

APPROVED BY
BUREAU OF EXPLOSIVES

James C. Hays

DATE 7-21-2007


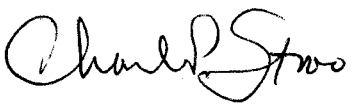
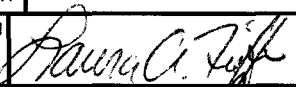
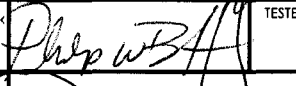
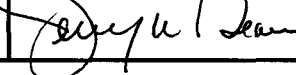
LOADING AND BRACING (CL & LCL) IN BOXCARS[⊕] OF JASSM (AGM-158) MISSILES PACKED IN CNU-614/E CONTAINERS

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2-3
CNU-614/E CONTAINER DETAIL - - - - -	4
DETAILS - - - - -	5
18 CONTAINER LOAD IN A 60'-8" LONG BY 9'-4" WIDE CONVENTIONAL BOXCAR - - - - -	6-7
17 CONTAINER LOAD IN A 50'-6" LONG BY 8'-6" WIDE CONVENTIONAL BOXCAR - - - - -	8-9
18 CONTAINER LOAD IN A 60'-8" LONG BY 9'-4" WIDE BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS - - - - -	10-11
TYPICAL LCL USING NAILED HEADER - - - - -	12
DETAILS - - - - -	13-20

⊕ THIS OUTLOADING DRAWING INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOXCARS AND CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY JOINT MUNITIONS 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 20.			
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  U.S. ARMY DEFENSE AMMUNITION CENTER	DO NOT SCALE		JULY 2007	
	ENGINEER OR TECHNICIAN	BASIC REV.	MELVIN SIX	
	TRANSPORTATION ENGINEERING DIVISION			TESTED
VALIDATION ENGINEERING DIVISION			CLASS	DIVISION
ENGINEERING DIRECTORATE			19	48
			8774	SP5J31

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 JASSM MISSILES PACKED IN CNU-614/E CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS CONTAINER WITH MISSILE ITEMS. SEE LOCKHEED MARTIN INTEGRATED SYSTEMS DRAWING 79601200 AND PAGE 4 FOR DETAILS OF THE CONTAINER.
- C. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE USED FOR THE SHIPMENT OF THE CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM THAT IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM IDENTIFIED WITHIN THE DRAWING TITLE.
- D. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOXCARS AND FOR SHIPMENTS IN CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
- E. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF CNU-614/E CONTAINERS 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 DOCUMENTS, WILL BE SELECTED.
- F. WHEN SELECTING RAILCARS, EVERY EFFORT SHOULD BE MADE TO OBTAIN BOXCARS THAT DO NOT HAVE BOWED ENDWALLS. CARS HAVING BOWED ENDS CAN BE USED, HOWEVER, IF AN ENDWALL IS BOWED OUTWARD MORE THAN 2" EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN ENDWALL GATE WITH SHIMS MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. SEE PAGE 15 FOR DETAILS.
- G. CONVENTIONAL BOXCARS EQUIPPED WITH SLIDING DOORS HAVE BEEN SHOWN, HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CONVENTIONAL CARS EQUIPPED WITH PLUG DOORS. **CAUTION:** DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN. ALSO, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLATION OF CAR SEALS, A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO AND IN CONJUNCTION WITH EACH CAR SEAL USED TO SEAL THE CAR. THE WIRE WILL BE THREADED THRU THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH JASSM MISSILES, 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.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

- J. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE. 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 WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OR SIDEWALL OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS OR SIDEWALL BOARDS. 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.
- L. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES THAT ARE TO BE USED IN THE DELINEATED BOXCAR LOADS SHOWN THROUGHOUT THIS DRAWING. THE STAPLES TO BE USED MUST BE EQUAL IN LENGTH TO THE SPECIFIED NAIL SIZE AND MUST BE SUBSTITUTED ON A ONE STAPLE FOR ONE NAIL BASIS. STAPLES WHICH ARE 2-1/2" OR LESS IN LENGTH SHOULD BE IN ACCORDANCE WITH ASTM F1667 AS NEARLY AS PRACTICABLE. STAPLES THAT ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF A QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. **NOTE:** STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- M. WHEN STEEL STRAPPING IS SEALED AT 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 BEING USED. REFER TO THE "STRAP JOINT A" AND "STRAP JOINT B" DETAILS ON PAGE 5 FOR GUIDANCE.
- N. THROUGHOUT THIS PROCEDURAL DRAWING, PORTIONS OF THE BLOCKING COMPONENTS AND OF THE DEPICTED CARS, SUCH AS A CAR SIDEWALL, HAVE BEEN OMITTED FROM THE LOAD VIEW FOR CLARITY PURPOSES.
- O. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOXCAR BEING LOADED OR THE QUANTITY TO BE SHIPPED, HOWEVER, THE APPROVED METHODS SPECIFIED HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE UNITS. **NOTICE:** A SHIPMENT WILL BE POSITIONED IN THE RAILCAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR.
- P. **CAUTION:** WHEN POWER OR PNEUMATIC NAILERS ARE BEING USED IN THE APPLICATION OF NAILED FLOORLINE BLOCKING OR BRACING, CONTAINERS BEING LOADED INTO THE CONVEYANCE MUST BE POSITIONED TO ALLOW A CLEAR PATH OF EXIT FOR THE OPERATOR AT ALL TIMES, SHOULD AN EMERGENCY EXIT BECOME NECESSARY.
- Q. 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.
- R. AS REQUIRED BY THE ASSOCIATION OF AMERICAN RAILROADS (AAR), ALL 1-1/4" AND 2" STEEL STRAPPING USED FOR LOAD RESTRAINT MUST BE MARKED AS SPECIFIED WITHIN THE APPLICABLE AAR RULES GOVERNING LOADING, BLOCKING AND BRACING OF FREIGHT WITHIN THE CONVEYANCE. FOR THE SPECIFIC MARKING SIZE, FREQUENCY, ETC., REQUIRED, REFER TO THE APPROPRIATE AAR LOADING RULES.

(CONTINUED ON PAGE 3)

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.
STAPLE, STRAP	- - - - -	COMMERCIAL GRADE.
ANTI-CHAFING MATERIAL	- - - - -	MIL-PRF-121 (OR EQUAL); NEUTRAL BARRIER MATERIAL.
WIRE, CARBON STEEL	- - - - -	ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.

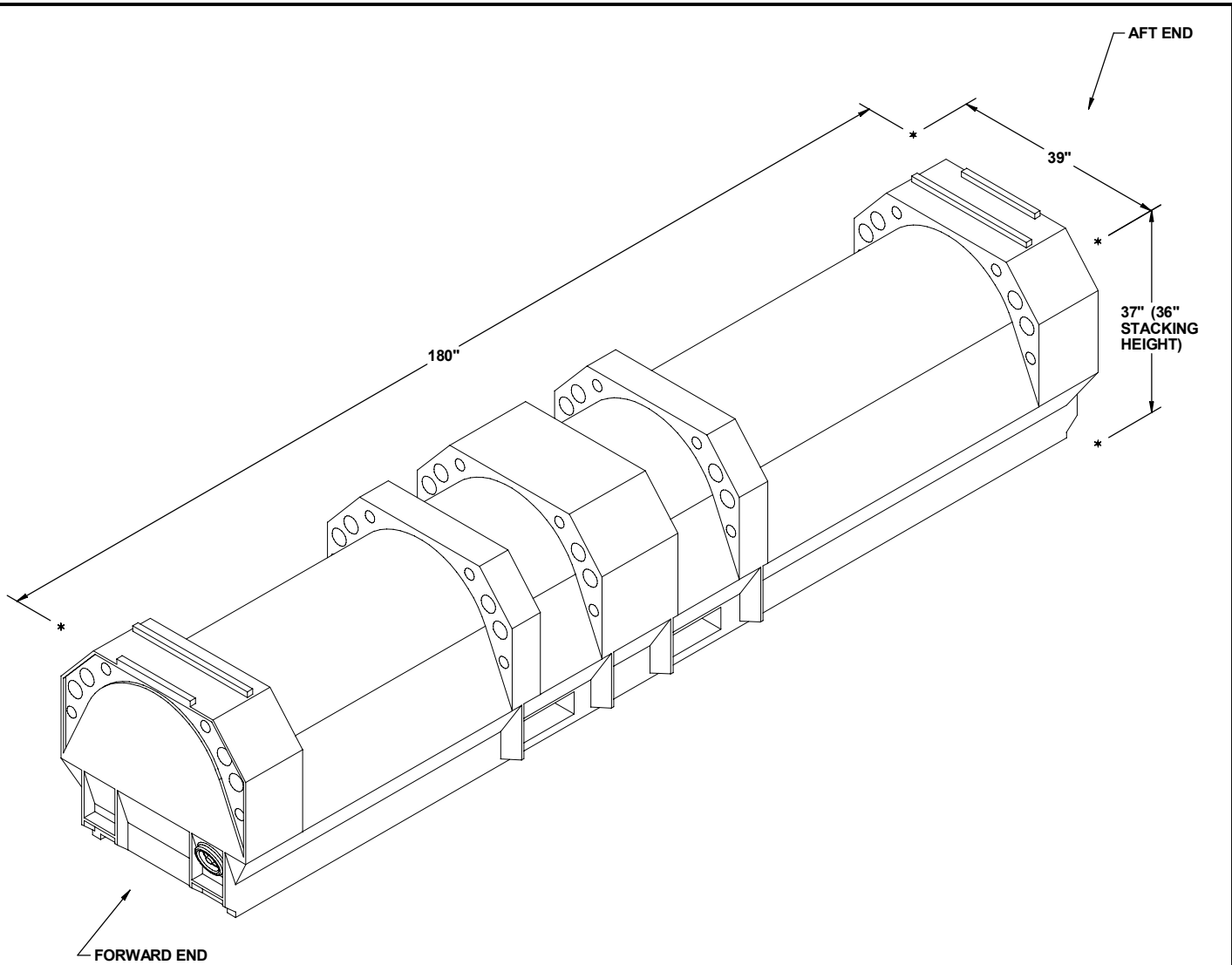
S. FOR CONVENTIONAL TYPE BOXCARS:

1. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE "SIDE BLOCKING" PIECES IN THE FULL LOADS AND TO THE NAILING TO THE CAR FLOOR OF THE LCL BRACES AND KNEE BRACE ASSEMBLIES IN THE LESS-THAN-FULL LOADS. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE APPLICABLE KEY NUMBERS.
2. **NOTICE:** WHEN POSITIONING CONTAINERS IN A CAR, THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDEWALL OR SIDE FILL ASSEMBLIES AND ARE TO BE PRESSED TIGHTLY TOGETHER LENGTHWISE SO AS TO ACHIEVE A TIGHT LOAD. TO AID IN ACHIEVING TIGHTNESS LENGTHWISE IN A FULL LOAD, A LOAD-COMPRESSING JACK MAY BE EMPLOYED IN THE AREA OF THE CENTER GATES TO MOVE THE CONTAINERS INTO THEIR FINAL SHIPPING POSITION. A HYDRAULIC JACK IS RECOMMENDED FOR THIS OPERATION. **CAUTION:** WHEN USING A JACK TO COMPACT A LOAD, THE JACK MUST BE USED AGAINST STRONG POINTS OF THE CONTAINERS, SUCH AS THE JOINTS BETWEEN THE LAYERS OF CONTAINERS. PADDING, OF 2" THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
3. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN ON PAGE 14. 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.
4. TO ACHIEVE A TIGHTLY BLOCKED LOAD, A STRUT WILL BE CUT APPROXIMATELY 1/4" TO 3/8" 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.

(CONTINUED AT RIGHT)

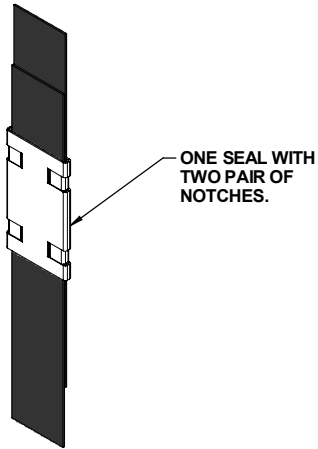
T. FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS:

1. **CAUTION:** FOR CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSCO ARE NOT ACCEPTABLE WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE FOR CARS OF VARIOUS LENGTHS AND WIDTHS. THE AAR MECHANICAL DESIGNATION CLASS FOR THESE CARS, AS IDENTIFIED IN "THE OFFICIAL RAILWAY EQUIPMENT REGISTER", WILL BE RBL, XL, OR XLI.
2. THE USE OF LOAD DIVIDER EQUIPPED CARS WILL ELIMINATE THE NEED FOR CENTER GATES AND STRUTS, AND GATE HOLD DOWNS (WHEN APPLICABLE) WHICH ARE REQUIRED IN CONVENTIONAL BOXCAR LOADS. THIS WILL ACCOUNT FOR A CONSIDERABLE SAVING IN MATERIAL AND LABOR COSTS. THEREFORE, EVERY EFFORT SHOULD BE MADE TO ACQUIRE CUSHIONED CARS EQUIPPED WITH LOAD DIVIDERS FOR SHIPMENT OF COMPLETE ROUNDS. **NOTICE:** ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONED DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST 15" OF TRAVEL ARE ACCEPTABLE.
3. IF NAILING TO A CAR SIDEWALL IS NOT REQUIRED, BOXCARS EQUIPPED WITH ADJUSTABLE SIDE FILLERS THAT HAVE 3/8" OR THICKER PANELS MAY BE USED, HOWEVER, THESE SIDE FILLERS MUST NOT BE USED FOR LATERAL BLOCKING; THEY MUST BE RETRACTED AND LOCKED AGAINST THE CAR SIDEWALL. A "FILL PIECE" MUST BE INSTALLED IN THE VOID BETWEEN THE CAR SIDEWALL AND THE SIDE FILLER PANEL. SEE THE "TYPICAL TYPE A" VIEW ON PAGE 20 FOR GUIDANCE. IF THE BACK OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 20, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.
4. **NOTICE:** AFTER THE LOAD DIVIDER BULKHEADS ARE POSITIONED AGAINST THE LADING, AND THE LOCKING PINS ARE ENGAGED IN THE HOLES OF THE RAILS, THE LOWER LOCKING PINS MUST BE INSPECTED TO ENSURE THAT THE PINS ARE FULLY ENGAGED IN THE LOCKING HOLES. IF THE PINS ARE NOT FULLY SEATED IN THE LOCKING HOLES, THE LINKAGE MECHANISM WILL BE ADJUSTED AS REQUIRED SO THAT THE PINS WILL BE FULLY SEATED INTO THE LOCKING HOLES OF THE LOWER RAILS. IF PRESENT, DEBRIS MUST BE REMOVED FROM BENEATH THE LOCKING HOLES WHICH HAVE BEEN SELECTED FOR SECURING A LOAD DIVIDER BULKHEAD.
5. THE NORMAL LOADING PATTERN IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS IS TO POSITION THE LADING BETWEEN A CAR ENDWALL AND A LOAD DIVIDER BULKHEAD IN FULL LAYERS. OBVIOUSLY, A LOAD QUANTITY MUST THEN BE A MULTIPLE OF THE NUMBER OF CONTAINERS THAT ARE IN ONE LOAD UNIT. A LOAD UNIT IS DEFINED AS A STACK OF CONTAINERS THAT IS FULL CAR WIDTH BY FULL LOAD HEIGHT BY ONE UNIT IN LENGTH. IF THE QUANTITY TO BE SHIPPED CANNOT BE ATTAINED BY ADJUSTING THE NUMBER OF TIERS IN ONE OR BOTH ENDS OF A CAR, OR BY ADJUSTING THE NUMBER OF LOAD UNITS IN EITHER END OF THE CAR, ONE OF THE FOLLOWING PROCEDURES MUST BE USED IN ORDER TO OBTAIN THE DESIRED QUANTITY. ONE OR MORE UNITS CAN BE POSITIONED BETWEEN THE LOAD DIVIDER BULKHEAD ON THE CENTER-OF-CAR SIDE, BLOCK AND BRACE WITH NAILED HEADERS AS SHOWN ON PAGE 12. A FILLER ASSEMBLY MAY ALSO BE USED TO REPLACE ONE CONTAINER, SEE THE LOAD ON PAGE 8.

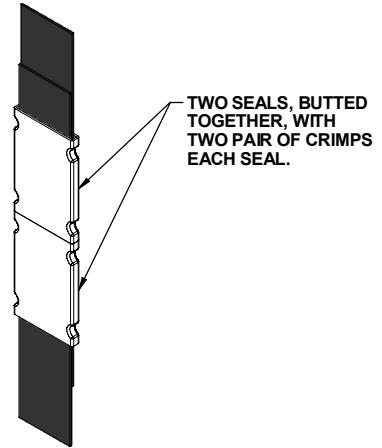


CNU-614/E CONTAINER

GROSS WEIGHT - - - - - 3,370 LBS (APPROX)
 CUBE - - - - - 150.3 CU FT (APPROX)

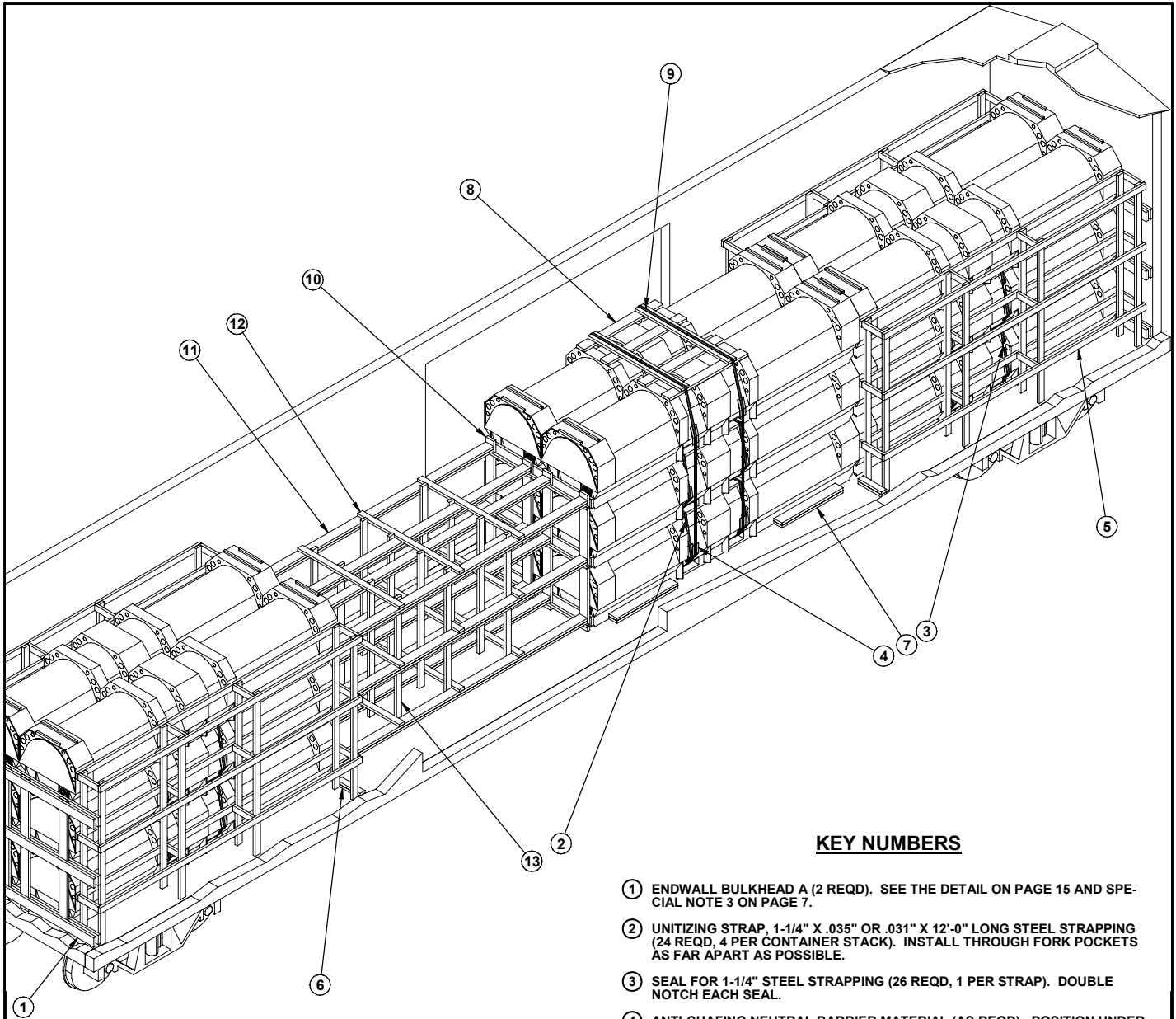


STRAP JOINT A
METHOD OF SECURING A
STRAP JOINT WHEN USING
A NOTCH-TYPE SEALER.



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

END-OVER-END LAP JOINT DETAILS



ISOMETRIC VIEW

KEY NUMBERS

- ① ENDWALL BULKHEAD A (2 REQD). SEE THE DETAIL ON PAGE 15 AND SPECIAL NOTE 3 ON PAGE 7.
- ② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (24 REQD, 4 PER CONTAINER STACK). INSTALL THROUGH FORK POCKETS AS FAR APART AS POSSIBLE.
- ③ SEAL FOR 1-1/4" STEEL STRAPPING (26 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.
- ④ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT THROUGH FORKLIFT OPENINGS.
- ⑤ SIDE FILL ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 16 AND SPECIAL NOTE 5 ON PAGE 7.
- ⑥ STOP PIECE, 2" X 6" X 16" (DOUBLED) (4 REQD, 1 PER SIDE FILL ASSEMBLY). NAIL FIRST PIECE TO THE FLOOR W/3-16d NAILS. LAMINATE SECOND PIECE TO THE FIRST W/3-16d NAILS.
- ⑦ SIDE BLOCKING, 2" X 6" X 42" (DOUBLED) (4 REQD, 2 FOR EACH SIDE OF THE CENTER CONTAINER STACK). NAIL FIRST PIECE TO THE FLOOR W/7-16d NAILS. LAMINATE SECOND PIECE TO THE FIRST W/7-16d NAILS.
- ⑧ STRAPPING BOARD ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 17.
- ⑨ DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" X 29'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TWO STRAPS, AS FAR APART AS POSSIBLE, THRU THE FORK POCKETS OF THE BOTTOM CONTAINER TO ENCIRCLE ALL CONTAINERS IN THE DOORWAY AREA. STAPLE TO THE STRAPPING BOARD ASSEMBLY W/2 STAPLES. SEE SPECIAL NOTE 6 ON PAGE 7.
- ⑩ CENTER GATE A (2 REQD). SEE THE DETAIL ON PAGE 13.
- ⑪ STRUT, 2" X 6" BY CUT-TO-FIT (REF: 14'-6" LONG) (DOUBLED) (12 REQD). TOENAIL TO THE CENTER GATES W/2-16d NAILS AT EACH END. LAMINATE FIRST PIECE TO SECOND PIECE W/1-10d NAILS EVERY 12".
- ⑫ HORIZONTAL STRUT BRACING, 2" X 4" X 70" (9 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑬ VERTICAL STRUT BRACING, 2" X 4" X 6'-8" (12 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

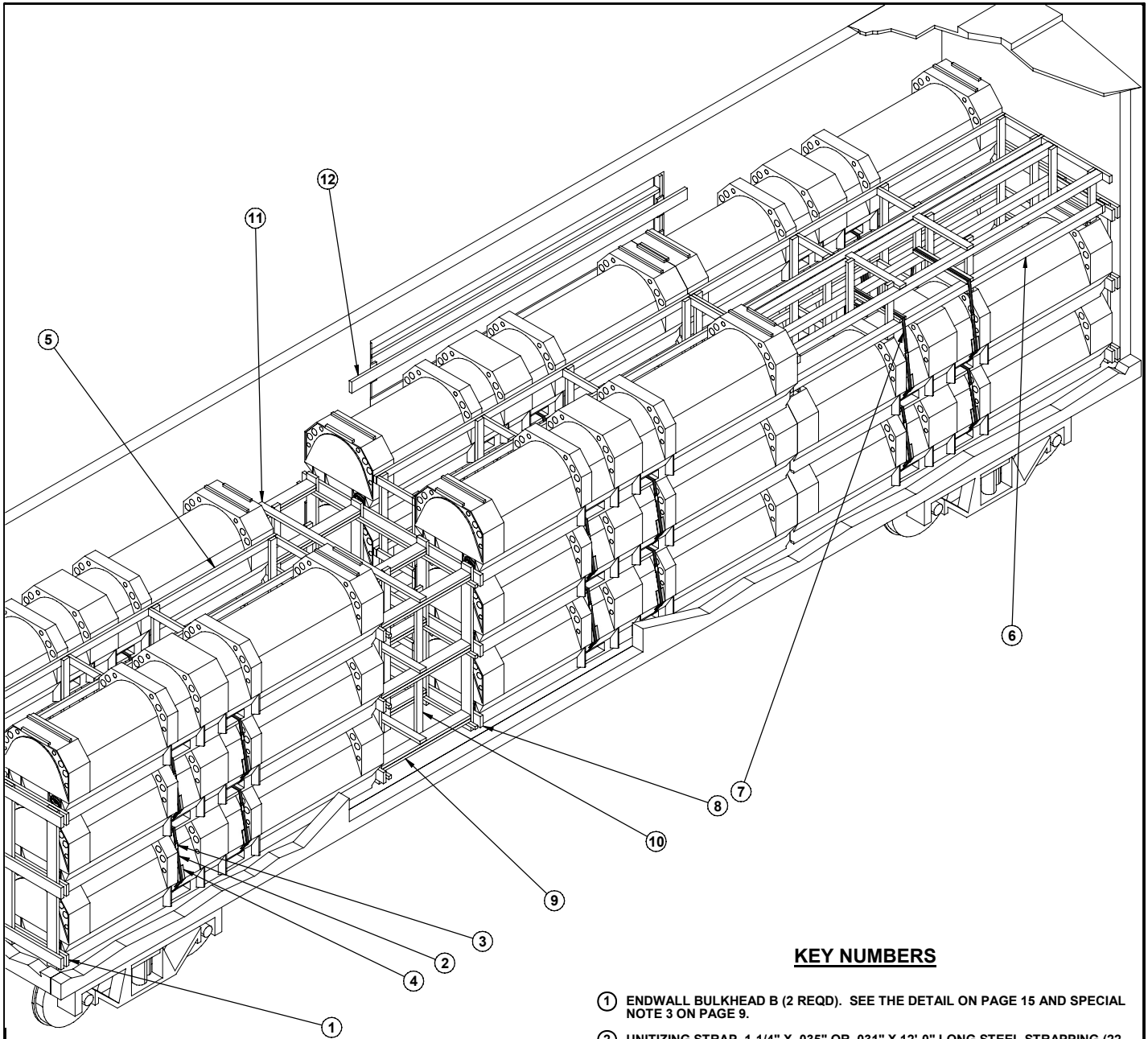
SPECIAL NOTES:

1. AN 18 CONTAINER LOAD IS SHOWN IN A 60'-8" LONG BY 9'-4" WIDE CONVENTIONAL BOXCAR EQUIPPED WITH 14'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. THE CAR SHOWN IS EQUIPPED WITH 14'-0" WIDE OFFSET DOORS. CARS EQUIPPED WITH NARROWER DOOR OPENINGS OR THROUGH DOORS CAN BE USED.
3. IF THE CAR TO BE LOADED HAS NAILABLE ENDWALLS, BATTENS MAY BE NAILED TO THE ENDWALL IN LIEU OF USING THE ENDWALL BULKHEAD. POSITION AT THE HEIGHTS SHOWN FOR THE ENDWALL BULKHEAD AND NAIL TO THE CAR ENDWALL W/1-10d NAIL EVERY 12".
4. CONTAINER SHOULD BE STACKED IN THE DOORWAY AREA OF THE CAR FOR UNITIZING. AFTER THE STACK IS COMPLETED AND THE UNITIZING STRAPS HAVE BEEN INSTALLED, THE CONTAINER STACK CAN BE PARTIALLY LIFTED FROM THE END AND PUSHED INTO PLACE.
5. SIDE FILL ASSEMBLIES ARE REQUIRED WHEN THE TOTAL LATERAL SPACE ACROSS THE WIDTH OF THE LOAD EXCEEDS 6".
6. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINERS STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH. DOORWAY PROTECTION WILL CONSIST OF NAILED FLOORLINE BLOCKING, STRAPPING BOARD ASSEMBLIES, AND DOORWAY PROTECTION STRAPS ENCIRCLING THE LOAD UNIT. TWO STRAPS ARE REQUIRED AROUND A LOAD UNIT WHICH IS NOT RETAINED BY AT LEAST SIX INCHES OF THE CAR SIDEWALL ON BOTH SIDES OF THE LOAD. ONE STRAP IS REQUIRED AROUND A LOAD UNIT WHICH IS RETAINED BY AT LEAST SIX INCHES BUT LESS THAN HALF OF THE CONTAINER LENGTH. IF THE CAR BEING LOADED IS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS, A WOODEN GATE TYPE OF DOORWAY PROTECTION MAY BE USED. SEE DETAILS ON PAGES 18 AND 19.
7. FOR SHIPMENT OF A LOAD WHICH CONTAINS FEWER CONTAINERS THAN WHAT IS SHOWN, SEE THE PROCEDURES CONTAINED ON PAGES 8 AND 12.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	36	12
2" X 4"	808	539
2" X 6"	670	670
NAILS	NO. REQD	POUNDS
10d (3")	1,144	17-3/4
16d (3-1/2")	128	2-3/4
STEEL STRAPPING, 1-1/4" - 346' REQD - 49-1/2 LBS		
SEAL FOR 1-1/4" STRAPPING - 26 REQD - 1-1/4 LBS		
ANTI-CHAFING MATERIAL - - - AS REQD - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-614/E CONTAINER	18	60,660 LBS
DUNNAGE	- - - - -	2,510 LBS
TOTAL WEIGHT		63,170 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① ENDWALL BULKHEAD B (2 REQD). SEE THE DETAIL ON PAGE 15 AND SPECIAL NOTE 3 ON PAGE 9.
- ② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (22 REQD, 4 PER CONTAINER STACK). INSTALL THROUGH FORK POCKETS AS FAR APART AS POSSIBLE.
- ③ SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.
- ④ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT THROUGH FORKLIFT OPENINGS.
- ⑤ CENTER FILL ASSEMBLY (3 REQD). SEE DETAIL ON PAGE 16 AND SPECIAL NOTE 5 ON PAGE 9.
- ⑥ FILLER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 17.
- ⑦ FILLER ASSEMBLY STRAP, 1-1/4" X .035" OR .031" X 13'-6" LONG STEEL STRAPPING (2 REQD). INSTALL TWO STRAPS THRU THE FORK POCKETS OF THE TOP CONTAINER TO ENCIRCLE THE CONTAINER AND THE FILLER ASSEMBLY.
- ⑧ CENTER GATE B (2 REQD). SEE THE DETAIL ON PAGE 14.
- ⑨ STRUT, 2" X 6" BY CUT-TO-FIT (REF: 52" LONG) (DOUBLED) (12 REQD). TOENAIL THE FIRST PIECE TO THE CENTER GATES W/2-16d NAILS AT EACH END. LAMINATE FIRST PIECE TO THE SECOND PIECE W/1-10d NAILS EVERY 12".
- ⑩ VERTICAL STRUT BRACING, 2" X 4" X 6'-8" (4 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑪ HORIZONTAL STRUT BRACING, 2" X 4" X 7'-10" (3 REQD). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.
- ⑫ DOORWAY PROTECTION D (2 REQD). SEE THE DETAIL ON PAGE 19 AND SPECIAL NOTE 6 ON PAGE 9.

SPECIAL NOTES:

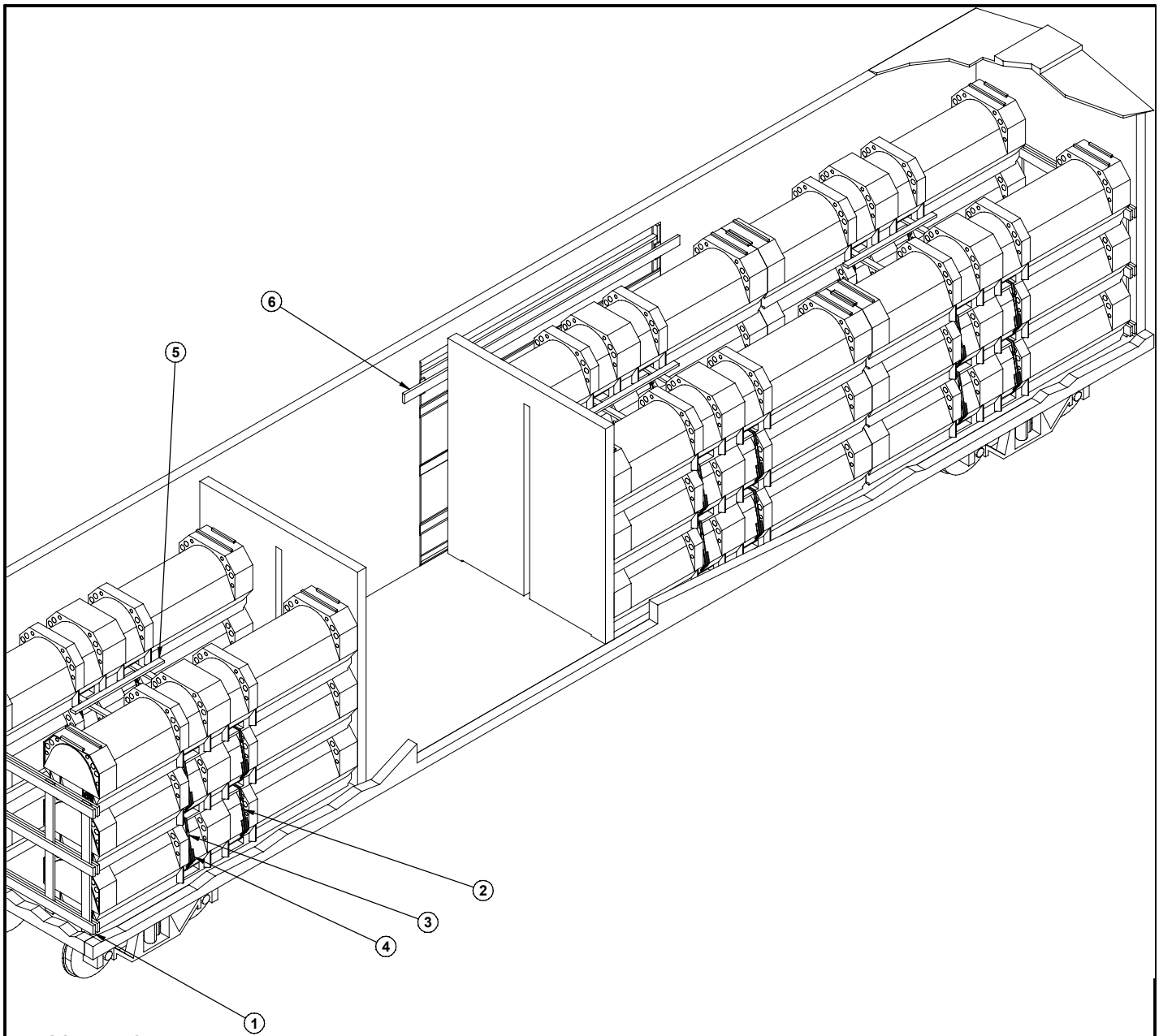
1. A 17 CONTAINER LOAD IS SHOWN IN A 50'-6" LONG BY 8'-6" WIDE CONVENTIONAL BOXCAR EQUIPPED WITH 14'-0" WIDE DOOR OPENINGS. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. THE CAR SHOWN IS EQUIPPED WITH 14'-0" WIDE OFFSET DOORS. CARS EQUIPPED WITH NARROWER DOOR OPENINGS OR THROUGH DOORS CAN BE USED.
3. IF THE CAR TO BE LOADED HAS NAILABLE ENDWALLS, BATTENS MAY BE NAILED TO THE ENDWALL IN LIEU OF USING THE ENDWALL BULKHEAD. POSITION AT THE HEIGHTS SHOWN FOR THE ENDWALL BULKHEAD AND NAIL TO THE CAR ENDWALL W/1-10d NAIL EVERY 12".
4. CONTAINER SHOULD BE STACKED IN THE DOORWAY AREA OF THE CAR FOR UNITIZING. AFTER THE STACK IS COMPLETED AND THE UNITIZING STRAPS HAVE BEEN INSTALLED, THE CONTAINER STACK CAN BE PARTIALLY LIFTED FROM THE END AND PUSHED INTO PLACE.
5. CENTER FILL ASSEMBLIES ARE REQUIRED WHEN THE TOTAL LATERAL SPACE BETWEEN THE CONTAINERS EXCEEDS 6", AS MEASURED FROM CONTAINER TO CONTAINER.
6. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION IN THE LOAD ON PAGE 8 IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NON-NAILABLE DOOR POSTS. REFER TO PAGES 18 AND 19 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED. SEE THE LOAD ON PAGE 6 FOR GUIDANCE.
7. FOR SHIPMENT OF A LOAD WHICH CONTAINS MORE OR FEWER CONTAINERS THAN WHAT IS SHOWN, SEE THE PROCEDURES CONTAINED ON PAGES 6, 10, AND 12.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	3	1
1" X 6"	84	42
2" X 2"	51	17
2" X 3"	95	48
2" X 4"	606	404
2" X 6"	393	393
4" X 4"	60	80
NAILS	NO. REQD	POUNDS
6d (2")	52	1/2
10d (3")	812	12-1/2
12d (3-1/4")	12	1/4
16d (3-1/2")	48	1-1/3
STEEL STRAPPING, 1-1/4" - 291' REQD - - - 42 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - 1-1/4 LBS		
ANTI-CHAFING MATERIAL - - - AS REQD - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-614/E CONTAINER	17	57,290 LBS
DUNNAGE		2,024 LBS
TOTAL WEIGHT		59,314 LBS (APPROX)



ISOMETRIC VIEW

KEY NUMBERS

- ① ENDWALL BULKHEAD B (2 REQD). SEE THE DETAIL ON PAGE 15 AND SPECIAL NOTE 3 ON PAGE 11.
- ② UNITIZING STRAP, 1-1/4" X .035" OR .031" X 12'-0" LONG STEEL STRAPPING (24 REQD, 4 PER CONTAINER STACK). INSTALL THROUGH FORK POCKETS AS FAR APART AS POSSIBLE.
- ③ SEAL FOR 1-1/4" STEEL STRAPPING (24 REQD, 1 PER STRAP). DOUBLE NOTCH EACH SEAL.
- ④ ANTI-CHAFING NEUTRAL BARRIER MATERIAL (AS REQD). POSITION UNDER ALL STRAPS AT POINTS OF CONTACT WITH THE CONTAINER, EXCEPT THROUGH FORKLIFT OPENINGS.
- ⑤ ANTI-SWAY BRACE (9 REQD). SEE THE DETAIL ON PAGE 13 AND SPECIAL NOTE 5 ON PAGE 11.
- ⑥ DOORWAY PROTECTION D (1 REQD). SEE THE DETAIL ON PAGE 19 AND SPECIAL NOTE 6 ON PAGE 11.

SPECIAL NOTES:

1. AN 18 CONTAINER LOAD IS SHOWN IN A 60'-8" LONG BY 9'-4" WIDE CUSHIONED TYPE BOXCAR EQUIPPED WITH LOAD DIVIDERS AND 14'-0" WIDE OFFSET DOOR OPENINGS. BOXCARS OF OTHER DIMENSIONS AND BOXCARS HAVING WIDER DOOR OPENINGS CAN BE USED.
2. THE CAR SHOWN IS EQUIPPED WITH 14'-0" WIDE STAGGERED DOORS. CARS EQUIPPED WITH NARROWER DOOR OPENINGS AND THROUGH DOORS CAN BE USED.
3. IF THE CAR TO BE LOADED HAS NAILABLE ENDWALLS, BATTENS MAY BE NAILED TO THE ENDWALL IN LIEU OF USING THE ENDWALL BULKHEAD. POSITION AT THE HEIGHTS SHOWN FOR THE ENDWALL BULKHEAD AND NAIL TO THE CAR ENDWALL W/1-10d NAIL EVERY 12".
4. CONTAINERS SHOULD BE STACKED IN THE DOORWAY AREA OF THE CAR FOR UNITIZING. AFTER THE STACK IS COMPLETED AND THE UNITIZING STRAPS HAVE BEEN INSTALLED, THE CONTAINER STACK CAN BE PARTIALLY LIFTED FROM THE END AND PUSHED INTO PLACE.
5. ANTI-SWAY BRACES OR CENTER FILL ASSEMBLIES ARE REQUIRED WHEN THE TOTAL LATERAL SPACE BETWEEN THE CONTAINERS EXCEEDS 6", AS MEASURED FROM CONTAINER TO CONTAINER.
6. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE STACK LENGTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION IN THE LOAD ON PAGE 8 IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NON-NAILABLE DOOR POSTS. REFER TO PAGES 18 AND 19 FOR ALTERNATIVE DOORWAY PROTECTION FOR CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS. IF THE CAR BEING LOADED IS EQUIPPED WITH PLUG TYPE DOORS OR COMBINATION PLUG AND SLIDING DOORS, NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MUST BE USED. SEE THE LOAD ON PAGE 6 FOR GUIDANCE.
7. FOR SHIPMENTS OF A LOAD WHICH CONTAINS FEWER CONTAINERS THAN WHAT IS SHOWN, SEE THE PROCEDURES ON PAGES 8, AND 12.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	2	1
1" X 6"	42	21
2" X 3"	48	24
2" X 4"	174	116
2" X 6"	180	180
NAILS	NO. REQD	POUNDS
6d (2")	26	1/4
10d (3")	260	4
12d (3-1/4")	6	NIL
STEEL STRAPPING, 1-1/4" - 288' REQD - - - 42 LBS		
SEAL FOR 1-1/4" STRAPPING - 24 REQD - 1-1/4 LBS		
ANTI-CHAFING MATERIAL - - - AS REQD - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-614/E CONTAINER	- 18	- - - - - 60,660 LBS
DUNNAGE	- - - - -	- - - - - 729 LBS
TOTAL WEIGHT		- - - - - 61,389 LBS (APPROX)

**18 CONTAINER LOAD IN A 60'-8" LONG BY 9'-4" WIDE
BOXCAR EQUIPPED WITH LOAD DIVER BULKHEADS**

HEADER, 2" X 6" X 39" (TRIPLED)
(1 REQD). INSTALL AGAINST THE
CONTAINER SKIDS. NAIL THE FIRST
PIECE TO THE BOXCAR FLOOR
W/5-16d NAILS. NAIL THE SECOND
PIECE AND THIRD PIECE TO THE
PREVIOUS IN ALIKE MANNER.

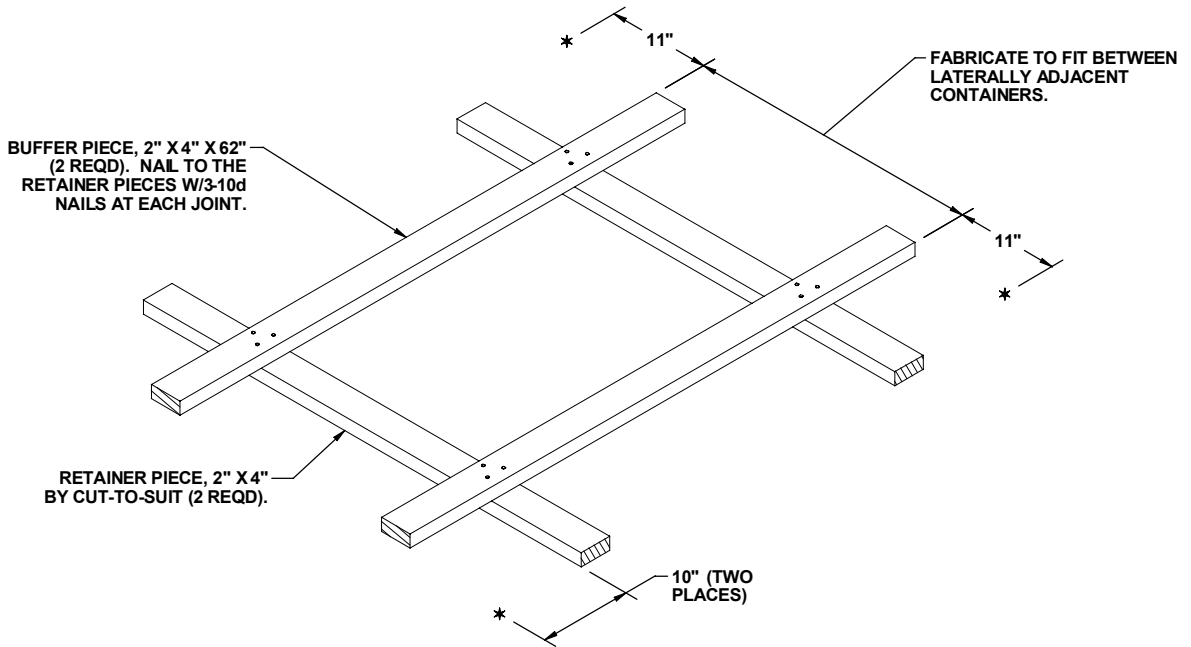
SIDE BLOCKING, 2" X 6" X 24" (DOUBLED) (2 REQD).
POSITION PARALLEL WITH THE SIDE OF THE CONTAINER
AND WITHIN 12" OF THE END OF THE CONTAINER. NAIL
THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS.
LAMINATE THE SECOND PIECE TO THE FIRST W/6-16d NAILS.

BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED)
(2 REQD). INSTALL AGAINST THE HEADER
WITH THE OUTSIDE EDGE OF THE BACK-UP
CLEAT 4" FROM THE END OF THE HEADER.
NAIL THE FIRST PIECE TO THE BOXCAR FLOOR
W/6-16d NAILS. NAIL THE SECOND PIECE AND
THE THIRD PIECE TO THE PREVIOUS W/6-40d NAILS.

ISOMETRIC VIEW

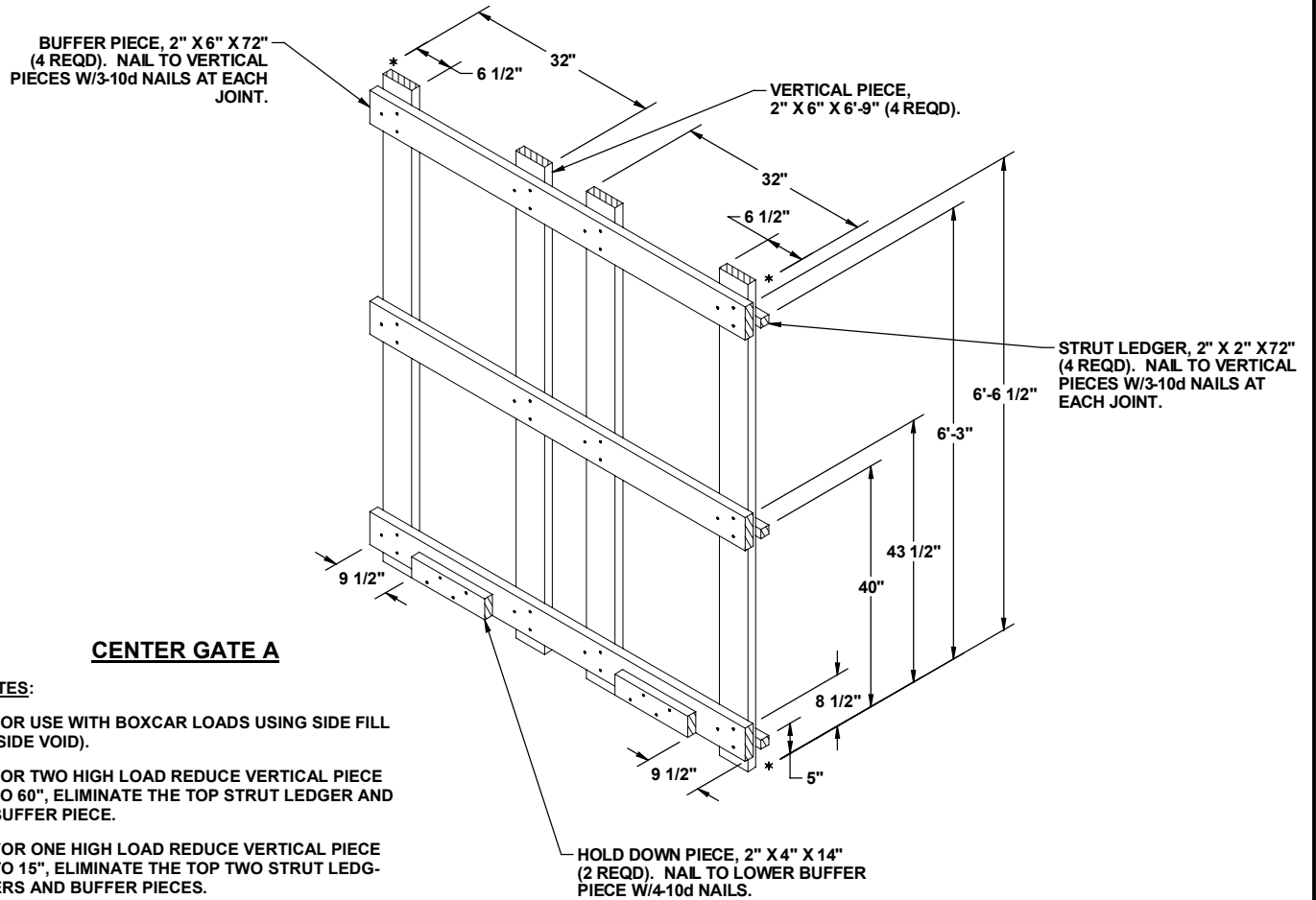
SPECIAL NOTES:

1. A 9'-4" WIDE CONVENTIONAL TYPE BOXCAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE CONTAINER MAY BE POSITIONED ANYWHERE IN THE CAR. IF THE CONTAINER IS NOT POSITIONED AGAINST THE END AND SIDEWALLS OF THE CAR, ADDITIONAL SIDE BLOCKING, HEADERS, AND/OR BACK-UP CLEATS WILL BE REQUIRED AND THE ENDGATE MAY BE ELIMINATED, DEPENDING UPON THE LOCATION OF THE CONTAINER WITHIN THE CAR.
3. IF MORE THAN ONE CONTAINER IS TO BE TRANSPORTED, THE LOAD SHOULD BE FORMED IN ROWS, WITH THE CONTAINERS POSITIONED AGAINST OPPOSITE SIDEWALLS.
4. THE LOAD AS SHOWN IS ADEQUATE FOR RETAINING 8,000 POUNDS, OR TWO CONTAINERS LONGITUDINALLY.



ANTI-SWAY BRACE

NOTE: THE ANTI-SWAY BRACE CAN BE PARTIALLY ASSEMBLED. ONE BUFFER PIECE CAN BE NAILED TO BOTH RETAINER PIECES. THE LONG ENDS OF THE ASSEMBLY CAN THEN BE INSTALLED INTO THE FORKLIFT OPENING OF A LOADED CONTAINER PRIOR TO POSITIONING OF THE LATERALLY ADJACENT CONTAINER.

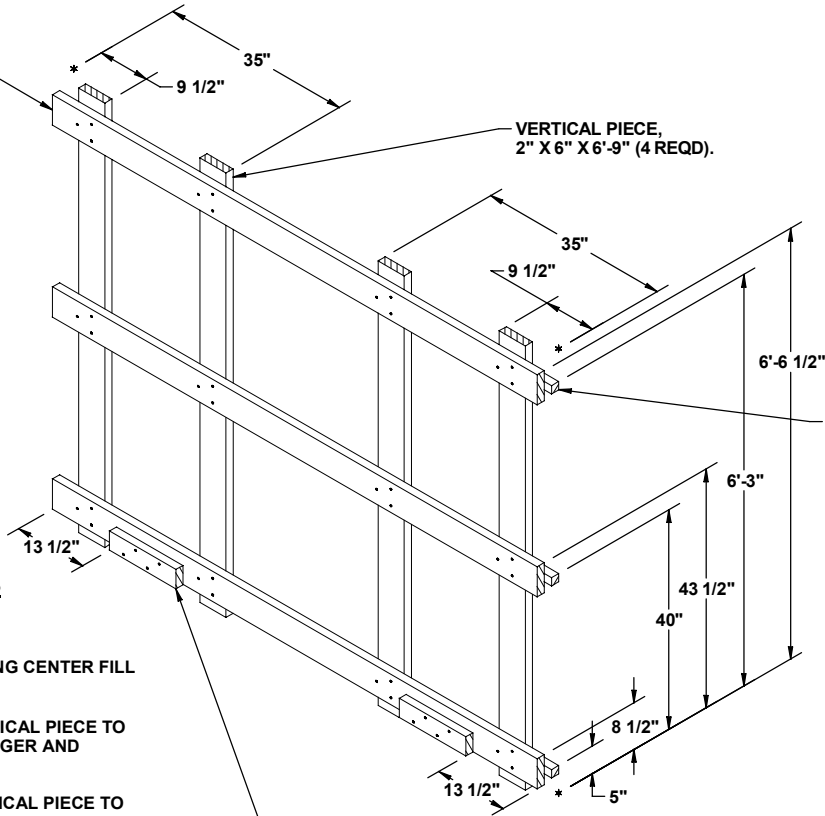


CENTER GATE A

NOTES:

1. FOR USE WITH BOXCAR LOADS USING SIDE FILL (SIDE VOID).
2. FOR TWO HIGH LOAD REDUCE VERTICAL PIECE TO 60", ELIMINATE THE TOP STRUT LEDGER AND BUFFER PIECE.
3. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE TO 15", ELIMINATE THE TOP TWO STRUT LEDGERS AND BUFFER PIECES.

BUFFER PIECE, 2" X 6" BY
BOXCAR WIDTH MINUS 1/2"
(REF: 8'-5-1/2") (4 REQD).
NAIL TO VERTICAL PIECES
W/3-10d NAILS AT EACH JOINT.



VERTICAL PIECE,
2" X 6" X 6'-9" (4 REQD).

STRUT LEDGER, 2" X 2"
BY BOXCAR WIDTH MINUS
1/2" (4 REQD). NAIL TO
VERTICAL PIECES W/3-10d
NAILS AT EACH JOINT.

CENTER GATE B

NOTES:

1. FOR USE WITH BOXCAR LOADS USING CENTER FILL (CENTER VOID).
2. FOR TWO HIGH LOAD REDUCE VERTICAL PIECE TO 50", ELIMINATE THE TOP STRUT LEDGER AND BUFFER PIECE.
3. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE TO 15", ELIMINATE THE TOP TWO STRUT LEDGERS AND BUFFER PIECES.

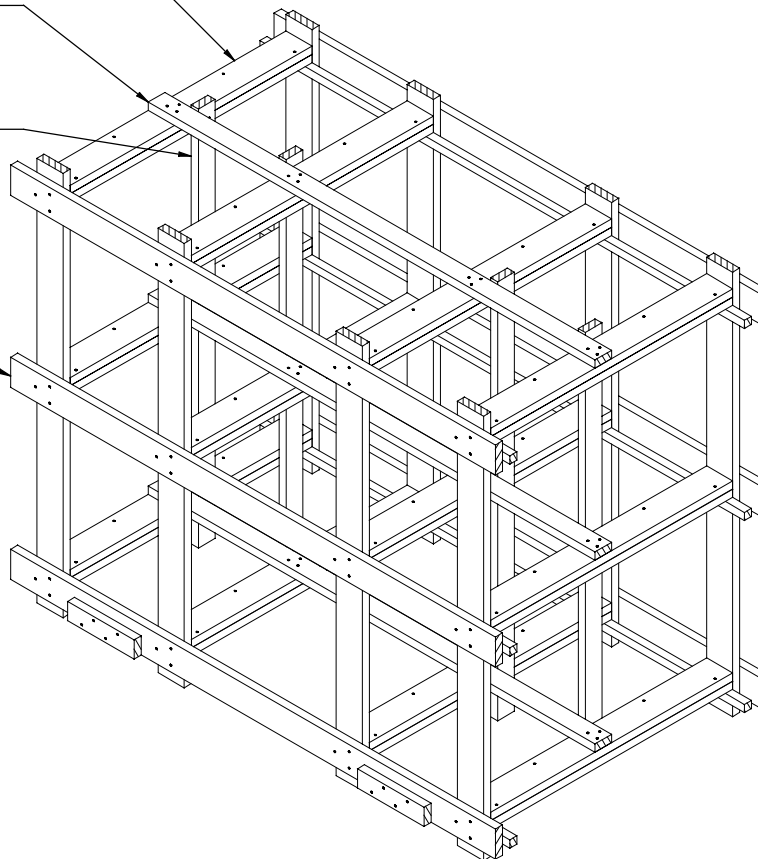
HOLD DOWN PIECE, 2" X 4" X 14"
(2 REQD). NAIL TO LOWER BUFFER
PIECE W/4-10d NAILS.

HORIZONTAL STRUT BRACING, 2" X 4"
BY OVERALL STRUT WIDTH (AS REQD).
NAIL TO THE STRUTS W/3-10d NAILS
AT EACH JOINT.

VERTICAL STRUT BRACING, 2" X 4"
BY A LENGTH TO EXTEND 2" ABOVE
THE TOP STRUT (AS REQD). NAIL
TO THE STRUTS W/3-10d NAILS AT
EACH JOINT.

CENTER GATE B

STRUT



TYPICAL STRUT BRACING

SEE GENERAL NOTE "S.3" ON PAGE 3.

VERTICAL PIECE, 2" X 6" X 6'-6-1/2" (4 REQD).

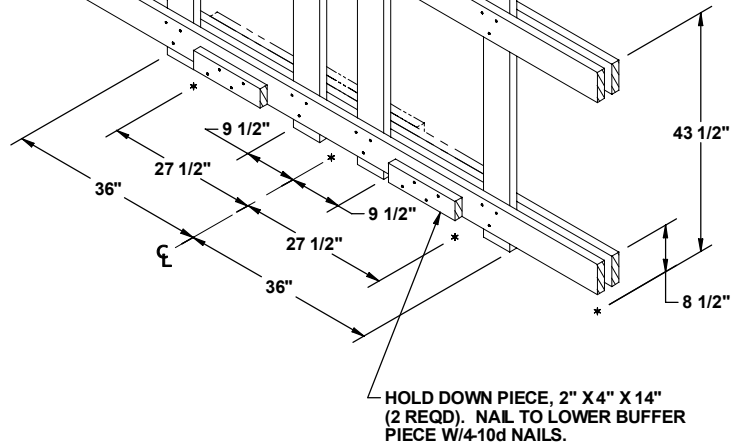
BUFFER PIECE, 2" X 6" BY BOXCAR WIDTH MINUS 1/2" (6 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

SHIM MATERIAL, AS REQUIRED, 6" WIDE PLYWOOD OR DIMENSIONAL LUMBER OF A THICKNESS AND LENGTH TO FILL THE VOID BETWEEN THE CAR ENDWALL AND THE BULKHEAD. NAIL TO THE BUFFER PIECE AND/OR LAMINATE W/1 APPLICABLY SIZED NAIL EVERY 6".

ENDWALL BULKHEAD A

NOTES:

1. FOR USE WITH BOXCAR LOADS USING SIDE FILL (SIDE VOID).
2. FOR TWO HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 43-1/2" AND ELIMINATE THE TOP TWO BUFFER PIECES.
3. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 8-1/2" AND ELIMINATE THE TOP FOUR BUFFER PIECES.



BUFFER PIECE, 2" X 6" BY BOXCAR WIDTH MINUS 1/2" (6 REQD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

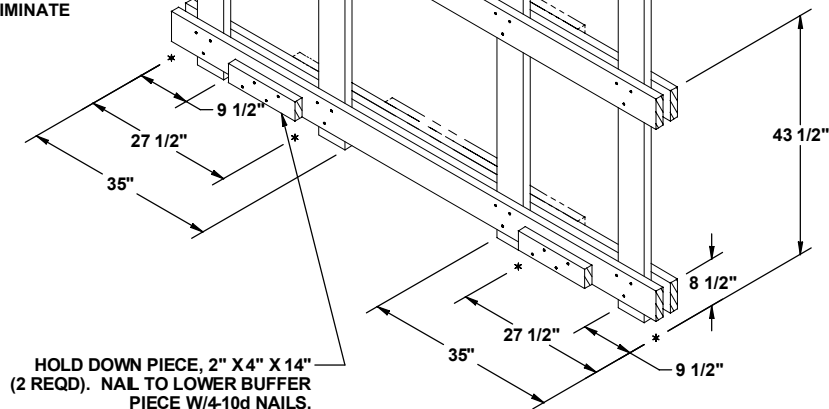
VERTICAL PIECE, 2" X 6" X 6'-6-1/2" (4 REQD).

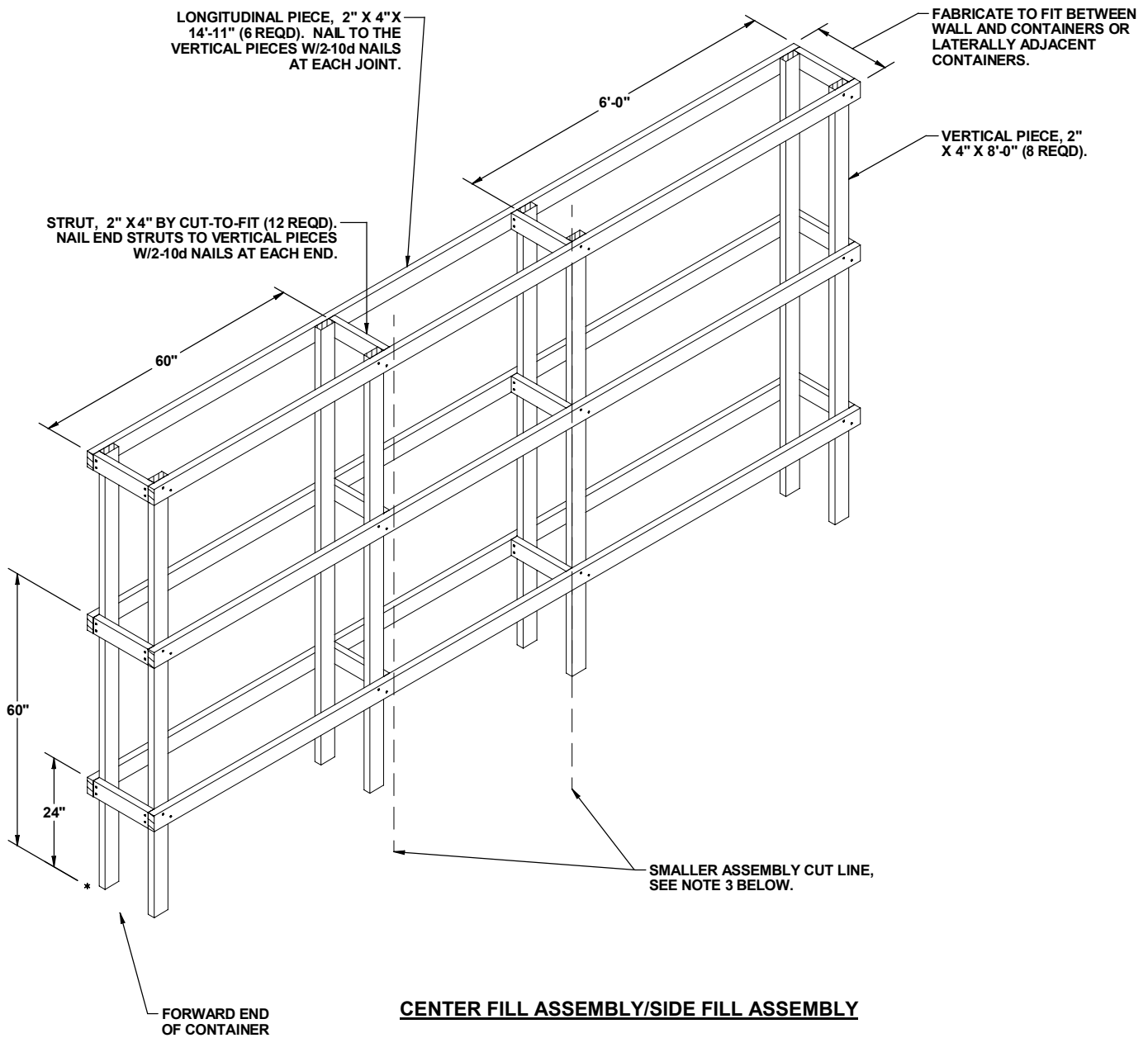
SHIM MATERIAL, AS REQUIRED, 6" WIDE PLYWOOD OR DIMENSIONAL LUMBER OF A THICKNESS AND LENGTH TO FILL THE VOID BETWEEN THE CAR ENDWALL AND THE BULKHEAD. NAIL TO THE BUFFER PIECE AND/OR LAMINATE W/1 APPLICABLY SIZED NAIL EVERY 6".

ENDWALL BULKHEAD B

NOTES:

1. FOR USE WITH BOXCAR LOADS USING CENTER FILL (CENTER VOID).
2. FOR TWO HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 43-1/2" AND ELIMINATE THE TOP TWO BUFFER PIECES.
3. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 8-1/2" AND ELIMINATE THE TOP FOUR BUFFER PIECES.

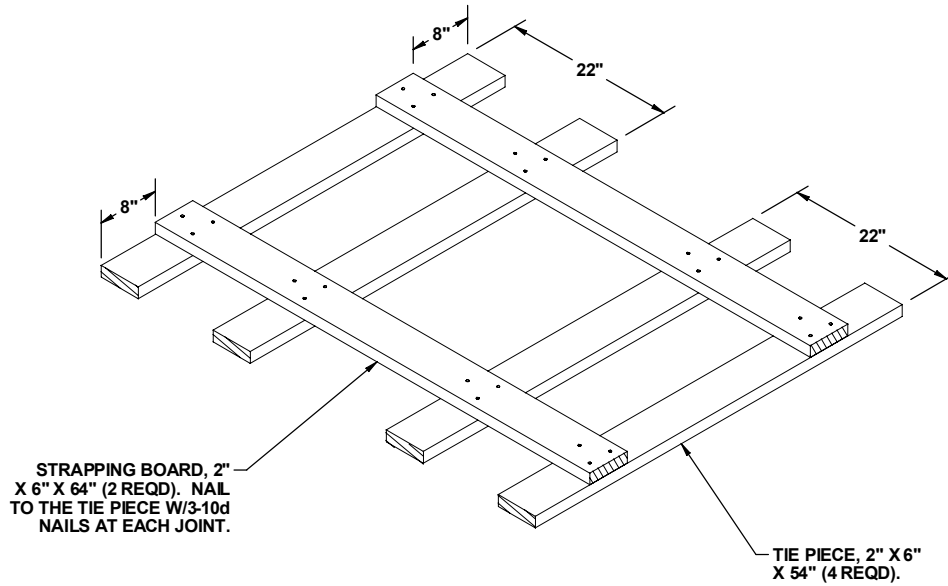




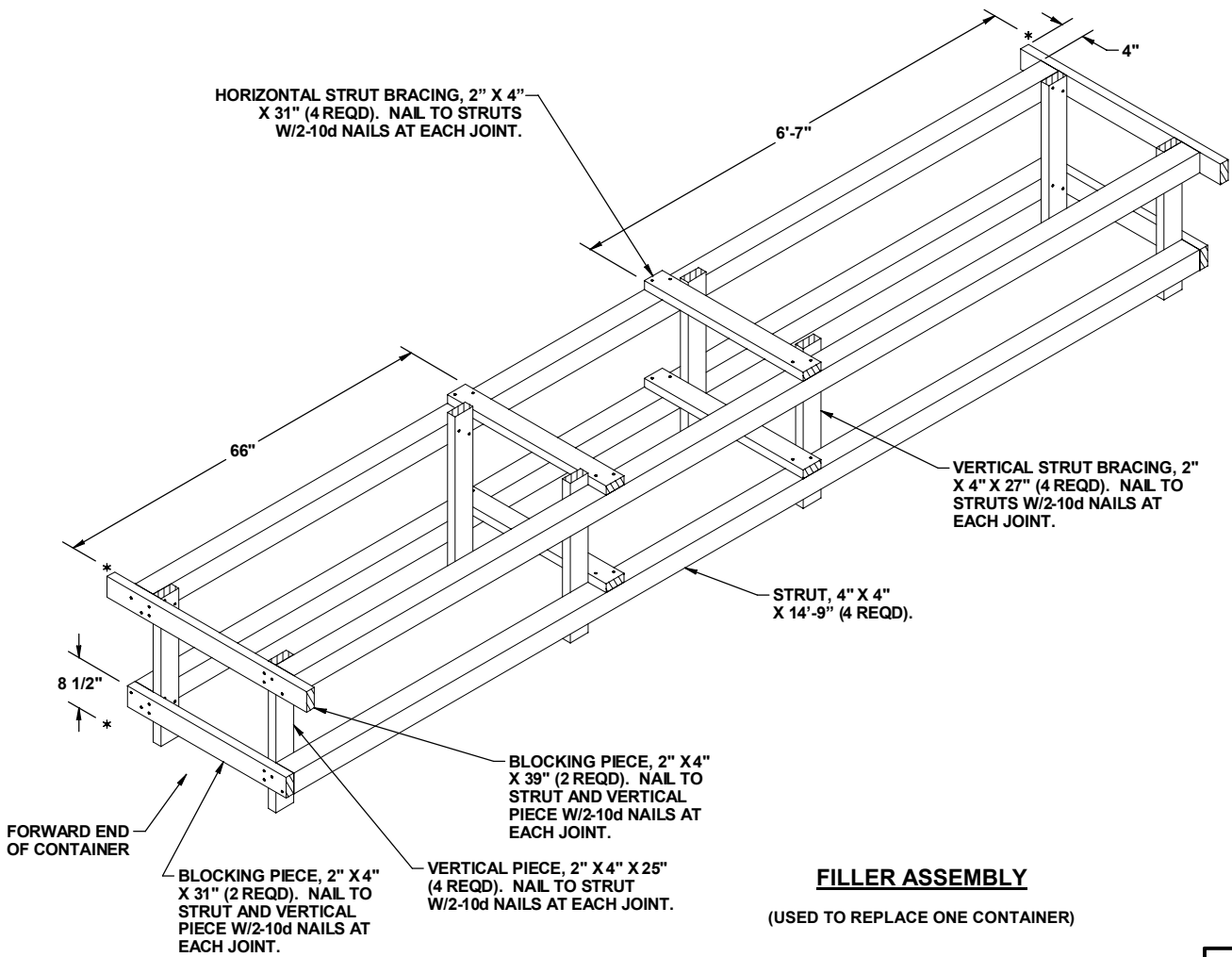
CENTER FILL ASSEMBLY/SIDE FILL ASSEMBLY

NOTES:

1. FOR TWO HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 60" AND ELIMINATE THE TOP HORIZONTAL PIECES AND STRUTS.
2. FOR ONE HIGH LOAD REDUCE VERTICAL PIECE LENGTH TO 24" AND ELIMINATE THE TOP TWO LAYERS OF HORIZONTAL PIECES AND STRUTS.
3. IF DESIRED, THE ASSEMBLY DEPICTED ABOVE MAY BE REPLACED WITH TWO SMALLER ASSEMBLIES, WITH LENGTHS OF 6'-1/2" (FORWARD END OF THE CONTAINER) AND 6'-1-1/2" (AFT END OF CONTAINER). THESE ASSEMBLIES WILL BE CONSTRUCTED BY ELIMINATING THE MATERIAL DEPICTED BETWEEN THE DOTTED LINES ABOVE. THESE SMALLER ASSEMBLIES MUST BE WIRE TIED TO THE CNU-614/E CONTAINER AT TWO LOCATIONS EACH.



STRAPPING BOARD ASSEMBLY

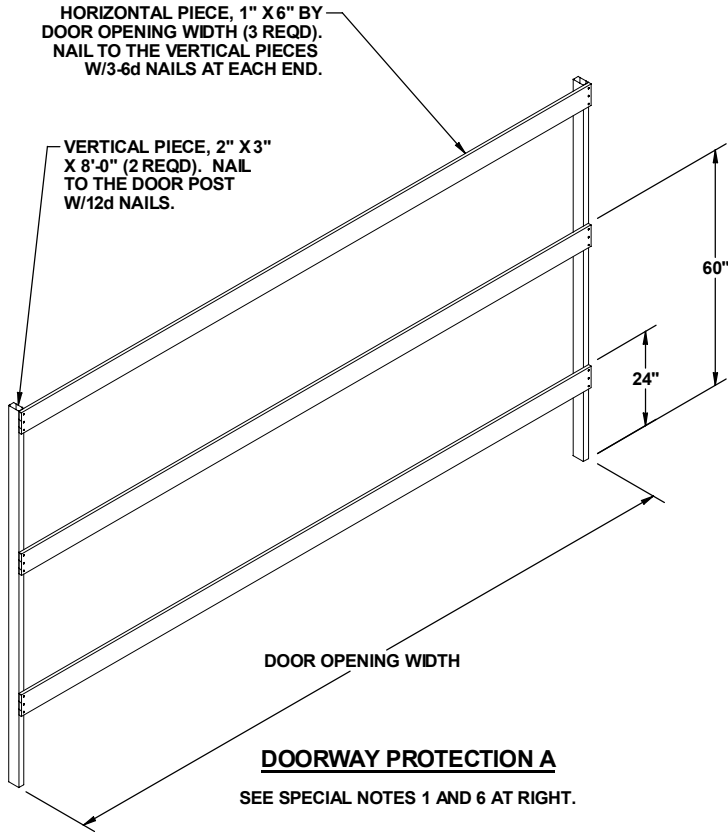


FILLER ASSEMBLY

(USED TO REPLACE ONE CONTAINER)

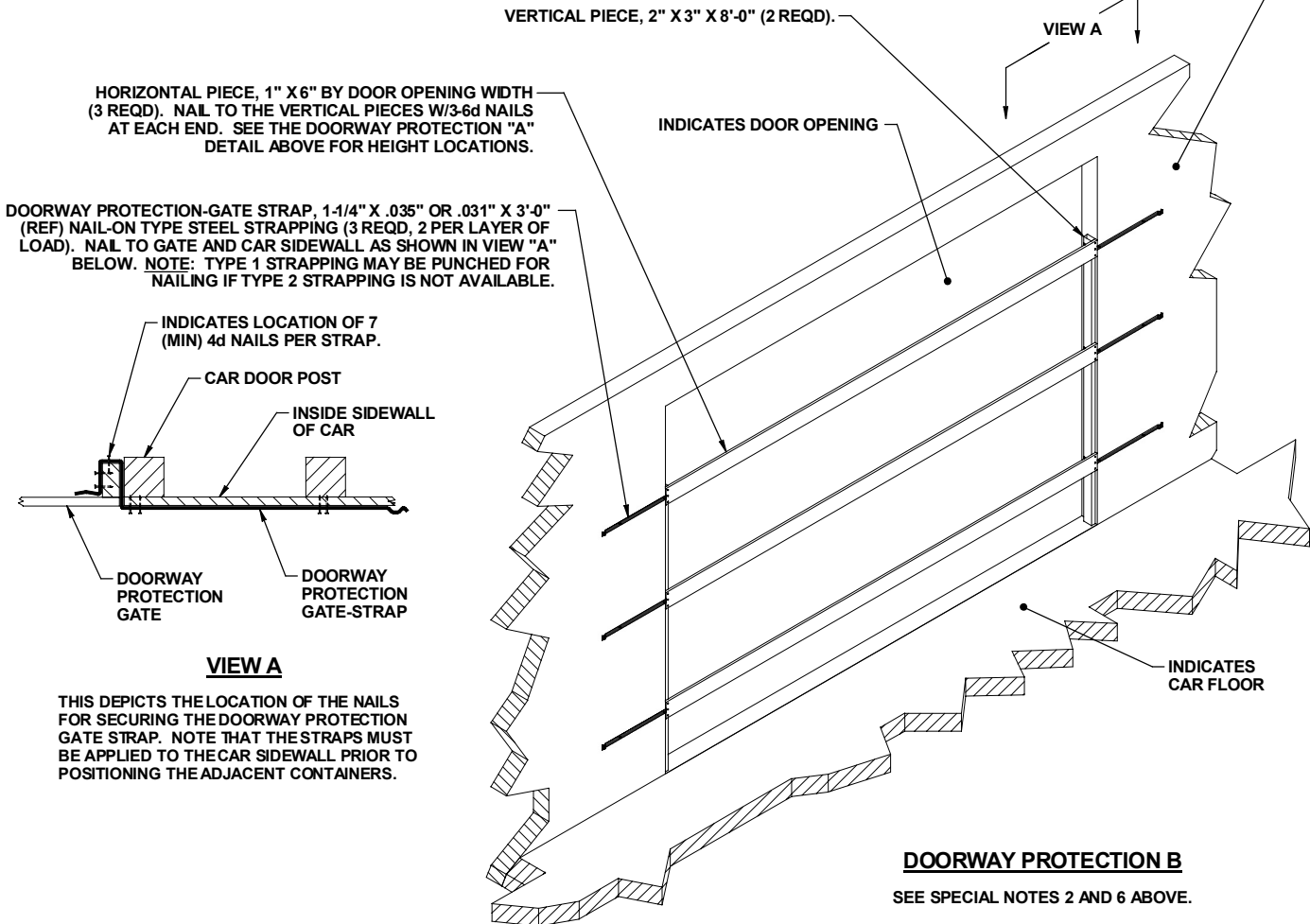
SPECIAL NOTES:

1. DOORWAY PROTECTION "A" IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS.
2. DOORWAY PROTECTION "B" IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS WHEN THE DOOR POSTS ARE STEEL WITHOUT NAILING HOLES AND THE CAR SIDEWALLS ARE NAILABLE.
3. DOORWAY PROTECTION "C" IS FOR USE IN CARS EQUIPPED WITH EITHER PLUG TYPE DOORS OR CONVENTIONAL SLIDING DOORS, BUT ONLY IF THE CAR IS EQUIPPED WITH NAILABLE SIDEWALLS. IF THE CAR IS EQUIPPED WITH SPECIAL ANCHOR RODS IN THE CAR DOOR POSTS, THE DOORWAY PROTECTION STRAPS MAY BE SECURED TO THESE RODS IN LIEU OF ATTACHING TO THE CAR SIDEWALL WITH STRAP ANCHOR PLATES.
4. DOORWAY PROTECTION "D" IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, WHEN THE DOOR POSTS ARE NOT NAILABLE. IF THE CAR HAS NAILABLE SIDEWALLS, NAIL-ON TYPE STRAPPING MAY BE USED TO SECURE THE GATE IN LIEU OF USING THE SPREADER PIECES. SEE THE DOORWAY PROTECTION "B" DETAIL FOR GUIDANCE.
5. NAILED FLOORLINE BLOCKING AND BUNDLING STRAPS ARE REQUIRED FOR DOORWAY PROTECTION IF NONE OF THE ABOVE METHODS CAN BE USED.
6. THE VIEWS ON PAGES 18 AND 19 DEPICT DOORWAY PROTECTION FOR A THREE-LAYER LOAD. FOR EACH REDUCTION IN NUMBER OF LOAD LAYERS, ELIMINATE THE APPROPRIATE TOP HORIZONTAL PIECES AND/OR STRAPS AND REDUCE THE VERTICAL PIECES BY 36". FOR DOORWAY PROTECTION "D", MOVE THE SPANNER BY AN APPROPRIATE DISTANCE.



DOORWAY PROTECTION A

SEE SPECIAL NOTES 1 AND 6 AT RIGHT.



DOORWAY PROTECTION B

SEE SPECIAL NOTES 2 AND 6 ABOVE.

SEAL FOR 1-1/4" STEEL STRAP (3 REQD). NOTCH EACH SEAL WITH TWO NOTCHES. SEE THE "END-OVER-END LAP JOINT DETAILS" ON PAGE 5.

SEE THE "ANCHOR PLATE DETAIL" BELOW.

INDICATES DOOR OPENING

INDICATES CAR SIDEWALL

8'-2 1/2"

62 1/2"

26 1/2"

INDICATES STRAP ANCHOR PLATE

INDICATES CAR FLOOR

DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" STEEL STRAPPING BY DOOR OPENING WIDTH PLUS 6'-0" IN LENGTH (3 REQD). INSTALL FROM TWO PIECES. THREAD ONE END THRU STRAP ANCHOR PLATE AS SHOWN BY THE "ANCHOR PLATE DETAIL" BELOW. NAIL STRAP ANCHOR PLATE TO CAR SIDEWALL W/4 SIGNODE MICROLOCK NAILS.

DOORWAY PROTECTION C

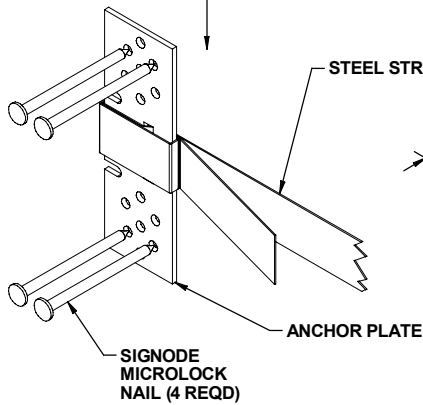
SEE SPECIAL NOTES 3 AND 6 ON PAGE 18.

DOOR SPANNER, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (1 REQD). POSITION ABOVE THE LOAD AND NAIL THRU A FILLER BLOCK INTO A VERTICAL PIECE W/3-12d NAILS AT EACH JOINT. NAIL TO THE CAR SIDEWALL W/2-12d NAILS AT EACH END (OPTIONAL).

SPREADER PIECE, 2" X 3" MATERIAL CUT SLIGHTLY LONGER THAN MEASURED DISTANCE (2 REQD). DRIVE INTO POSITION TO PROVIDE FOR A WEDGE FIT. TOENAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

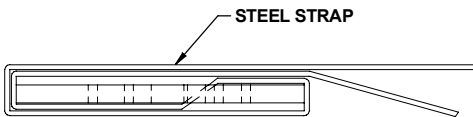
FILLER BLOCK, 1" X 4" X 9" (2 REQD). NAIL TO THE VERTICAL PIECE W/4-6d NAILS.

VIEW B

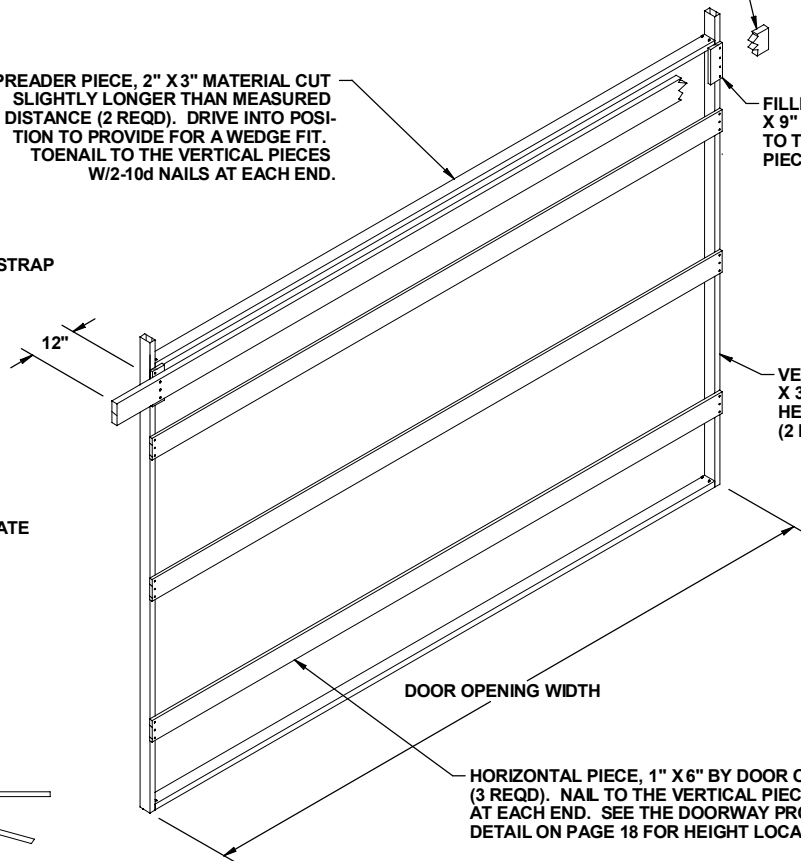


ANCHOR PLATE DETAIL

THIS VIEW "B" BELOW DEPICTS THE PROPER THREADING OF A DOORWAY PROTECTION STRAP THRU AN ANCHOR PLATE.

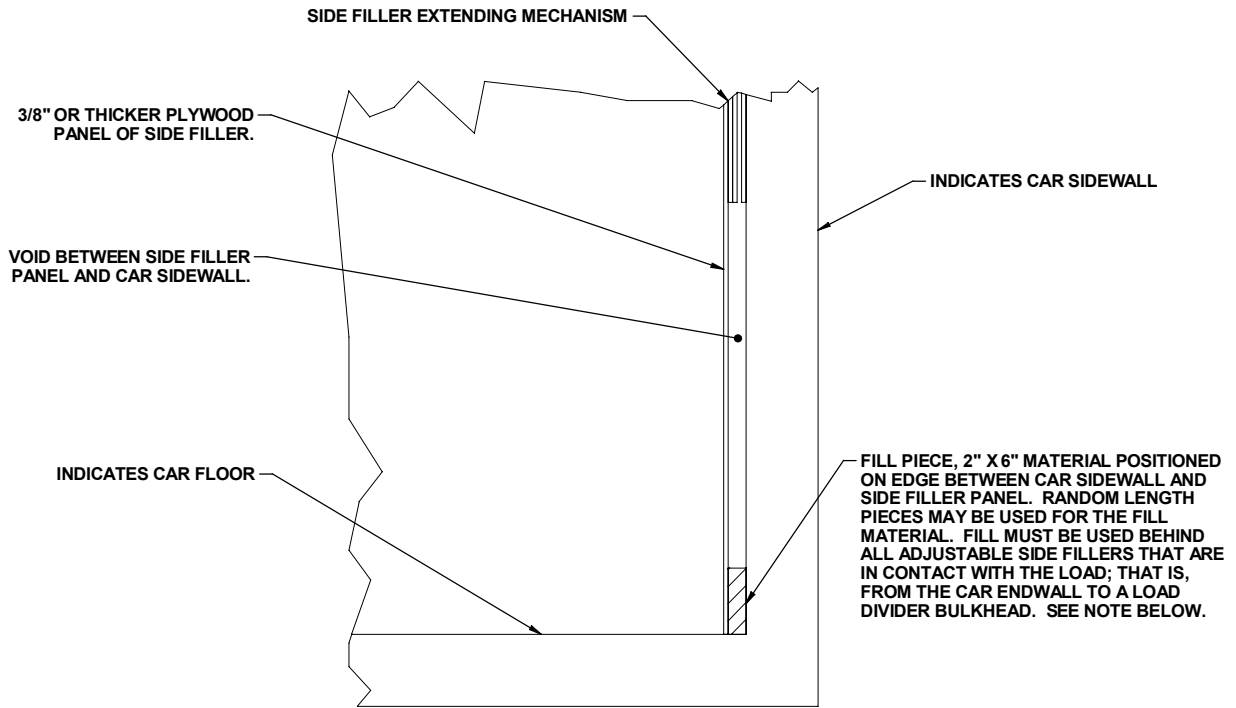


VIEW B



DOORWAY PROTECTION D

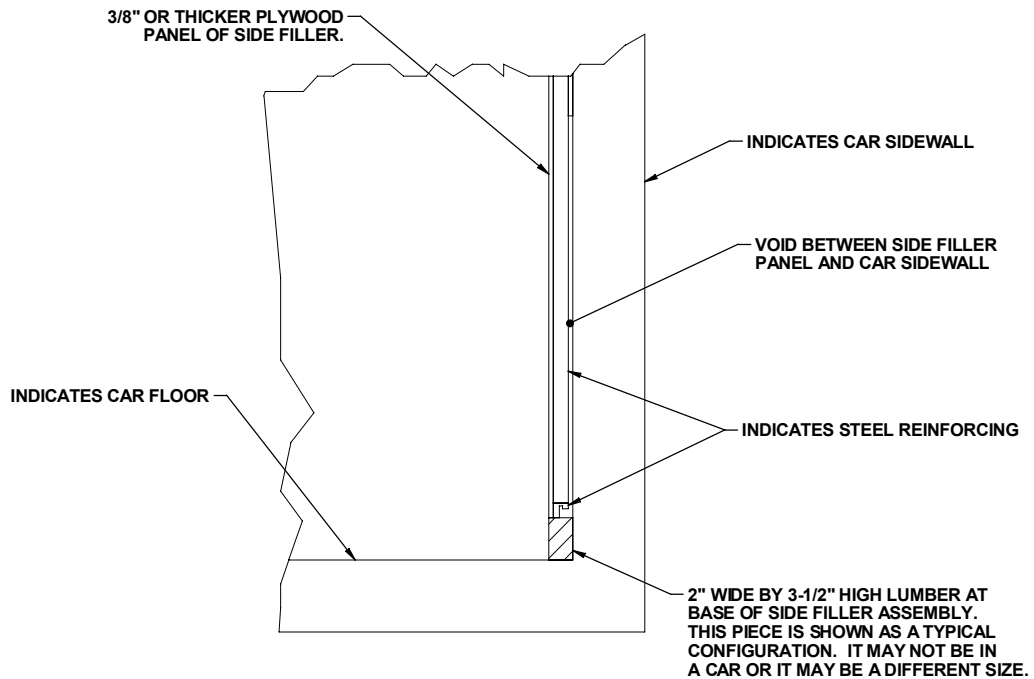
SEE SPECIAL NOTES 4 AND 6 ON PAGE 18.



TYPICAL TYPE A

THIS VIEW SHOWS THE INSTALLATION OF A "FILL PIECE" IN A CAR EQUIPPED WITH A STANDARD ADJUSTABLE SIDE FILLER

NOTE:
 NAILING OF "FILL PIECES" IS NOT REQUIRED EXCEPT THAT EACH "FILL PIECE" LOCATED NEAREST THE DOOR OPENINGS OF THE CAR WILL BE SECURED AGAINST LONGITUDINAL MOVEMENT W/1-6d NAIL DRIVEN THROUGH THE SIDE FILLER PANEL AND INTO THE "FILL PIECE".



TYPICAL TYPE B

THIS VIEW SHOWS A TYPICAL SECTION OF A CAR EQUIPPED WITH HEAVY DUTY, STEEL REINFORCED, ADJUSTABLE SIDE FILLERS. A "FILL PIECE", AS SHOWN IN THE "TYPICAL TYPE A" DETAIL ABOVE, IS NOT REQUIRED IN CARS SO EQUIPPED.