT (APPROX)



NOSE PLUG (G008) IN FIBERBOARD BOX

FIBERBOARD BOX WITH 12 EACH NOSE PLUGS
GROSS WEIGHT - - - - - 54 LBS (APPROX)
CUBE - - - - - - - - 0.35 CU FT (APPROX)



DSU-33 B/B PROXIMITY SENSOR (KY70) PALLET UNIT

PALLET UNIT WITH 48 SENSORS (2 PER M548 CONTAINER)
GROSS WEIGHT - - - - - - - - - - - - - 1,096 LBS
CUBE - - - - - - - - - - - - - - - - - - 41.1 CU FT

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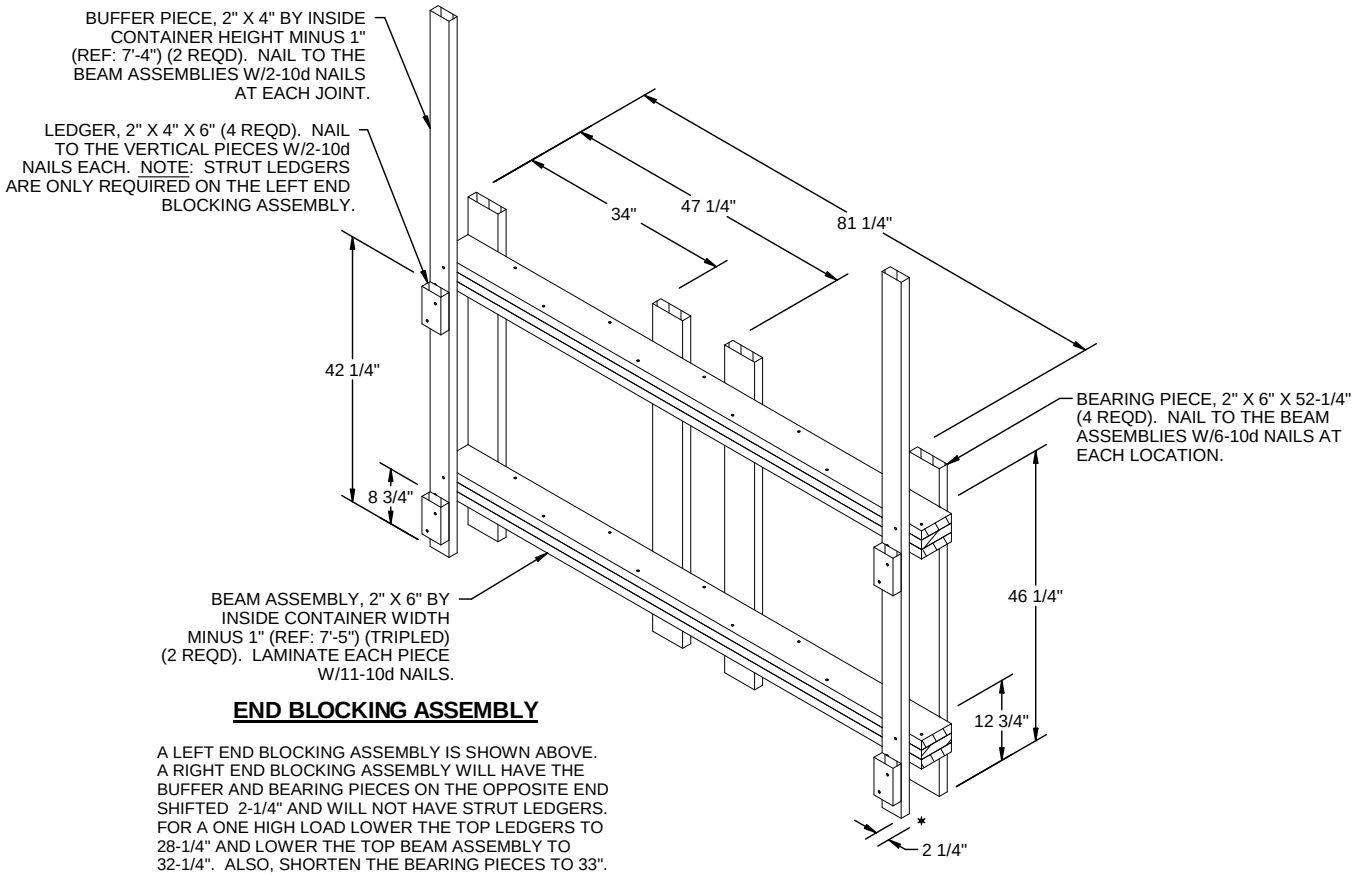
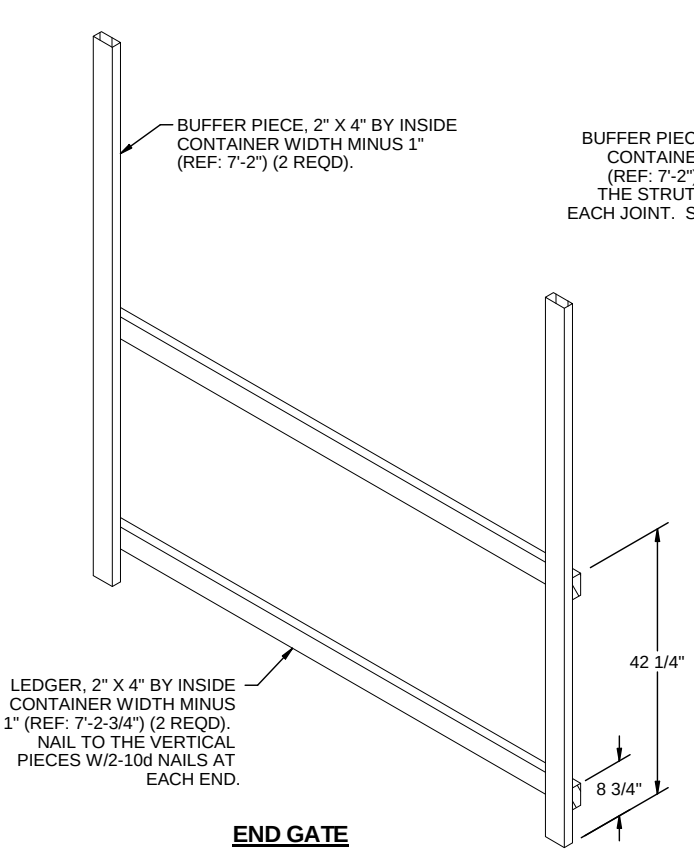


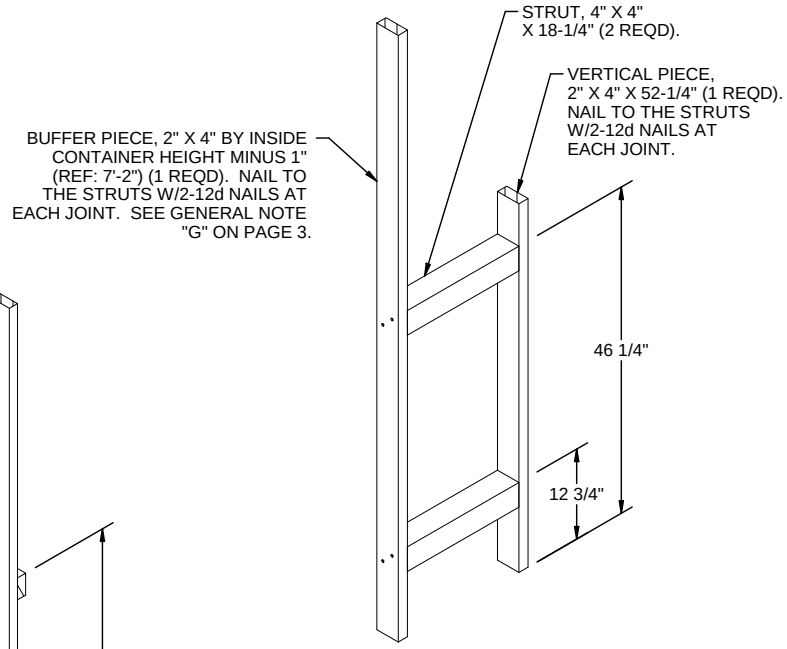
END BLOCKING ASSEMBLY

A LEFT END BLOCKING ASSEMBLY IS SHOWN ABOVE. A RIGHT END BLOCKING ASSEMBLY WILL HAVE THE BUFFER AND BEARING PIECES ON THE OPPOSITE END SHIFTED 2-1/4" AND WILL NOT HAVE STRUT LEDGERS. FOR A ONE HIGH LOAD LOWER THE TOP LEDGERS TO 28-1/4" AND LOWER THE TOP BEAM ASSEMBLY TO 32-1/4". ALSO, SHORTEN THE BEARING PIECES TO 33".



END GATE

FOR A ONE HIGH LOAD LOWER THE TOP LEDGER TO 28-1/4".



STRUT ASSEMBLY

FOR A ONE HIGH LOAD LOWER THE TOP STRUT TO 32-1/4" AND SHORTEN THE VERTICAL PIECE TO 38-1/4".

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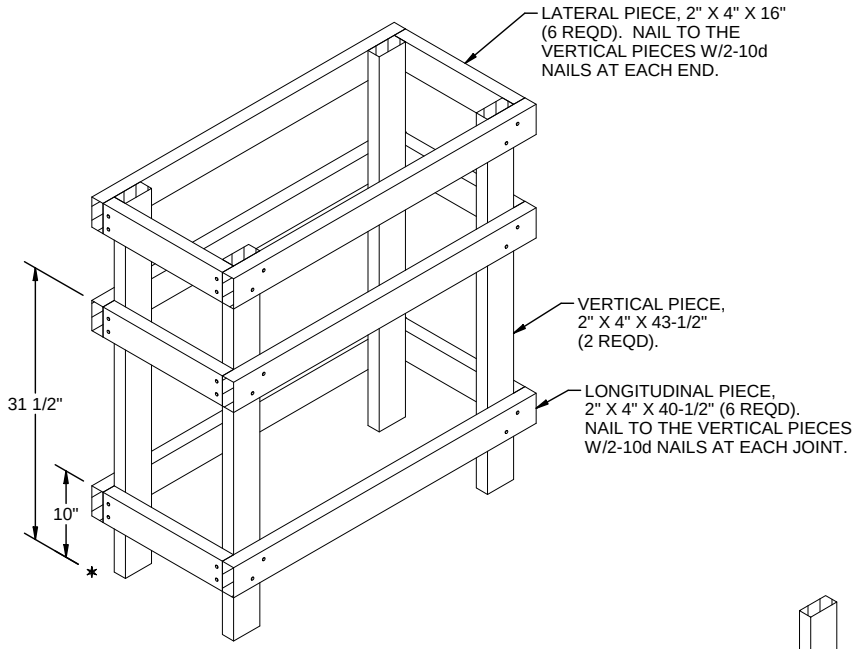
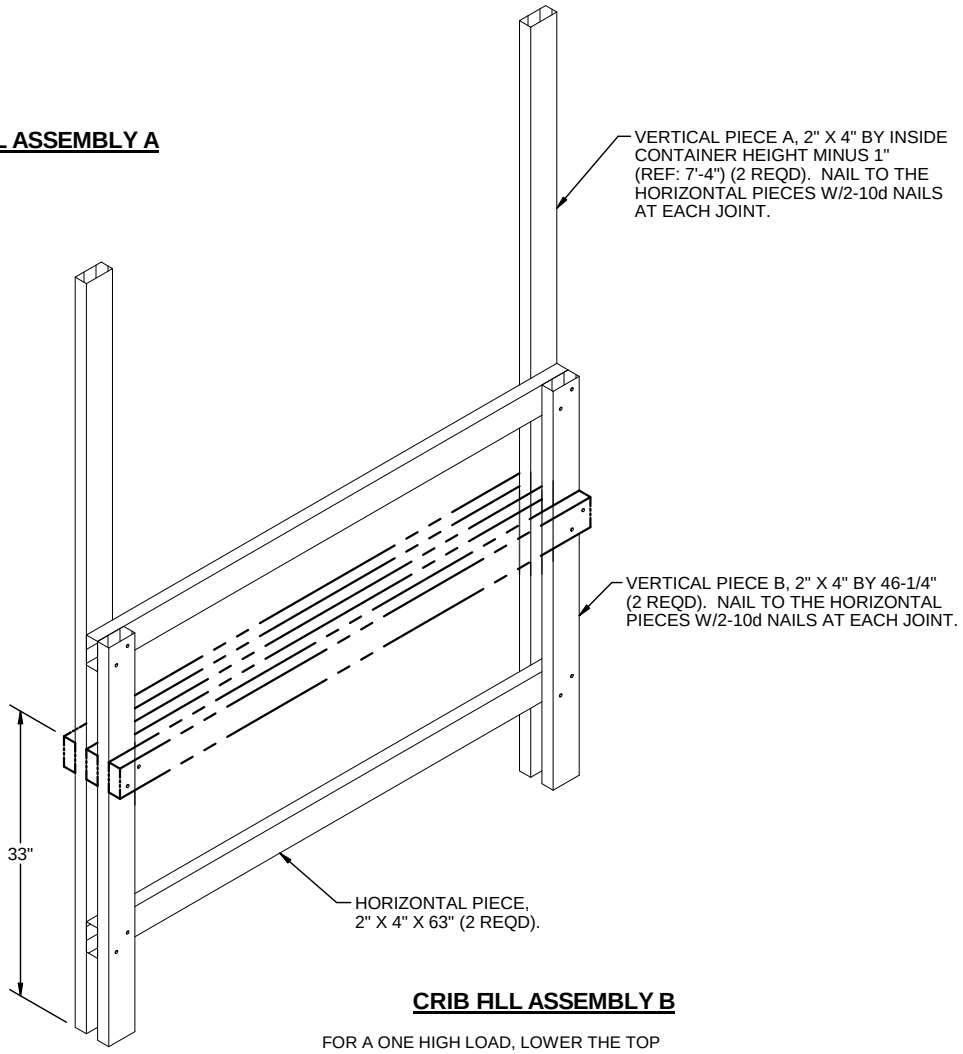
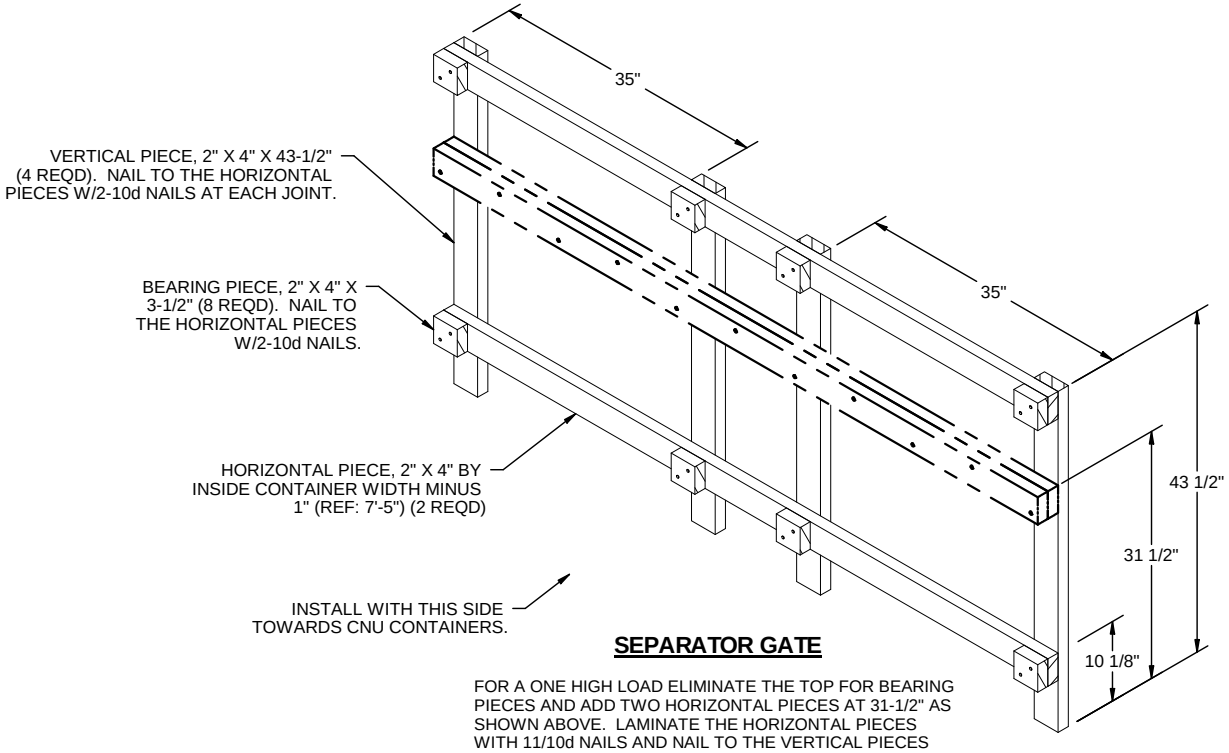


CRIB FILL ASSEMBLY A



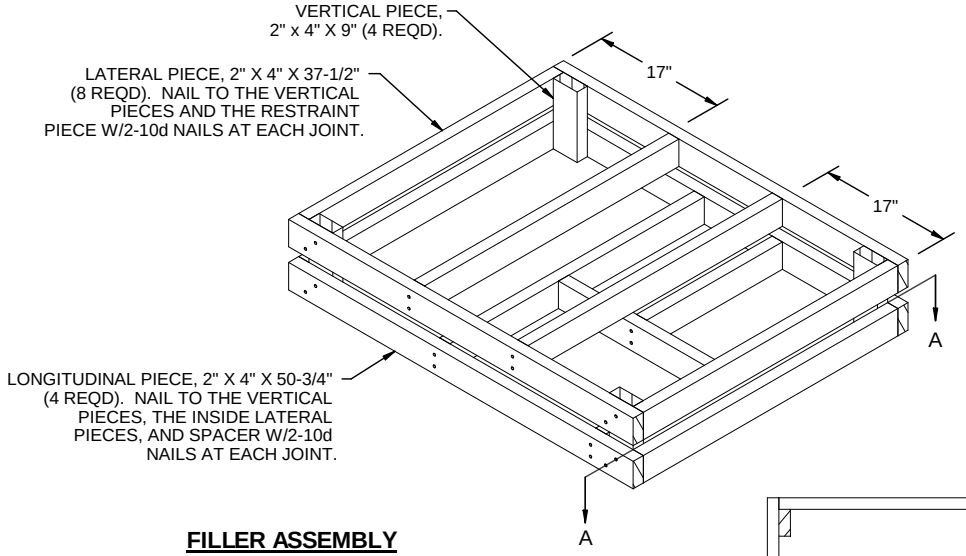
CRIB FILL ASSEMBLY B

FOR A ONE HIGH LOAD, LOWER THE TOP HORIZONTAL PIECE TO 33" AND ADD ADDITIONAL HORIZONTAL PIECES AS SHOWN WITH THE LOWERED TOP HORIZONTAL PIECE ABOVE.



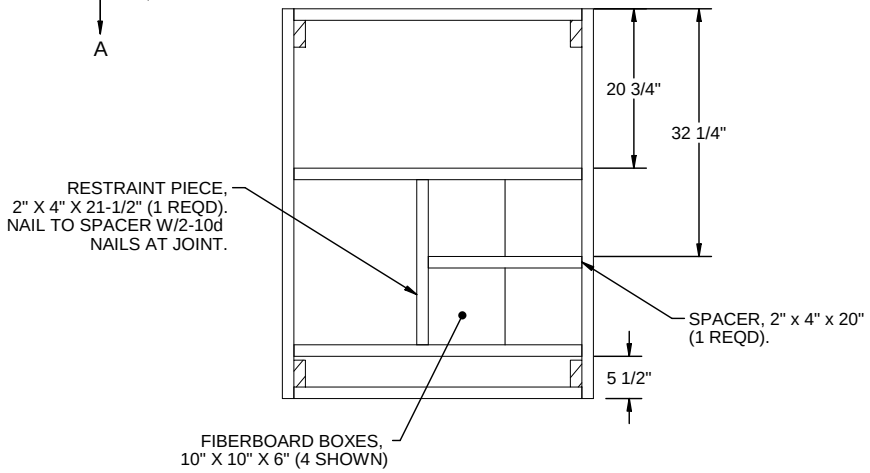
SEPARATOR GATE

FOR A ONE HIGH LOAD ELIMINATE THE TOP FOR BEARING PIECES AND ADD TWO HORIZONTAL PIECES AT 31-1/2" AS SHOWN ABOVE. LAMINATE THE HORIZONTAL PIECES WITH 11/10d NAILS AND NAIL TO THE VERTICAL PIECES WITH 2/10d NAILS AT EACH JOINT.



FILLER ASSEMBLY

SEE SECTION VIEW A-A AT RIGHT.



SECTION A-A

WITH FIBERBOARD BOXES

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