


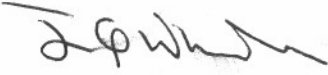
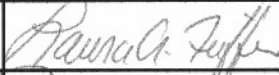

PATRIOT

LOADING AND BRACING (CL & LCL) IN KOREAN GONDOLA CARS OF PATRIOT MISSILES PACKED IN MISSILE CANISTERS

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
CANISTER DETAIL, AND UNITIZATION AND HANDLING PROCEDURAL GUIDANCE - - - - -	3
EIGHT CANISTER LOAD IN A KOREAN GONDOLA CAR - - - - -	4, 5
FOUR CANISTER LOAD IN A KOREAN GONDOLA CAR - - - - -	6, 7
THREE CANISTER LOAD IN A KOREAN GONDOLA CAR - - - - -	8, 9
DETAILS - - - - -	10-12

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND 	CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 12.				
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  U.S. ARMY DEFENSE AMMUNITION CENTER	DO NOT SCALE		SEPTEMBER 2006		
	ENGINEER OR TECHNICIAN	BASIC REV.	MELVIN SIX		
	TRANSPORTATION ENGINEERING DIVISION				
VALIDATION ENGINEERING DIVISION	TESTED	CLASS	DIVISION	DRAWING	
ENGINEERING DIRECTORATE		19	48	8228	GM5PA7

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO THE PATRIOT COMPLETE ROUND WHEN PACKED IN MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CONTAINER). REFERENCE TO CANISTER HEREIN MEANS THE CANISTER WITH MISSILE COMPONENTS.
- C. FOR DETAIL OF THE MISSILE CANISTER, SEE DRAWING NUMBER 11450000, AND THE "TYPICAL STACK DETAIL" ON PAGE 3.
- D. AMMUNITION SHIPPED IN KOREAN NATIONAL RAILWAY (KNR) GONDOLA CARS IS LIMITED TO A WEIGHT OF TWO-THIRDS CAR CAPACITY. KNR GONDOLAS HAVE A NOMINAL CAPACITY OF 50 METRIC TONS OR 110,000 POUNDS; TWO-THIRDS OF THIS IS 73,333 POUNDS. SHIPMENTS OF UNITED STATES OWNED AMMUNITION MUST NOT EXCEED 73,333 POUNDS. DUNNAGE IS NOT INCLUDED IN THIS LIMIT. THE WEIGHT REQUIREMENT IS ESTABLISHED BY PRESIDENTIAL DECREE 44-51 AND IS IMPLEMENTED BY KNR AND REPUBLIC OF KOREA ARMY RELATIONS.
- E. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENT, WILL BE SELECTED.
- F. THE OUTLOADING PROCEDURES SHOWN HEREIN ARE APPLICABLE FOR SHIPMENTS IN KOREAN GONDOLA CARS WHICH ARE 42'-9" (13,030MM) LONG BY 9'-5" (2,870MM) WIDE BY 52" (1,336MM) HIGH (INSIDE DIMENSIONS). THE PROCEDURES MAY BE ADJUSTED TO SUIT CARS OF OTHER SIZES.
- G. THE NUMBER OF CANISTERS MAY BE ADJUSTED TO FIT THE SIZE OF THE GONDOLA CAR BEING LOADED OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS CONTAINED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE CANISTERS. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE RAILCAR IN COMPLIANCE WITH WEIGHT DISTRIBUTION REQUIREMENTS.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN A CAR WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEMS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN.
- J. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF A NOMINAL SIZE, UNLESS OTHERWISE SPECIFIED. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE. SEE THE "LUMBER SIZE CONVERSION" CHART AT RIGHT FOR GUIDANCE. IF THOSE MEMBERS SPECIFICALLY IDENTIFIED AS STRUTS WITHIN THE KEY NUMBERS OF A DEPICTED LOAD ARE SPECIFIED TO BE 4" X 4" MATERIAL, IT IS PERMISSIBLE TO USE TWO LAMINATED PIECES OF 2" X 6" MATERIAL IN LIEU OF EACH 4" X 4" STRUT. DOUBLED 2" X 6" STRUTS WILL BE LAMINATED W/1-10d NAIL EVERY 6"
- K. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES, AND WHEN LAMINATING DUNNAGE. 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 INTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

(CONTINUED AT RIGHT)

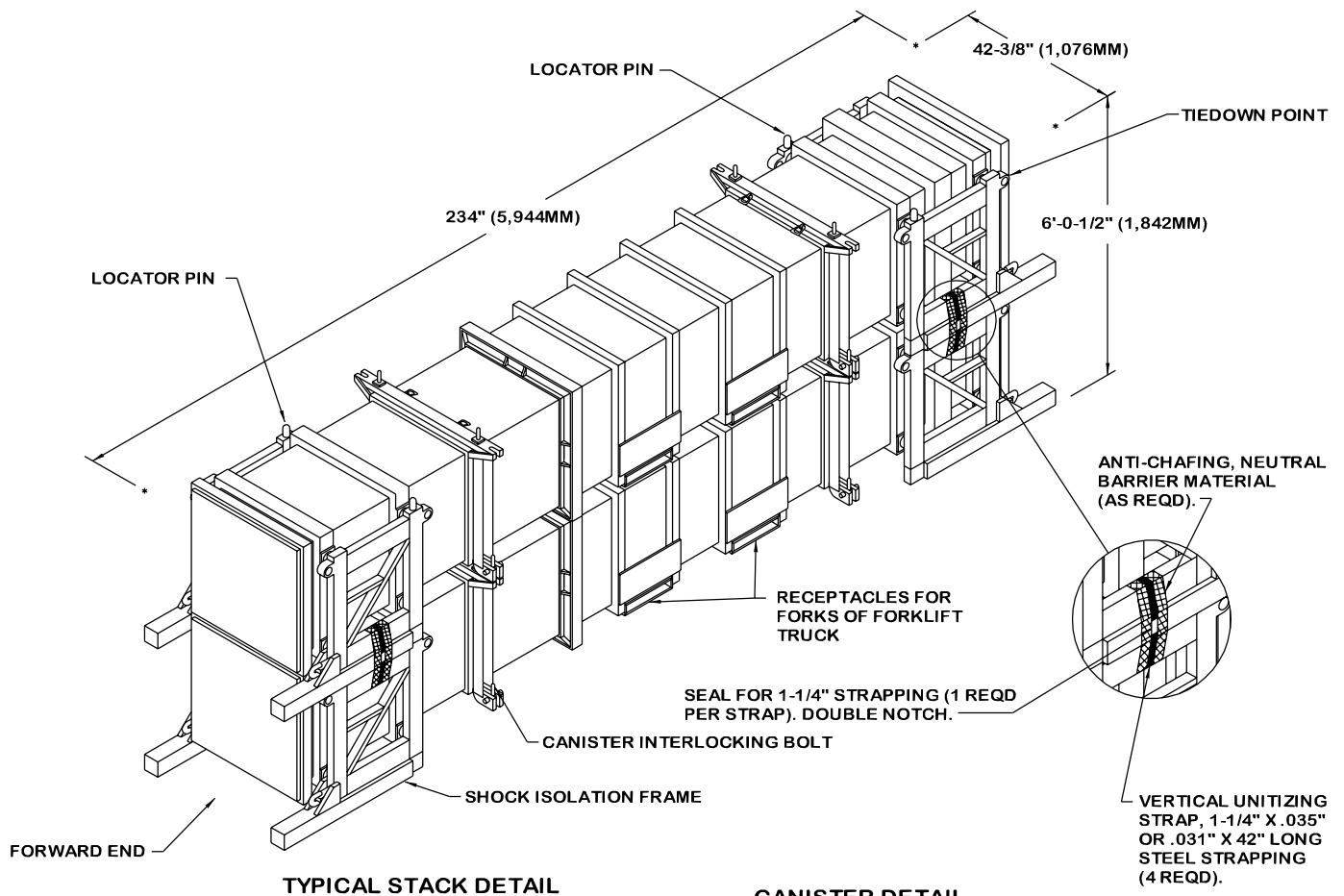
MATERIAL SPECIFICATIONS

- LUMBER** - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS** - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).
- STRAPPING, STEEL** - - : ASTM D3953; FLAT STRAPPING, TYPE 1, HEAVY DUTY, FINISH A, B (GRADE 2), OR C.
- SEAL, STRAP** - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
- WIRE, CARBON STEEL** - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
- ANTI-CHAFING MATERIAL** - - - - - : MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.

- L. TO ACHIEVE A TIGHTLY BLOCKED LOAD, A STRUT WILL BE CUT SLIGHTLY LONGER THAN THE MEASURED DISTANCE BETWEEN THE STRUT BEARING AREAS ON THE TWO CENTER GATES. MEASUREMENTS FOR STRUT LENGTHS NEED TO BE ACCOMPLISHED AT SEVERAL PLACES DURING THE BLOCKING AND BRACING PROCESS. CARE MUST BE EXERCISED WHEN MEASURING FOR AND INSTALLING STRUTS. THE SPECIFIED APPROXIMATE DIMENSION FOR A STRUT LENGTH MAY BE ADJUSTED, AS NECESSARY, TO PROVIDE FOR A TIGHTLY BLOCKED LOAD WITHOUT DISTORTING, DENTING OR OTHERWISE DAMAGING THE CONTAINERS. ONE END OF THE STRUT WILL BE POSITIONED AT ITS BEARING AREA JUST ABOVE THE STRUT LEDGER ON ONE GATE. THE OTHER END, WHICH CAN BE BEVELED ON THE LOWER CORNER IF DESIRED, WILL THEN BE DRIVEN DOWNWARD UNTIL IT CONTACTS THE STRUT LEDGER ON THE OTHER GATE. EACH END OF THE STRUT WILL BE TOENAILED TO THE ADJACENT CENTER GATE, AS SPECIFIED WITHIN THE KEY NUMBERS FOR A LOAD, IN SUCH A MANNER SO THAT AS NEARLY AS PRACTICAL EQUAL LENGTHS OF A NAIL ARE EMBEDDED IN THE STRUT AND IN THE VERTICAL PIECE OF THE CENTER GATE. SEE THE "BEVEL CUT" DETAIL ON PAGE 12 FOR BEVELING INSTRUCTIONS AND THE "STRUT INSTALLATION" DETAIL ON THAT PAGE FOR A PICTORIAL VIEW SHOWING THE PROPER POSITIONING OF A BEVELED STRUT FOR INSTALLATION. NOTE THAT THE UPPER CORNER NEEDS TO BE BEVELED ONLY IF THE STRUTS ARE VERY SHORT. IF ONLY ONE END IS BEVEL CUT, THE BEVELED EDGE WILL BE PLACED IN THE DOWNWARD POSITION SO THAT IT WILL ALLOW THE STRUT END TO SLIDE MORE FREELY DOWN THE FACE OF THE VERTICAL PIECE ON THE ADJACENT CENTER GATE AS THE STRUT IS DRIVEN DOWN INTO ITS FINAL BLOCKING POSITION.
- M. THE "NAIL SIZE CONVERSION" CHART BELOW PROVIDES GUIDANCE IN COMPARING U.S. AND METRIC SIZE OF NAILS. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN LAMINATING DUNNAGE. 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 INTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- N. WHEN STEEL STRAPPING IS SEALED IN AN END-OVER-END LAP JOINT, A MINIMUM OF ONE SEAL WITH TWO PAIR OF NOTCHES WILL BE USED TO SEAL THE JOINT WHEN A NOTCH-TYPE SEALER IS BEING USED. A MINIMUM OF TWO SEALS, BUTTED TOGETHER, WITH TWO PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT WHEN A CRIMP-TYPE SEALER IS USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 12.
- O. PORTIONS OF THE GONDOLA CARS DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS SIDEWALLS AND ENDWALLS HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- P. THE PROCEDURES DEPICTED WITHIN THIS DRAWING ARE BASED ON THE USE OF DIMENSIONAL SIZED LUMBER. IN MOST CASES, THE METRIC EQUIVALENT IS GIVEN IN PARENTHESIS FOLLOWING THE DIMENSION. HOWEVER, WHERE THE METRIC EQUIVALENT IS NOT SHOWN, IT MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454 KG. METRIC EQUIVALENTS FOR TORQUE ARE BASED ON ONE FOOT-POUND EQUALS 0.7376 NEWTON-METERS.

LUMBER SIZE CONVERSION	
U. S. SIZE	METRIC SIZE
1" x 4"	19MM X 89MM
1" x 6"	19MM X 140MM
2" x 2"	38MM X 38MM
2" x 3"	38MM X 64MM
2" x 4"	38MM X 89MM
2" x 6"	38MM X 140MM
4" x 4"	89MM X 89MM

NAIL SIZE CONVERSION				
SIZE	LENGTH		DIAMETER	
	U. S.	METRIC	U. S.	METRIC
6d	2"	51MM	.113"	2.870MM
8d	2-1/2"	63.5MM	.131"	3.327MM
10d	3"	76MM	.148"	3.759MM
12d	3-1/4"	82.55MM	.148"	3.759MM
16d	3-1/2"	88.9MM	.162"	4.115MM
20d	4"	102MM	.192"	4.877MM
30d	4-1/2"	114.3MM	.207"	5.258MM
40d	5"	127MM	.225"	5.715MM
50d	5-1/2"	139.7MM	.244"	6.198MM
60d	6"	152MM	.263"	6.680MM



TYPICAL STACK DETAIL

CANISTER DETAIL

GROSS WEIGHT - - - - - 3,750 LBS (1,701 KG) (APPROX)
 CONTAINER LENGTH
 WITH SKIDS REVERSED - - - - 219" (5,563MM)

UNITIZATION AND HANDLING PROCEDURAL GUIDANCE

(UNITIZATION AND HANDLING PROCEDURAL GUIDANCE CONTINUED)

1. STACKING CANISTERS FOR UNITIZING.

- A. THE SKIDS OF THE UPPER CANISTER MUST BE FULLY SEATED UPON THE LOCATOR PINS OF THE LOWER CANISTER.
- B. POSITION THE FORWARD END OF THE UPPER CANISTER ABOVE THE FORWARD END OF THE LOWER CANISTER.
- C. CANISTER INTERLOCKING BOLTS MUST BE TIGHTENED AS SECURELY AS POSSIBLE WITH A NORMAL SIZE HAND TOOL WRENCH. (REF: 60 FOOT POUNDS (81 NEWTON METERS)).

2. INSTALLATION OF 1-1/4" UNITIZING STRAPPING.

NOTE: UNITIZING STEEL STRAPPING IS NOT REQUIRED IF AN UPPER CANISTER IS SECURED TO A LOWER CANISTER WITH FOUR CANISTER INTERLOCKING BOLTS WHICH ARE PROPERLY INSTALLED AND ARE TORQUED TO 60 FOOT POUNDS (81 NEWTON METERS).

- A. EACH OF THE FOUR UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE SHOCK ISOLATION FRAMES AS SHOWN. PLACE STRAPPING SO THAT IT LAYS FLAT AND STRAIGHT.
- B. PLACE ANTI-CHAFING NEUTRAL BARRIER MATERIAL UNDER THE STRAPPING WHEREVER THE STRAPPING CONTACTS SHARP EDGES AND SECURE TO PREVENT DISLODGE MENT DURING AND AFTER STRAP APPLICATION.
- C. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH ONE DOUBLE NOTCHED SEAL AS SHOWN. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CANISTERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEAL.

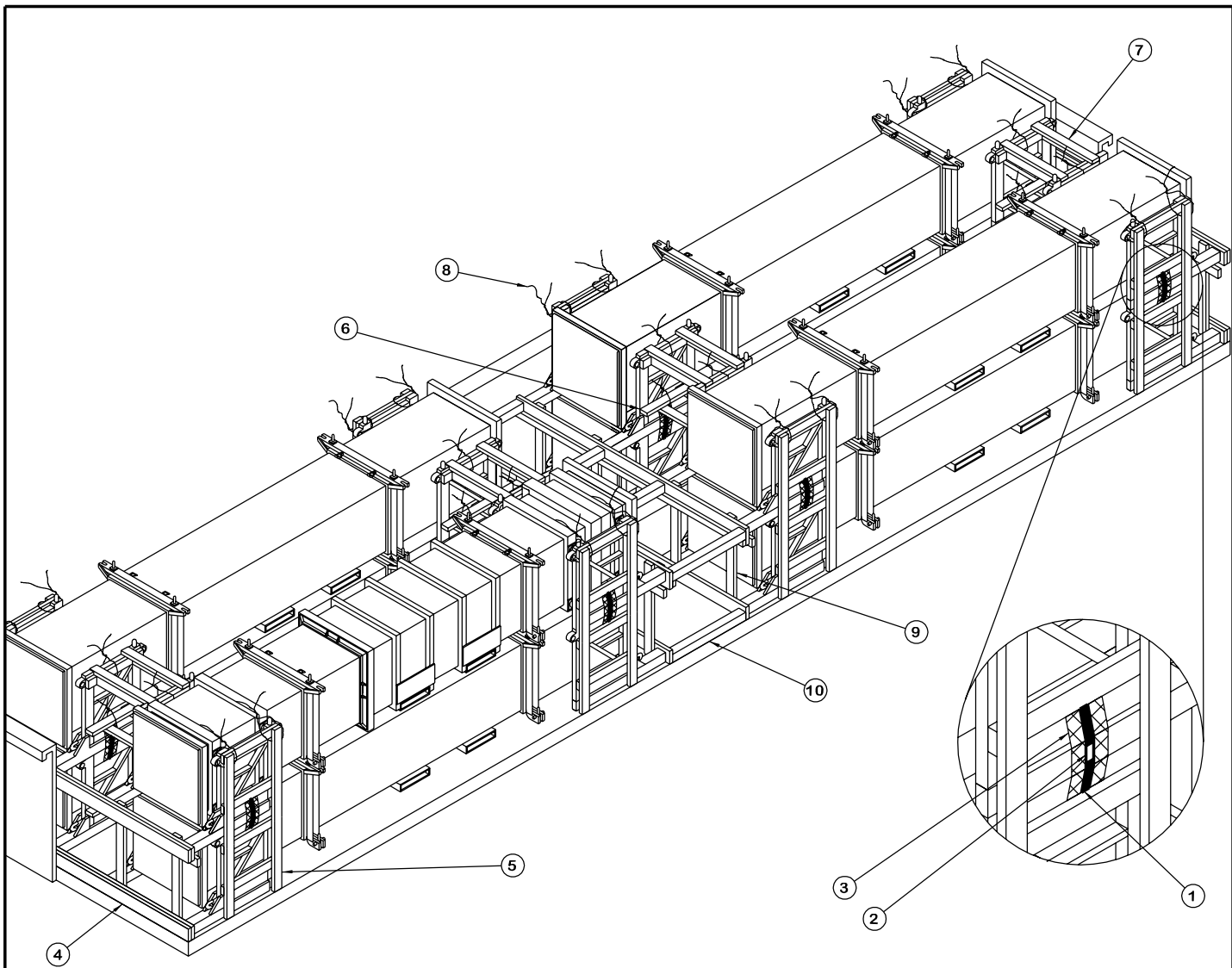
(CONTINUED AT RIGHT)

3. CANISTER OR CANISTER STACK HANDLING.

NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.

(2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COM-MODITY INVOLVED WILL BE OBSERVED.

- A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HAN-DLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CANISTERS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CANISTERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERT-ING FORKS UNDER A CANISTER, TO PREVENT DAMAGE TO THE CANISTER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING FLATBED TRAILER LOADING, A TWO-HIGH CANISTER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK INTO THE FORK RECEPTACLES OF THE UPPER CANISTER.
- C. SLINGING OF A CANISTER OR A CANISTER STACK WILL BE AC-COMPLISHED IN ACCORDANCE WITH APPROVED PROCEDURES.



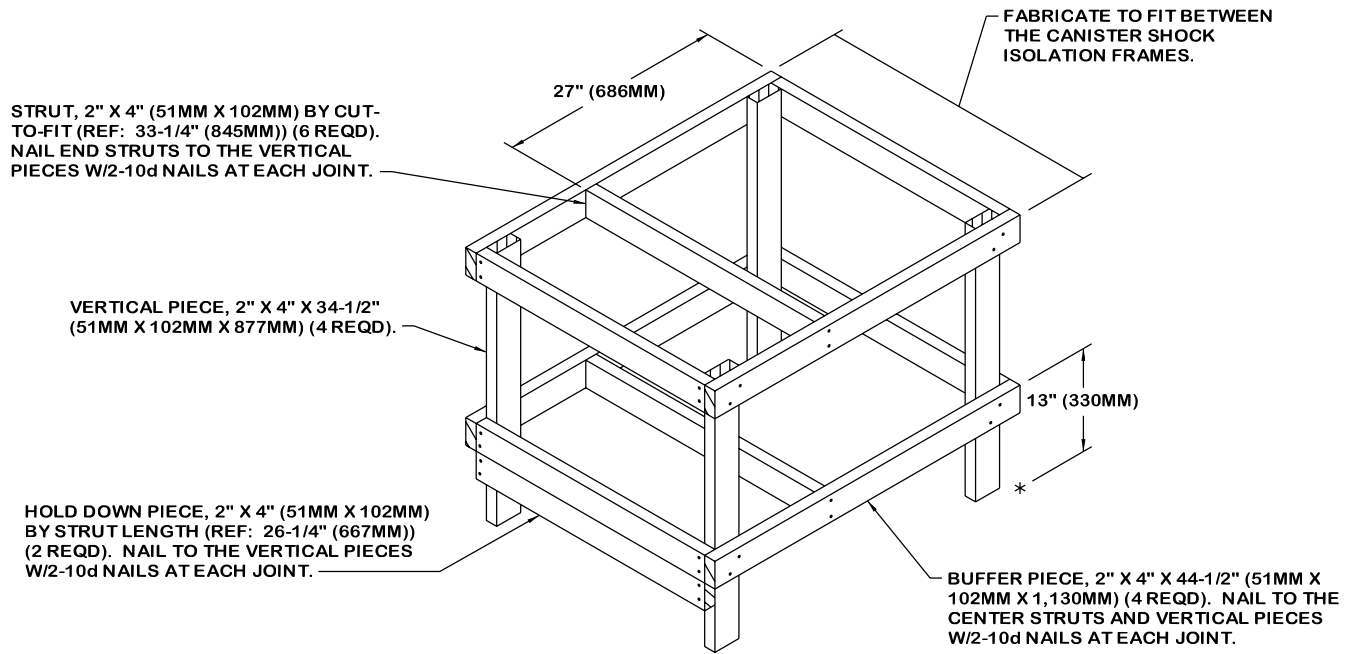
ISOMETRIC VIEW

KEY NUMBERS

- ① VERTICAL UNITIZING STRAP, 1-1/4" X .035" OR .031" X 42" (32MM X .889MM OR .787MM X 1,057MM) LONG STEEL STRAPPING (16 REQD). INSTALL STRAPS AROUND SHOCK ISOLATOR FRAMES OF AN UPPER AND LOWER CANISTER AS SHOWN. SEE THE "UNITIZATION AND HANDLING PROCEDURAL GUIDANCE" ON PAGE 3.
- ② SEAL FOR 1-1/4" STEEL STRAPPING (16 REQD, 1 PER STRAP). CRIMP EACH SEAL WITH TWO PAIR OF NOTCHES.
- ③ ANTI-CHAFING MATERIAL, NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CANISTERS.
- ④ ENDWALL BULKHEAD (2 REQD). SEE THE DETAIL ON PAGE 11.
- ⑤ SIDE BLOCKING ASSEMBLY A (8 REQD). SEE THE DETAIL ON PAGE 12.
- ⑥ ANTI-SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 10.
- ⑦ TOP-OF-LOAD ANTI-SWAY BRACE (4 REQD). SEE THE DETAIL ON PAGE 10.
- ⑧ TIE WIRE, .0800" DIA 24" LONG (40 REQD, 16 FOR THE SIDE BLOCKING ASSEMBLY A, 16 FOR ANTI-SWAY BRACE AND EIGHT FOR TOP-OF-LOAD ANTI-SWAY BRACE). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND SHOCK ISOLATION FRAME AND THE BUFFER PIECE ON THE SIDE BLOCKING ASSEMBLY "A" OR ANTI-SWAY BRACES, BRING ENDS TOGETHER AND TWIST TAUT.
- ⑨ CENTER GATE ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 11.
- ⑩ STRUT, 4" X 4" BY CUT-TO-FIT (REF: 36" (915MM)) (8 REQD). TOE-NAIL TO CENTER GATE ASSEMBLY W/2-12d NAILS AT EACH END.

SPECIAL NOTE:

AN EIGHT CANISTER LOAD IS SHOWN IN A KOREAN GONDOLA. FOR SHIPMENT OF LOADS WHICH CONTAINS FEWER CANISTERS THAN WHAT IS SHOWN ON PAGE 4, SEE THE PROCEDURES CONTAINED ON PAGES 6 AND 8.

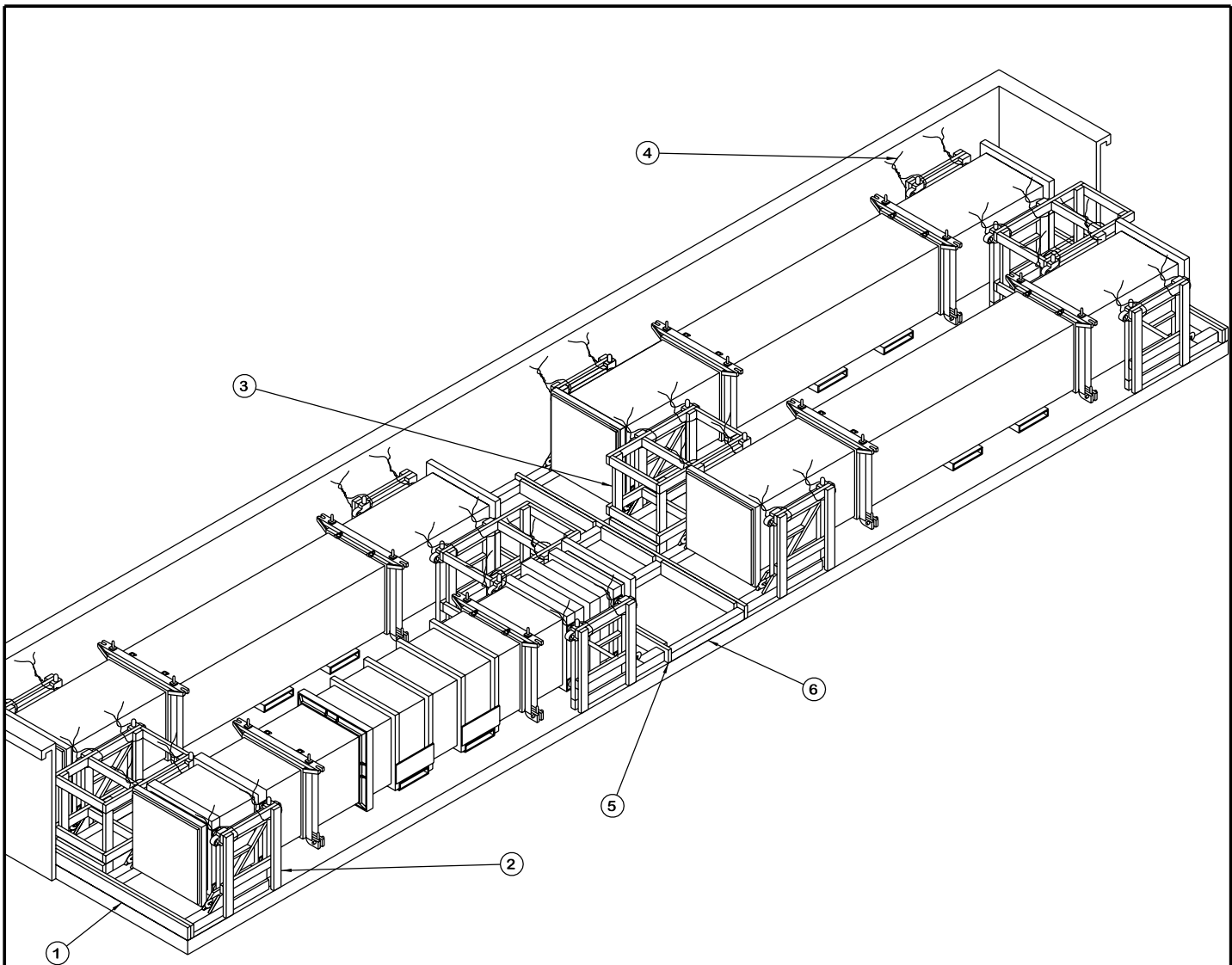


CRIB FILL ASSEMBLY

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 3" (38MM X 64MM)	19 (474MM)	10
2" X 4" (38MM X 89MM)	384 (9,737MM)	256
2" X 6" (38MM X 140MM)	112 (2,845MM)	112
4" X 4" (89MM X 89MM)	24 (610MM)	32
NAILS	NO. REQD	POUNDS
10d (3") (76MM)	498	7-3/4
12d (3-1/4") (83MM)	32	3/4
STEEL STRAPPING, 1-1/4" - - - -	56' REQD - - - -	8 LBS
SEAL FOR 1-1/4" STRAPPING - - -	16 REQD - - - -	3/4 LB
WIRE, 0.0800" DIA - - - - -	80' REQD - - - -	1-1/2 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CANISTER - - - - -	8 - - - -	30,000 LBS (13,607 KG)
DUNNAGE - - - - -	- - - - -	837 LBS (380 KG)
TOTAL WEIGHT - - - - -		30,837 LBS (13,987 KG) (APPROX)



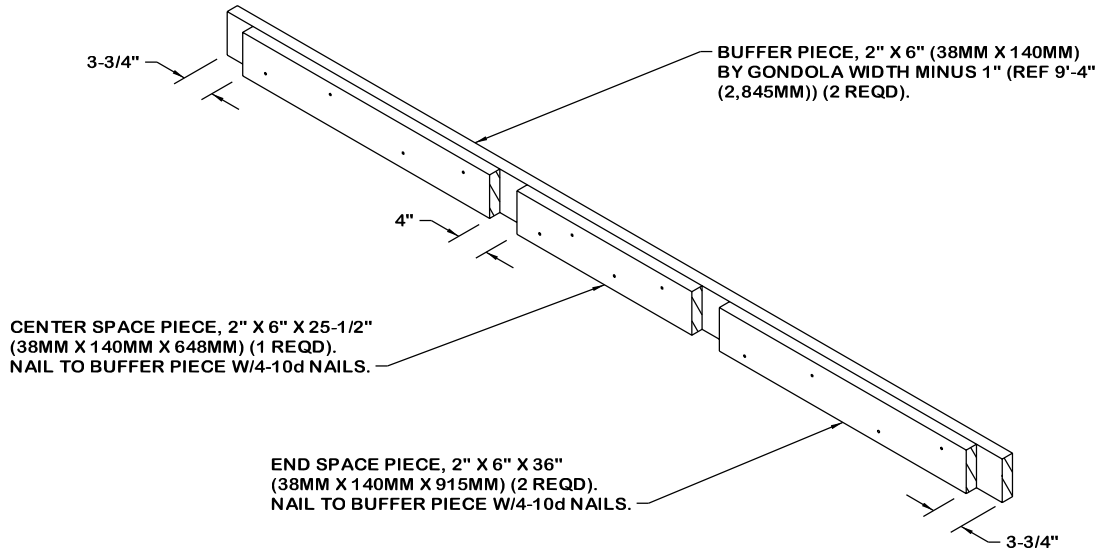
ISOMETRIC VIEW

KEY NUMBERS

- ① ENDWALL BULKHEAD, 2" X 6" (51MM X 152MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (DOUBLED) (2 REQD). LAMINATE FIRST BOARD TO SECOND W/1-10d NAIL EVERY 12".
- ② SIDE BLOCKING ASSEMBLY B (8 REQD). SEE THE DETAIL ON PAGE 12.
- ③ CRIB FILL ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 5.
- ④ TIE WIRE, .0800" (2MM) DIA X 24" (610MM) LONG (32 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND SHOCK ISOLATION FRAME AND THE BUFFER PIECE ON THE SIDE BLOCKING ASSEMBLY "B" AND CRIB FILL ASSEMBLY, BRING ENDS TOGETHER AND TWIST TAUT.
- ⑤ CENTER BUFFER ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 7.
- ⑥ STRUT, 4" X 4" (102MM X 102MM) BY CUT-TO-FIT (REF: 36" (914MM)) (4 REQD). TOENAIL TO CENTER BUFFER ASSEMBLY W/2-12d NAILS AT EACH END.

SPECIAL NOTE:

A FOUR CANISTER LOAD IS SHOWN IN A KOREAN GONDOLA. FOR SHIPMENT OF LOADS WHICH CONTAINS MORE OR FEWER CANISTERS THAN WHAT IS SHOWN ON PAGE 6, SEE THE PROCEDURES CONTAINED ON PAGES 4 AND 8.

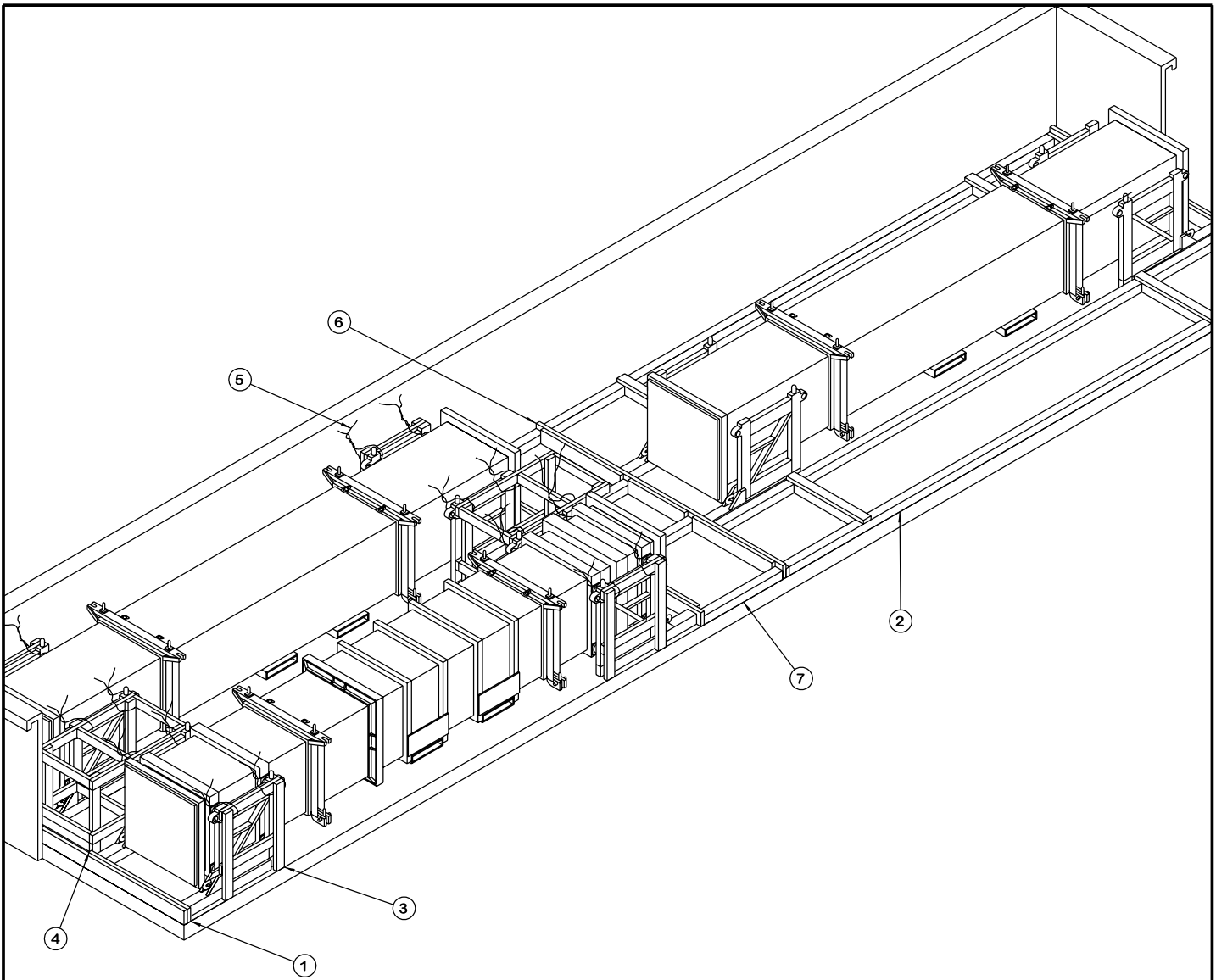


CENTER BUFFER ASSEMBLY

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4" (38MM X 89MM)	249 (6,314MM)	166
2" X 6" (38MM X 140MM)	73 (1,836MM)	73
4" X 4" (89MM X 89MM)	12 (305MM)	16
NAILS	NO. REQD	POUNDS
10d (3") (76MM)	284	4-1/2
12d (3-1/4") (83MM)	16	1/2
WIRE, 0.0800" DIA	64' REQD	1-1/4 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CANISTER	4	15,000 LBS (6,804 KG)
DUNNAGE		514 LBS (234 KG)
TOTAL WEIGHT		15,514 LBS (7,038 KG) (APPROX)



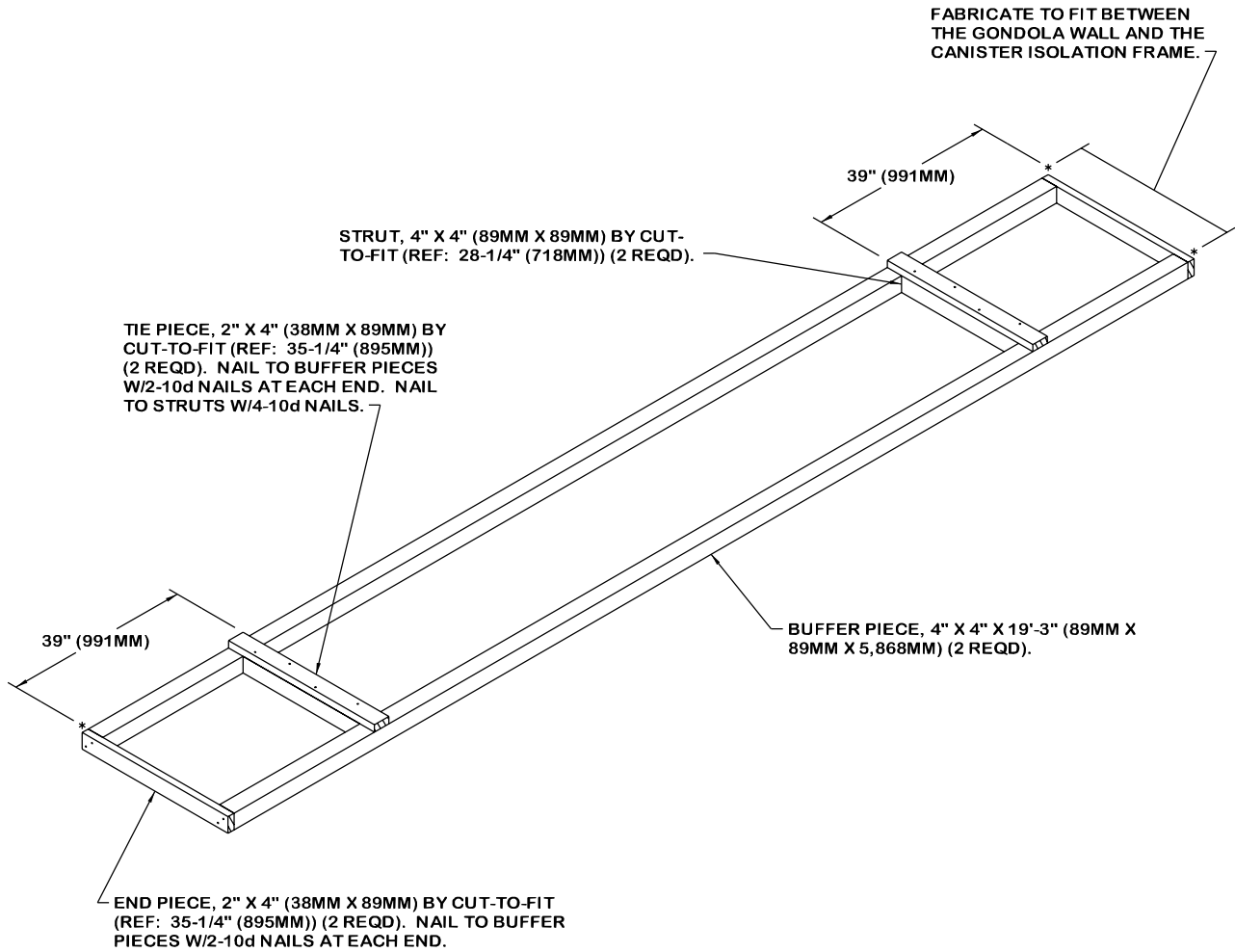
ISOMETRIC VIEW

KEY NUMBERS

- ① ENDWALL BULKHEAD, 2" X 6" (38MM X 140MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (DOUBLED) (2 REQD). LAMINATE FIRST PIECE TO SECOND W/1-10d NAIL EVERY 12".
- ② SIDE FILL ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 9.
- ③ SIDE BLOCKING ASSEMBLY B (4 REQD). SEE THE DETAIL ON PAGE 12.
- ④ CRIB FILL ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.
- ⑤ TIE WIRE, .0800" (2MM) DIA X 24" (610MM) LONG (24 REQD). INSTALL THE WIRE TO FORM A COMPLETE LOOP AROUND SHOCK ISOLATION FRAME AND THE BUFFER PIECE ON THE SIDE FILL ASSEMBLY, SIDE BLOCKING ASSEMBLY "B" AND CRIB FILL ASSEMBLY, BRING ENDS TOGETHER AND TRIST TAUT.
- ⑥ CENTER BUFFER ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 7.
- ⑦ STRUT, 4" X 4" (89MM X 89MM) BY CUT-TO-FIT (REF: 36" (914MM)) (4 REQD). TOENAIL TO CENTER BUFFER ASSEMBLY W/2-12d NAILS AT EACH END.

SPECIAL NOTE:

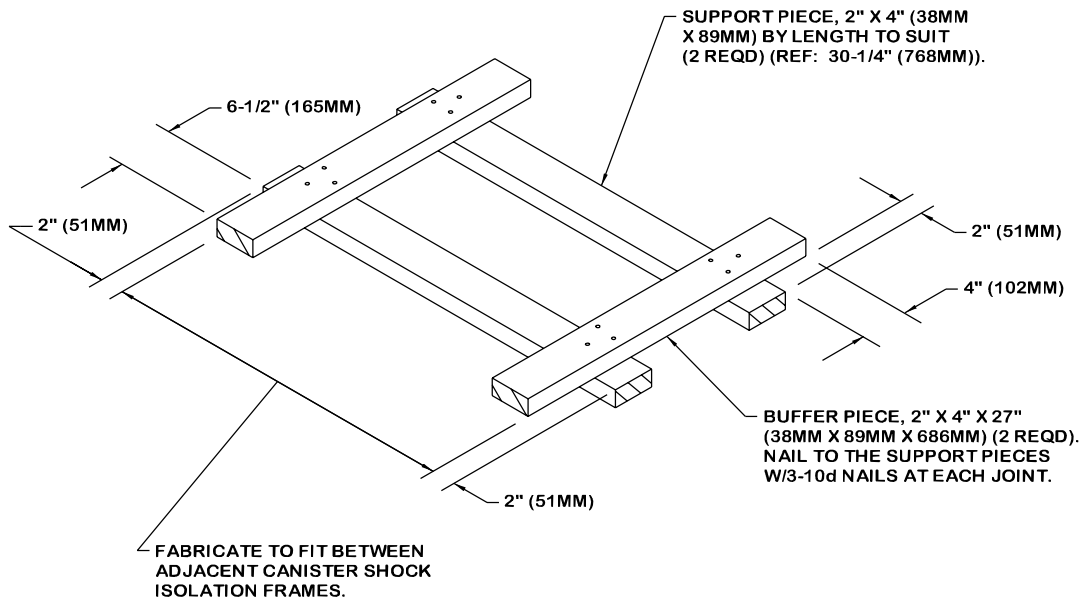
A THREE CANISTER LOAD IS SHOWN IN A KOREAN GONDOLA. FOR SHIPMENT OF TWO CANISTERS, LOCATE THE CANISTERS AS SHOWN ON PAGE 8 FOR THE SINGLE CANISTER IN THE LOAD. EIGHT SIDE FILL ASSEMBLIES WILL BE REQUIRED.



BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4" (38MM X 89MM)	148 (3,754MM)	99
2" X 6" (38MM X 140MM)	73 (1,836MM)	73
4" X 4" (89MM X 89MM)	99 (2,500MM)	132
NAILS	NO. REQD	POUNDS
10d (3") (76MM)	212	2-1/4
12d (3-1/4") (83MM)	16	1/2
WIRE, 0.0800" DIA	32' REQD	3/4 LB

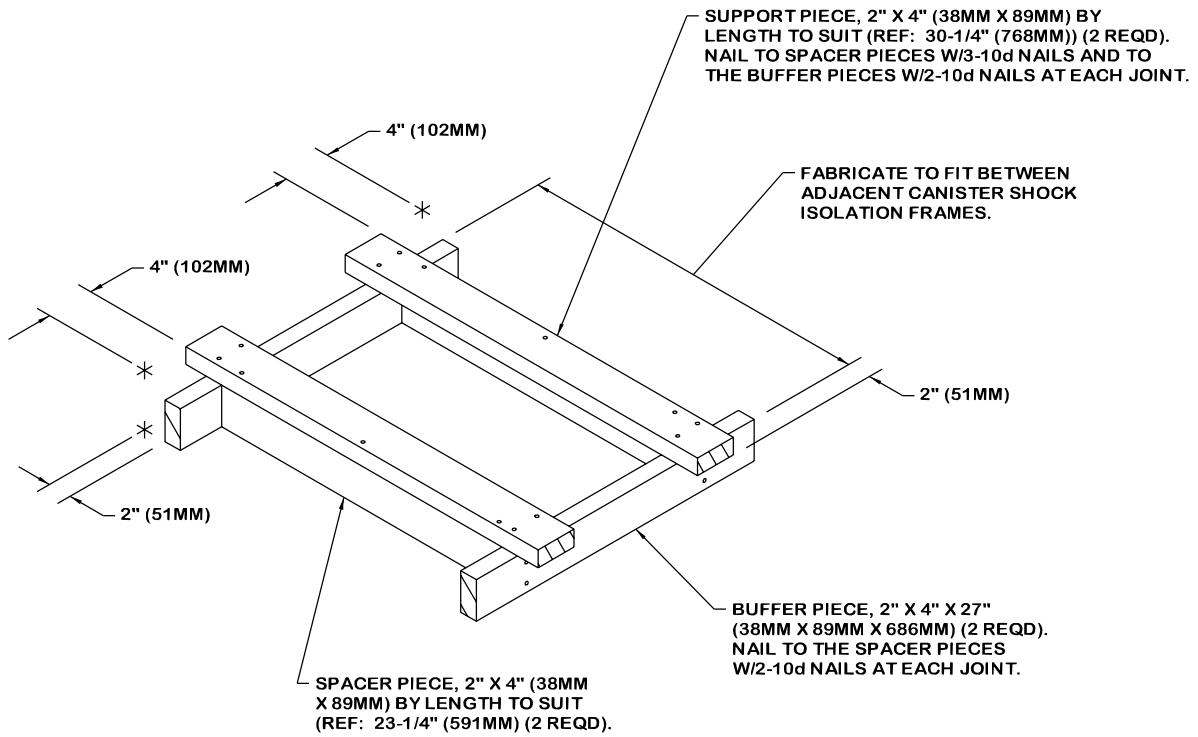
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CANISTER	3	11,250 LBS (5,103 KG)
DUNNAGE		609 LBS (277 KG)
TOTAL WEIGHT-		11,859 LBS (5,379 KG) (APPROX)



ANTI-SWAY BRACE

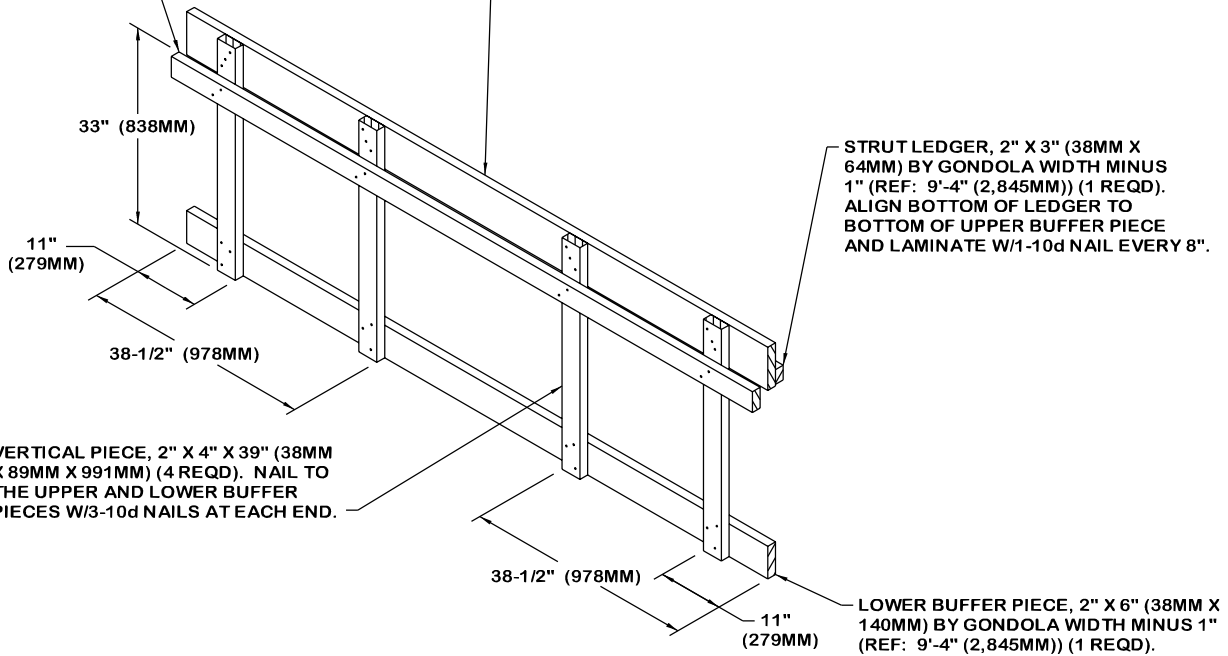
NOTE: THE ANTI-SWAY BRACE CAN BE PARTIALLY ASSEMBLED. ONE BUFFER PIECE CAN BE NAILED TO BOTH SUPPORT PIECES.



TOP-OF-LOAD ANTI-SWAY BRACE

RETAINER PIECE, 2" X 4" (38MM X 89MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (1 REQD). NAIL TO THE VERTICAL PIECE W/2-10d NAILS AT EACH JOINT.

UPPER BUFFER PIECE, 2" X 8" (38MM X 185MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (1 REQD).

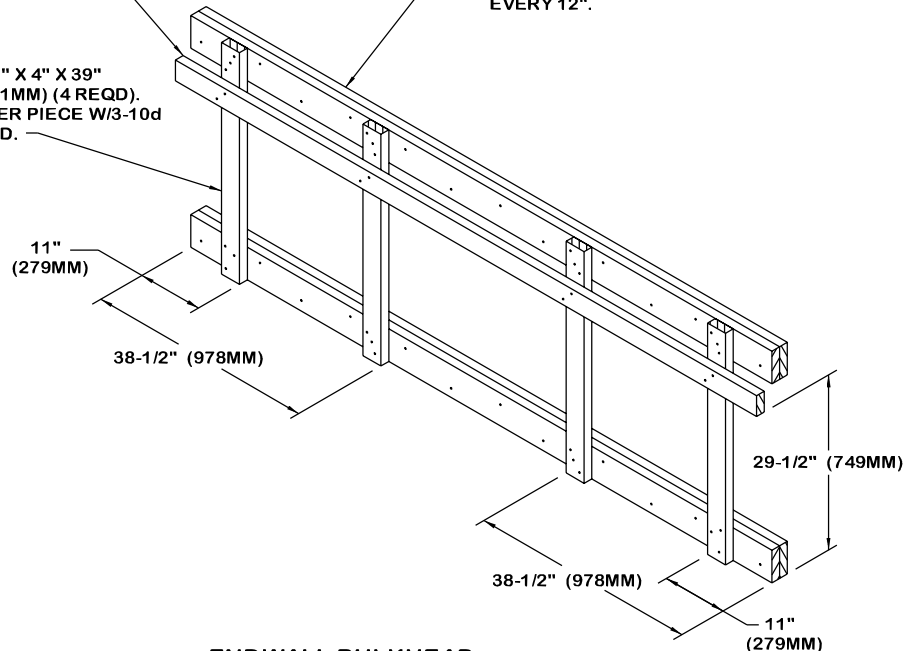


CENTER GATE ASSEMBLY

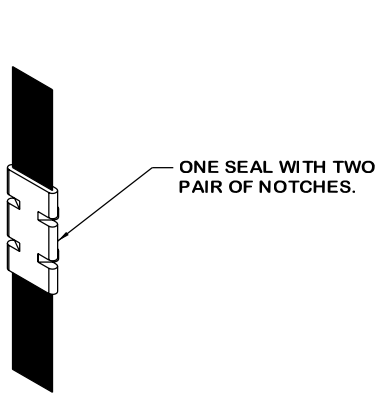
RETAINER PIECE, 2" X 4" (38MM X 89MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (1 REQD). NAIL TO THE VERTICAL PIECE W/2-10d NAILS AT EACH JOINT.

BUFFER PIECE, 2" X 6" (DOUBLED) (38MM X 140MM) BY GONDOLA WIDTH MINUS 1" (REF: 9'-4" (2,845MM)) (2 REQD). LAMINATE FIRST PIECE TO THE SECOND W/1-10d NAIL EVERY 12".

VERTICAL PIECE, 2" X 4" X 39" (38MM X 89MM X 991MM) (4 REQD). NAIL TO THE BUFFER PIECE W/3-10d NAILS AT EACH END.

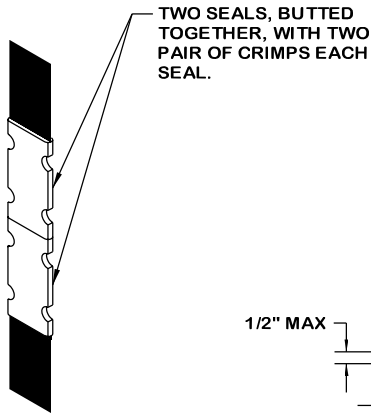


ENDWALL BULKHEAD



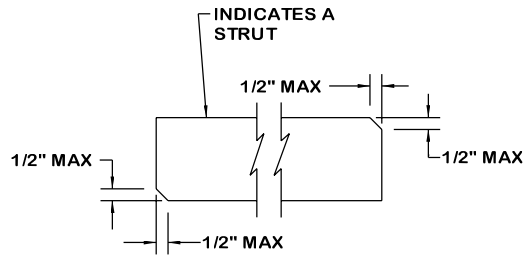
STRAP JOINT A

METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.



STRAP JOINT B

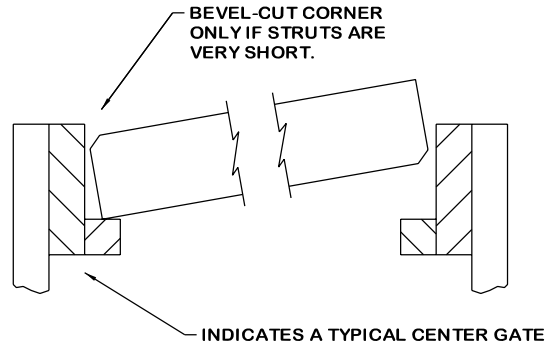
METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.



BEVEL-CUT

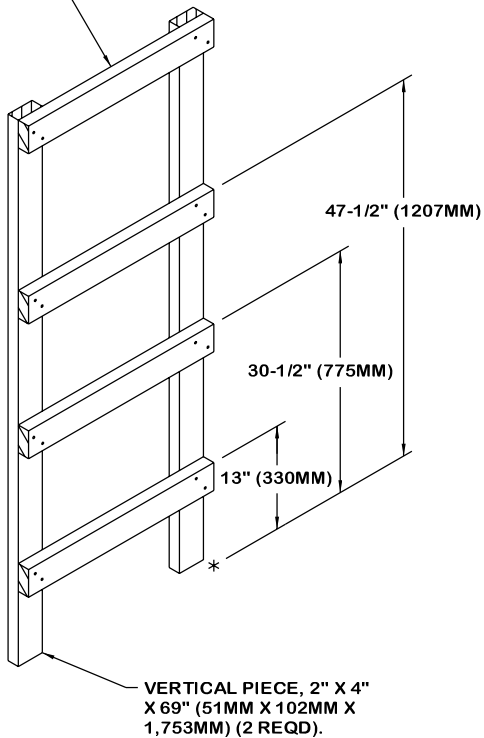
IF DESIRED, EACH END OF A STRUT MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE THE ACHIEVEMENT OF A TIGHT DOOR-POST-TO-DOOR-POST FIT.

END-OVER-END LAP JOINT DETAILS



STRUT INSTALLATION

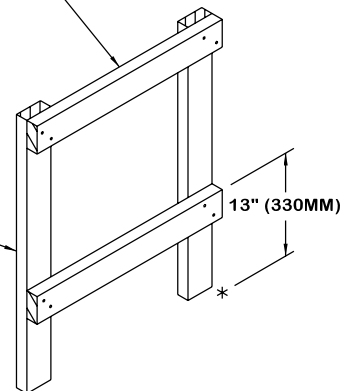
BUFFER PIECE, 2" X 4" X 27" (51MM X 102MM X 686MM) (4 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.



SIDE BLOCKING ASSEMBLY A

BUFFER PIECE, 2" X 4" X 27" (51MM X 102MM X 686MM) (2 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

VERTICAL PIECE, 2" X 4" X 34-1/2" (51MM X 102MM X 877MM) (2 REQD).



SIDE BLOCKING ASSEMBLY B