

APPROVED BY
BUREAU OF EXPLOSIVES

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DATE 5/5/93

LOADING AND BRACING (CL & LCL) IN BOX CARS OF CBU ITEMS PACKED IN CNU-147/E TWIN PACK CONTAINERS

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- THIS OUTLOADING DRAWING INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOX CARS, BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES OF VARIOUS DESIGN AND MANUFACTURE, AND CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

U.S. ARMY MATERIEL COMMAND DRAWING			
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CLASS	DIVISION	DRAWING	FILE
19	48	4084	5A1003
SEE THE REVISION LISTING ON PAGE 3			

DO NOT SCALE

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 CONTAINED HEREIN ARE APPLICABLE TO CBU ITEMS WHEN THEY ARE PACKAGED IN THE CNU-147/E TWIN PACK CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE TWIN PACK CONTAINER WITH CONTENTS.
- C. FOR DETAIL OF THE TWIN PACK CONTAINER SEE PAGE 5. SEE GENERAL NOTE "Q".
CONTAINER DIMENSIONS-----89-3/8" LONG X 39" WIDE X 27" HIGH
CONTAINER GROSS WEIGHT---1,655 POUNDS MAXIMUM (APPROX).
- D. THE OUTLOADING PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR SHIPMENTS IN CONVENTIONAL TYPE BOXCARS, FOR SHIPMENTS IN BOXCARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, AND FOR SHIPMENTS IN CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.
- E. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF CBU MUNITIONS IS THE RESPONSIBILITY OF 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. THE LOADS AS SHOWN ARE BASED ON CARS WHICH HAVE 10'-0" WIDE DOORS OF THE CONVENTIONAL SLIDING TYPE. CARS WITH CONVENTIONAL TYPE DOORS OF LESS THAN 8'-0" SHOULD NOT BE ORDERED; HOWEVER, IF NECESSARY, CARS WITH LESS THAN 8'-0" WIDE DOORS CAN BE USED. ALSO, CARS EQUIPPED WITH WIDER OR STAGGERED DOORS CAN BE USED. THE "DOORWAY AREA" WITHIN A CAR IS DEFINED AS THE CARGO SPACE THAT IS ADJACENT TO A CONVENTIONAL TYPE AND/OR A PLUG TYPE DOOR. THE LENGTH OF A "DOORWAY AREA" CAN BE AS MUCH AS 24 FEET IN SOME CARS THAT ARE EQUIPPED WITH STAGGERED DOORS.
- G. BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN, HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR 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. THE USE OF AN OFFSET LOADING PATTERN WILL FACILITATE LOADING AND UNLOADING OPERATIONS IN THE DOORWAY AREA OF THE CAR. UNLESS PROHIBITED WITHIN THE SPECIAL NOTES, A FULL LOAD SHOULD BE BUILT USING AN OFFSET LOADING PATTERN. FOR INSTANCE, A LOAD CONSISTING OF AN EVEN NUMBER OF LOAD UNITS AND HAVING TWO MORE LOAD UNITS IN ONE END OF THE CAR THAN IN THE OPPOSITE END, OR A LOAD CONSISTING OF AN ODD NUMBER OF LOAD UNITS AND HAVING ONE MORE LOAD UNIT IN ONE END THAN IN THE OTHER IS CONSIDERED TO BE AN OFFSET LOAD.

- J. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH CBU MUNITIONS, 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. MIXED ITEMS TO BE SHIPPED IN CARS EQUIPPED WITH MECHANICAL BRACING DEVICES MUST BE SEPARATELY BLOCKED, USING THE PROCEDURES SHOWN FOR THESE CARS AS GUIDANCE.
- K. 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, 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE, AND 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE.
- L. 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.
- M. POWER DRIVEN STAPLES MAY BE USED AS ALTERNATIVE FASTENERS FOR NAILS WHEN CONSTRUCTING DUNNAGE ASSEMBLIES WHICH 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 FEDERAL SPECIFICATION FF-N-105 AS NEARLY AS PRACTICABLE. STAPLES WHICH ARE LONGER THAN 2-1/2" WILL BE A COMMERCIAL GRADE, OF QUALITY EQUIVALENT TO THOSE MANUFACTURED BY SENCO PRODUCTS INCORPORATED. NOTICE: STAPLES WILL NOT BE SUBSTITUTED FOR NAILS IN ANY LOAD RESTRAINING FLOOR DUNNAGE APPLICATION.
- N. 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 4 FOR GUIDANCE.
- O. 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.
- P. 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.
- Q. THE OUTLOADING PROCEDURES AS SHOWN ARE BASED ON THE 27" HIGH WIREBOUND WRAP-AROUND CONTAINER. HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE TO THE PLYWOOD TWIN PACK CONTAINERS WHICH ARE SLIGHTLY LESS IN HEIGHT (APPROXIMATELY 1-3/4"). FOR GUIDANCE PERTINENT TO OUTLOADING PROCEDURES FOR THE PLYWOOD TWIN PACK CONTAINERS, SEE SPECIAL NOTE 6 ON PAGE 7, SPECIAL NOTE 7 ON PAGE 9, AND/OR SPECIAL NOTE 5 ON PAGE 13.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE 1 OR 2, HEAVY DUTY, FINISH B (GRADE 2), SIZE 1-1/4" X .035" OR .031".
- SEAL, STRAP - - - - - : ASTM D3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, OR IV.
- STAPLE, STRAP - - - : COMMERCIAL GRADE.
- WIRE, CARBON STEEL - - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.

(CONTINUED ON PAGE 3)

GENERAL NOTES

(GENERAL NOTES CONTINUED FROM PAGE 2)

- R. 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 "DOORWAY 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. SEE GENERAL NOTE "L" ON PAGE 2.
- S. NOTICE: WHEN POSITIONING CONTAINERS IN A CAR, THEY ARE TO BE PRESSED TIGHTLY TOGETHER LENGTHWISE 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 CONTAINER. PADDING, OF 2" THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
- T. LOAD-BLOCKING STRUTS WHICH ARE 72" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING. SEE THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 19. BRACING IS NOT REQUIRED IF THE STRUTS FOR THE LOAD BEING SHIPPED ARE SHORTER THAN 72". 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 12'-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 STRUTS AS DEPICTED. STRUT BRACING WILL BE EQUALLY EFFECTIVE IF APPLIED TO THE UNDER SIDE OF THOSE STRUTS.
- U. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.

(FOR CARS EQUIPPED WITH MECHANICAL BRACING DEVICES)

- V. THE OUTLOADING PROCEDURES FOR BOXCARS EQUIPPED WITH MECHANICAL BRACING DEVICES MAY BE ADAPTED AS REQUIRED TO FACILITATE THE USE OF BOXCARS EQUIPPED WITH VARIOUS TYPES OF SELF-CONTAINED MECHANICAL BRACING DEVICES, HOWEVER, FIXED OR ADJUSTABLE WALL MEMBERS AND DOORWAY MEMBERS WITHIN THESE CARS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. CAUTION: BOXCARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.
1. A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE THAN 4,000 POUNDS OF LADING. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM AND CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE SPACING OF THE LOCKING HOLES IN THE WALL MEMBERS PERMIT. LOCKING BARS (LEVER JACKS) SHOULD BE USED FOR THIS PURPOSE. AN ADDITIONAL 1/2" OF ADJUSTMENT CAN BE MADE BY TURNING A CROSS MEMBER END-FOR-END WHEN LOCKING PINS ON THE MEMBER ARE OFF-CENTER. NOTE: IT IS RECOMMENDED THAT EACH CROSS MEMBER BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS AND AT EQUAL DISTANCES FROM THE END OF THE CAR).
 2. CAUTION: ALL BLOCKING AND BRACING COMPONENTS IN EMPTY CARS AND ALL UNUSED COMPONENTS IN LOADED CARS MUST BE "SECURED" FOR SHIPMENT -- ADJUSTABLE WALL MEMBERS TO VERTICAL WALL ATTACHMENT RAILS, AND CROSS MEMBERS TO ADJUSTABLE WALL MEMBERS OR TO FIXED HORIZONTAL WALL MEMBERS OR TO DOORWAY MEMBERS, AND DOORWAY MEMBERS TO DOOR POSTS. COMPONENTS ASSIGNED TO EACH CAR MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS.
- W. IN A CAR EQUIPPED WITH ADJUSTABLE WALL MEMBERS, PROVIDING THE FIXED WALL MEMBERS WHICH ARE PRESENT IN SOME "ADJUSTABLE" CARS ARE NOT PROPERLY POSITIONED TO PROVIDE SIDE BEARING SURFACES BETWEEN THE CONTAINERS AND THE CAR SIDEWALLS, ADJUSTABLE WALL MEMBERS (AS REQUIRED) MUST BE INSTALLED TO PROVIDE A MINIMUM OF ONE SURFACE AREA FOR SIDE BEARING AT SOME LOCATION WITHIN THE UPPER HALF OF EACH UNIT.
- X. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.

REVISION

REVISION NO. 1, DATED JULY 1993, CONSISTS OF:

1. UPDATING GENERAL NOTES AND MATERIAL SPECIFICATIONS ON PAGE 2.
2. ADDING ALTERNATIVE BLOCKING AND BRACING PROCEDURES ON PAGES 8 AND 9.
3. ADDING PROCEDURES FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS ON PAGES 10 AND 11.

GENERAL NOTE

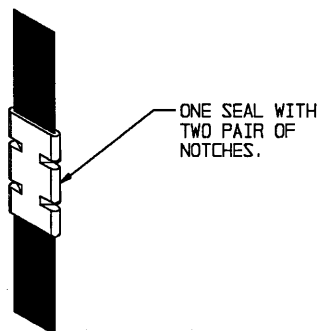
(FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS)

(GENERAL NOTES CONTINUED)

- AA. 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.
- BB. 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 CBU MUNITIONS. NOTICE: ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST 15" OF TRAVEL ARE ACCEPTABLE.
- CC. 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.
- DD. A "STRUT ASSEMBLY" MUST BE INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS IF THE CAR CONTAINS HAZARD CLASS AND DIVISION 1.1, 1.2 OR 1.3 EXPLOSIVES AND THE LOAD IN EITHER END OF THE CAR WEIGHS 50,000 POUNDS OR MORE. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES. NOTE THAT THE STRUT ASSEMBLY MAY BE OMITTED FROM LOADS OF HAZARD CLASS AND DIVISION 1.1, 1.2 OR 1.3 EXPLOSIVES WEIGHING 50,000 POUNDS WHEN THE LADING AND ADEQUATE BLOCKING AND BRACING ARE POSITIONED TO COMPLETELY FILL THE SPACE BETWEEN THE INSTALLED BULKHEADS AS SPECIFIED IN GENERAL NOTE "EE-2" AT RIGHT. DETAILS OF STRUT ASSEMBLIES FOR USE BETWEEN 2-PIECE BULKHEADS AND BETWEEN 1-PIECE BULKHEADS ARE SHOWN ON PAGE 22.

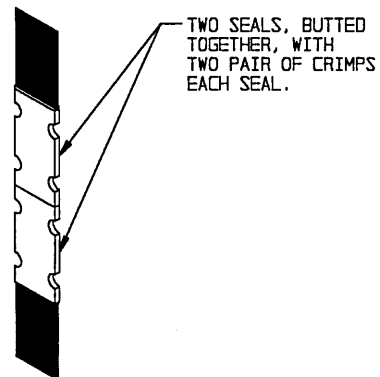
- EE. THE NORMAL LOADING PATTERN IN CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS IS TO POSITION THE LADING BETWEEN A CAR ENDWALL AND A LOAD DIVIDER BULKHEAD IN FULL LAYERS. OBVIOUSLY, A LOAD QUANTITY MUST THEN BE A MULTIPLE OF THE NUMBER OF CONTAINERS WHICH ARE IN ONE LOAD UNIT. A LOAD UNIT IS DEFINED AS A STACK OF CONTAINERS WHICH 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.
1. FILLER ASSEMBLIES MAY BE USED TO ADJUST A LOAD QUANTITY DOWNWARD BY OTHER THAN A MULTIPLE OF A LOAD UNIT. SEE THE PROCEDURES ON PAGE 18 FOR GUIDANCE.
 2. AT LOCATION(S) WHERE K-BRACES MIGHT NORMALLY BE USED IN A LOAD IN A CONVENTIONAL CAR, LOAD DIVIDER BULKHEADS CAN BE POSITIONED. LOADING CAN THEN CONTINUE TOWARD THE CENTER OF THE CAR FROM EACH INSTALLED LOAD DIVIDER BULKHEAD IN A ONE-HIGH LOADING PATTERN. INSTALL CENTER GATES, STRUTS, AND GATE HOLD-DOWNS AS SHOWN IN THE APPLICABLE CONVENTIONAL BOXCAR DRAWING HEREIN TO PROVIDE FOR A TIGHT LOAD BETWEEN THE BULKHEADS.
 3. ONE OR MORE UNITS CAN BE POSITIONED IN CONTACT WITH A LOAD DIVIDER BULKHEAD ON THE CENTER-OF-CAR SIDE. BLOCK AND BRACE WITH LCL BRACES AS SHOWN ON PAGE 21 OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 20.
- FF. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.

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STRAP JOINT A

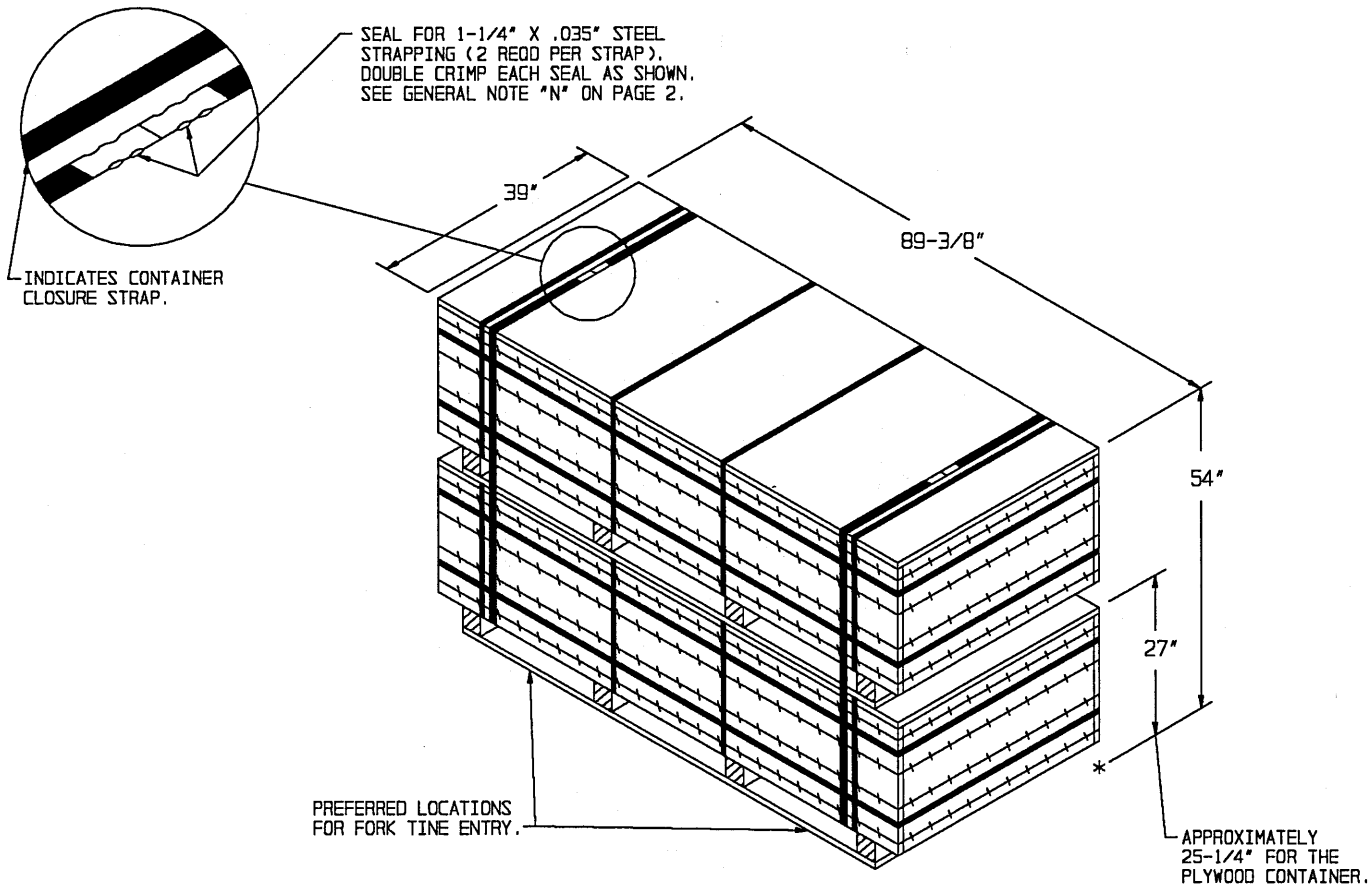
METHOD OF SECURING A STRAP JOINT WHEN USING A NOTCH-TYPE SEALER.



STRAP JOINT B

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

END-OVER-END LAP JOINT DETAILS



TYPICAL STACK DETAIL
THE WIREBOUND WRAP-AROUND CONTAINER IS SHOWN.

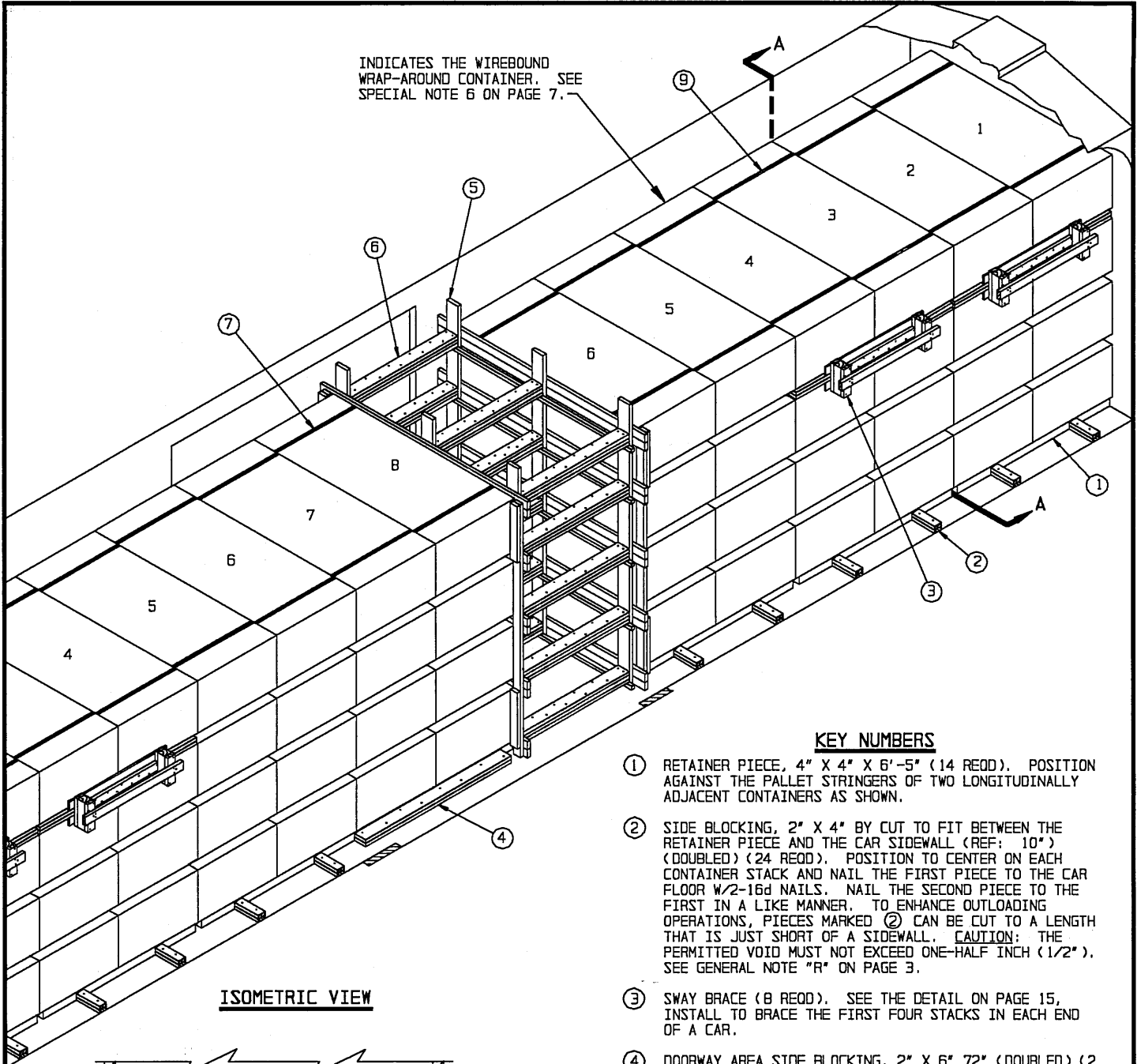
UNITIZATION PROCEDURES:

1. WHEN STACKING CONTAINERS FOR UNITIZING, AN UPPER CONTAINER SHOULD BE PLACED AS NEARLY AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
2. INSTALLATION OF 1-1/4" X .035" UNITIZING STRAPS. SEE GENERAL NOTE "N" ON PAGE 2.
 - A. STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. THREAD STRAPPING THROUGH THE PALLET OF THE LOWER CONTAINER AS NEAR AS PRACTICAL TO THE INSIDE OF AN OUTER PALLET STRINGER. PLACE STRAPPING SO THAT IT LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE STACK.
 - B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO (2) DOUBLE CRIMPED STRAP SEALS AS SHOWN OR WITH ONE DOUBLE NOTCHED SEAL. THE LAP JOINTS WILL BE MADE ALONG THE TOP OF THE STACK. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT THE CONTAINERS ARE NOT DAMAGED. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.
 - C. NOTICE: IN SOME INSTANCES, CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE STACKS SHOULD BE INSPECTED, AND AS REQUIRED, LOOSE UNITIZING STRAPS MUST BE REPLACED OR RETENSIONED.

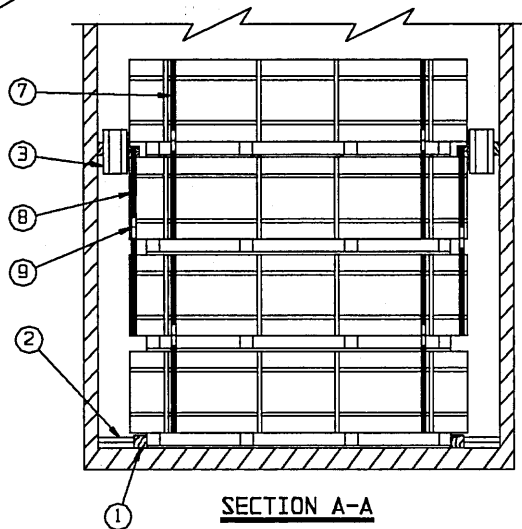
CONTAINER OR STACK HANDLING PROCEDURES:

- NOTES: (1) APPROVED MATERIAL HANDLING EQUIPMENT (FORK TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED IN OTHER DOCUMENTS.
- (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.
- A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.
 - B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER TO PREVENT DAMAGE TO THE CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING CAR LOADING, A TWO-HIGH CONTAINER STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK UNDER THE SECOND LAYER CONTAINER.
 - C. IF CONTAINERS ARE HANDLED BY SLINGING, THE SLING USED MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER.

INDICATES THE WIREBOUND WRAP-AROUND CONTAINER. SEE SPECIAL NOTE 6 ON PAGE 7.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① RETAINER PIECE, 4" X 4" X 6'-5" (14 REQD). POSITION AGAINST THE PALLET STRINGERS OF TWO LONGITUDINALLY ADJACENT CONTAINERS AS SHOWN.
- ② SIDE BLOCKING, 2" X 4" BY CUT TO FIT BETWEEN THE RETAINER PIECE AND THE CAR SIDEWALL (REF: 10") (DOUBLED) (24 REQD). POSITION TO CENTER ON EACH CONTAINER STACK AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. TO ENHANCE UNLOADING OPERATIONS, PIECES MARKED ② CAN BE CUT TO A LENGTH THAT IS JUST SHORT OF A SIDEWALL. CAUTION: THE PERMITTED VOID MUST NOT EXCEED ONE-HALF INCH (1/2"). SEE GENERAL NOTE "R" ON PAGE 3.
- ③ SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 15, INSTALL TO BRACE THE FIRST FOUR STACKS IN EACH END OF A CAR.
- ④ DOORWAY AREA SIDE BLOCKING, 2" X 6" 72" (DOUBLED) (2 REQD). POSITION AS SHOWN, 6" BACK FROM THE ADJACENT CENTER GATE, AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑤ CENTER GATE (2 REQD). SEE THE "CENTER GATE A" DETAIL ON PAGE 15. SEE SPECIAL NOTE 6 ON PAGE 7.
- ⑥ STRUT, 2" X 6" BY CUT-TO-FIT (TRIPLED) (15 REQD). LAMINATE THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 6". LAMINATE THE THIRD PIECE TO THE SECOND IN A LIKE MANNER. TOENAIL THE TOP PIECE TO THE CENTER GATES W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 7 ON PAGE 7.
- ⑦ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 16'-0" LONG STEEL STRAPPING (56 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.
- ⑧ STACK STABILIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (14 REQD). SEE SPECIAL NOTE 2 ON PAGE 7 FOR INSTALLATION GUIDANCE.
- ⑨ SEAL FOR 1-1/4" STRAPPING (140 REQD, 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER OR NARROWER CARS CAN BE USED FOR SHIPMENT OF THE DEPICTED LOAD BY ADJUSTING THE THICKNESS OF THE SWAY BRACE. THIS MAY BE ACCOMPLISHED BY ADDING OR REMOVING LAMINATIONS OF "FILL PIECES" IN THE SWAY BRACE.
2. EACH SET OF TWO STACK STABILIZING STRAPS, MARKED AS PIECES ⑥, MUST BE INSTALLED TO ENCIRCLE THE SECOND AND THIRD CONTAINERS IN EACH SET OF TWO LONGITUDINALLY ADJACENT STACKS, AS LOADING PROGRESSES. IN THOSE STACKS WHERE SWAY BRACES ARE USED, A STRAP MUST PASS OVER THE TOP OF THE DOUBLED 2" X 4" RETAINER PIECE OF THE SWAY BRACE AS ILLUSTRATED IN THE "SECTION A-A" VIEW ON PAGE 6.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER OR STACK, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 18, MUST BE SUBSTITUTED FOR EACH OMITTED CONTAINER. A "FILLER ASSEMBLY" CAN BE USED ON TOP OF ANY STACK, EXCEPT THOSE ADJACENT TO A CENTER GATE, OR THOSE WHERE THE SWAY BRACE, PIECE MARKED ③, IS USED.
4. IF THE QUANTITY TO BE SHIPPED CANNOT BE ACHIEVED BY THE SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES FOR THE OMITTED CONTAINERS, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. REFER TO PAGE 19 FOR BRACE AND INSTALLATION SPECIFICATIONS.
5. IF CARS WITH WIDER OR STAGGERED DOORS ARE USED, THE CAR SHOULD BE LOADED WITH AN EQUAL NUMBER OF STACKS WITHIN BOTH ENDS OF THE CAR. WHEN THIS METHOD IS USED, THE DOORWAY AREA SIDE BLOCKING, MARKED AS PIECE ④, MUST BE USED IN LIEU OF PIECES MARKED ② TO BLOCK THOSE STACKS THAT EXTEND MORE THAN 20" INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR. SEE GENERAL NOTE "F" ON PAGE 2.
6. WHEN SHIPPING A PLYWOOD TWIN PACK CONTAINER, THE HEIGHT DIMENSIONS FOR THE HORIZONTAL PIECES OF THE CENTER GATE MUST BE CHANGED TO 27-1/4", 52-1/2", 6'-5-3/4", AND 8'-3" FROM BOTTOM TO TOP. ALSO, THE LENGTH OF THE LATERAL RETAINER SUPPORT PIECES AND VERTICAL PIECES MUST CHANGE TO 8'-5" AND 9'-6-1/2", RESPECTIVELY. ADDITIONALLY, THE HEIGHT DIMENSIONS FOR THE STRUT LEDGERS MUST BE CHANGED TO 25-1/4", 50-1/2", 6'-3-3/4" AND 8'-0" FROM BOTTOM TO TOP. SEE GENERAL NOTE "O" ON PAGE 2.
7. IF A STACK IS OMITTED FROM THE DEPICTED LOAD IT WILL BE NECESSARY TO INSTALL HORIZONTAL AND VERTICAL STRUT BRACING. SEE THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 19.
8. FORTY-FOUR CONTAINERS CAN BE LOADED IN A 40'-6" LONG CAR AND 72 CONTAINERS CAN BE LOADED IN A 60'-8" LONG CAR BY EMPLOYING THE PROCEDURES SHOWN ON PAGE 6. THE DEPICTED CENTER BLOCKING IS ADEQUATE FOR THE RETENTION OF A FULL LOAD IN A 60'-8" LONG CAR.

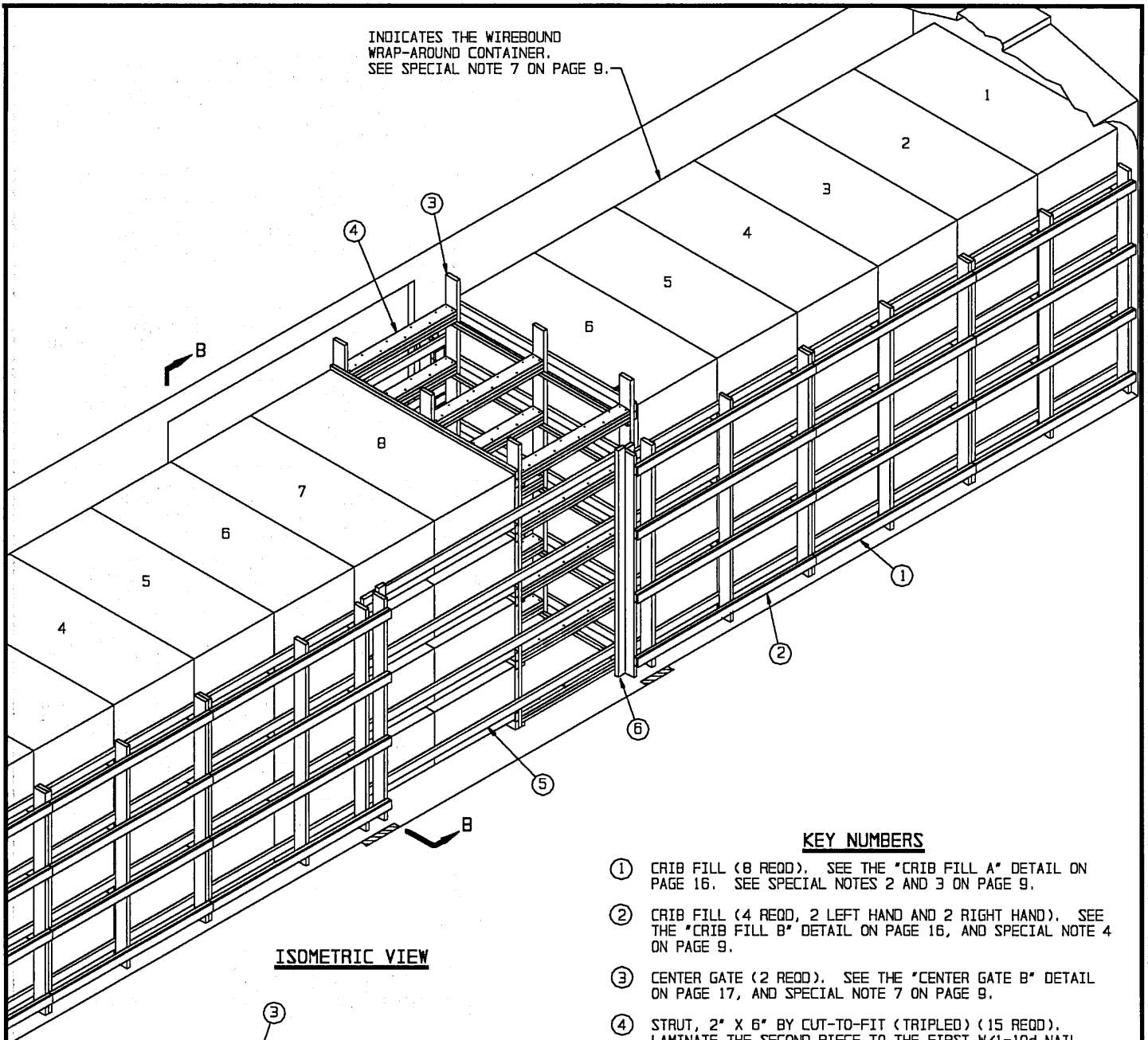
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	64	22
2" X 2"	80	27
2" X 3"	12	6
2" X 4"	453	302
2" X 6"	287	287
4" X 4"	106	142
NAILS	NO. REOD	POUNDS
6d (2")	96	1/2
10d (3")	1,082	16-3/4
12d (3-1/4")	60	1
16d (3-1/2")	128	3
STEEL STRAPPING, 1-1/4" -- 1,218' REOD		174 LBS
SEAL FOR 1-1/4" STRAPPING -- 140 REOD		7 LBS

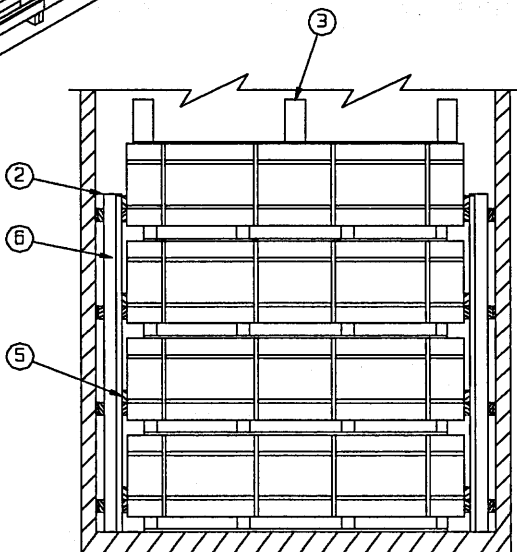
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (W/CBU ITEM)	56	103,880 LBS
DUNNAGE		1,773 LBS
TOTAL WEIGHT		105,653 LBS (APPROX)

INDICATES THE WIREBOUND
WRAP-AROUND CONTAINER.
SEE SPECIAL NOTE 7 ON PAGE 9.



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

- ① CRIB FILL (8 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 16. SEE SPECIAL NOTES 2 AND 3 ON PAGE 9.
- ② CRIB FILL (4 REQD, 2 LEFT HAND AND 2 RIGHT HAND). SEE THE "CRIB FILL B" DETAIL ON PAGE 16, AND SPECIAL NOTE 4 ON PAGE 9.
- ③ CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 17, AND SPECIAL NOTE 7 ON PAGE 9.
- ④ STRUT, 2" X 6" BY CUT-TO-FIT (TRIPLED) (15 REQD). LAMINATE THE SECOND PIECE TO THE FIRST W/1-10d NAIL EVERY 6". LAMINATE THE THIRD PIECE TO THE SECOND IN A LIKE MANNER. TOENAIL THE TOP PIECE TO THE CENTER GATES W/2-12d NAILS AT EACH END. SEE SPECIAL NOTE 8 ON PAGE 9.
- ⑤ DOORWAY PROTECTION, 2" X 4" BY DOOR WIDTH PLUS 12" (8 REQD). POSITION SO THAT APPROXIMATELY 6" OF EACH END RESTS ON THE HORIZONTAL PIECES OF THE CRIB FILL.
- ⑥ RETAINER PIECE, 2" X 4" X 8'-0" (4 REQD). NAIL TO PIECES MARKED ⑤ W/3-10d NAILS AT EACH JOINT.

ALTERNATIVE METHOD

56-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER OR NARROWER CARS CAN BE USED.
2. IF THE CAR WIDTH IS DIFFERENT FROM WHAT IS SHOWN OR IF DESIRED, THE WIDTH OF THE CRIB FILL MAY BE ADJUSTED BY ADDING OR REMOVING LAMINATIONS OF HORIZONTAL PIECES.
3. CRIB FILL "A", PIECE MARKED ①, IS TWO LOAD UNITS LONG. CRIB FILL "B", 4PIECE MARKED ②, IS TWO LOAD UNITS LONG, PLUS THE DISTANCE TO THE DOOR OPENING. SEE SPECIAL NOTE 4.
4. IF THE LENGTH OF THE CAR OR THE WIDTH OF THE CAR DOORS ARE DIFFERENT FROM WHAT IS SHOWN, CRIB FILL WHICH IS ONE LOAD UNIT LONG PLUS THE DISTANCE TO THE DOOR OPENING MAY BE REQUIRED. SEE THE "CRIB FILL C" DETAIL ON PAGE 17.
5. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER OR STACK, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 18, MUST BE SUBSTITUTED FOR EACH OMITTED CONTAINER. A "FILLER ASSEMBLY" CAN BE USED ON TOP OF ANY STACK, EXCEPT THOSE ADJACENT TO A CENTER GATE.
6. IF THE QUANTITY TO BE SHIPPED CANNOT BE ACHIEVED BY THE SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES FOR THE OMITTED CONTAINERS, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. REFER TO PAGE 19 FOR BRACE AND INSTALLATION SPECIFICATIONS.
7. WHEN SHIPPING A PLYWOOD TWIN PACK CONTAINER, THE HEIGHT DIMENSIONS FOR THE HORIZONTAL PIECES OF THE GATE MUST BE CHANGED TO 27-1/4", 52-1/2", 6'-5-3/4", AND 8'-3" FROM BOTTOM TO TOP. ALSO, THE LENGTH OF THE LATERAL RETAINER SUPPORT PIECES AND VERTICAL PIECES MUST CHANGE TO 8'-5" AND 9'-6-1/2", RESPECTIVELY. ADDITIONALLY, THE HEIGHT DIMENSIONS FOR THE STRUT LEDGERS MUST BE CHANGED TO 25-1/4", 50-1/2", 6'-3-3/4" AND 8'-0" FROM BOTTOM TO TOP. SEE GENERAL NOTE "O" ON PAGE 2.
8. IF A STACK IS OMITTED FROM THE DEPICTED LOAD IT WILL BE NECESSARY TO INSTALL HORIZONTAL AND VERTICAL STRUT BRACING. SEE THE "TYPICAL STRUT BRACING" DETAIL ON PAGE 19.
9. FORTY-FOUR CONTAINERS CAN BE LOADED IN A 40'-6" LONG CAR AND 72 CONTAINERS CAN BE LOADED IN A 60'-8" LONG CAR BY EMPLOYING THE PROCEDURES SHOWN ON PAGE 8. THE DEPICTED CENTER BLOCKING IS ADEQUATE FOR THE RETENTION OF A FULL LOAD IN A 60'-8" LONG CAR.

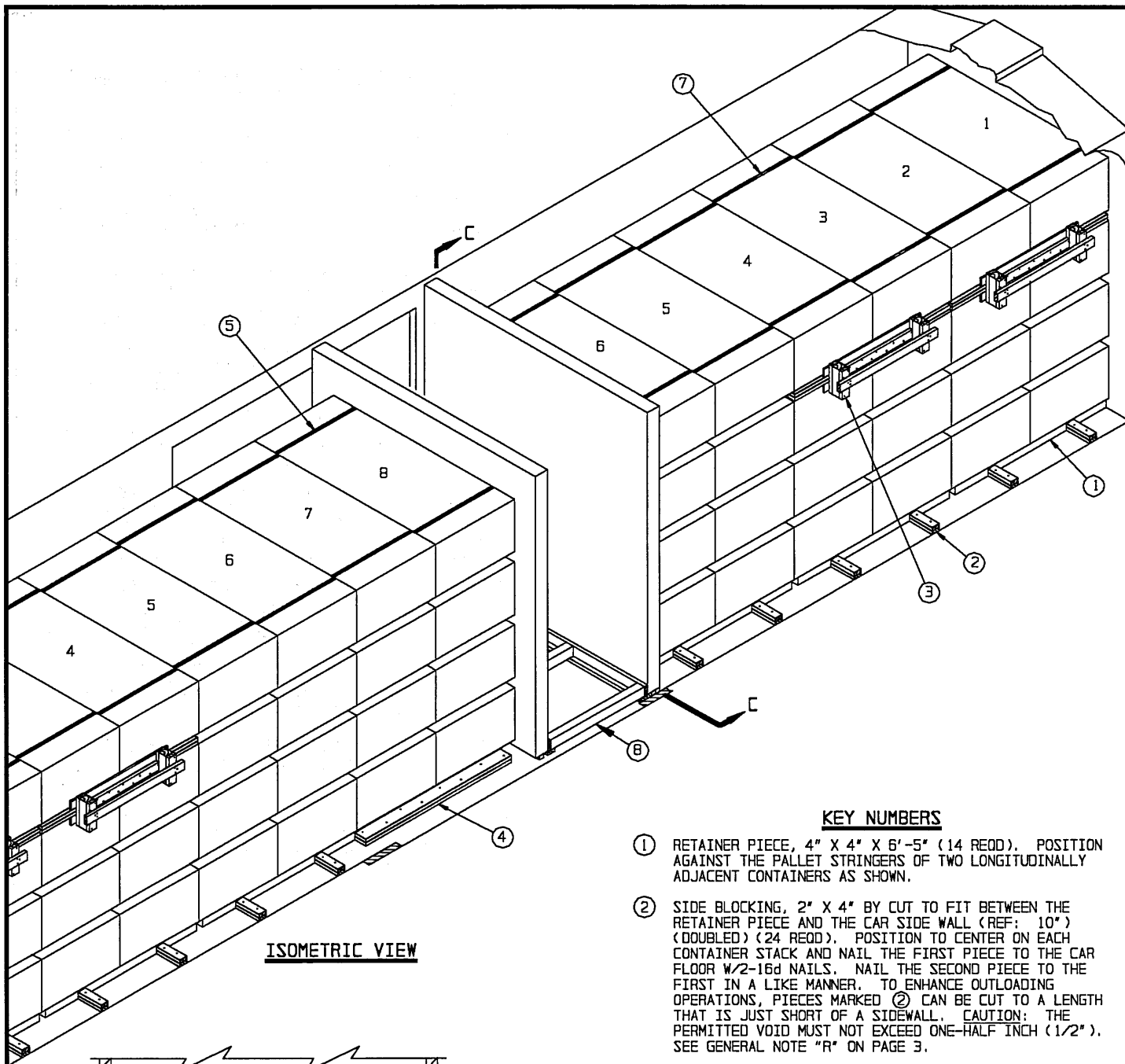
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	324	108
2" X 2"	75	25
2" X 3"	12	6
2" X 4"	917	612
2" X 6"	576	576
NAILS	NO. REOD	POUNDS
6d (2")	288	1-3/4
10d (3")	1246	19-1/4
12d (3-1/4")	60	1

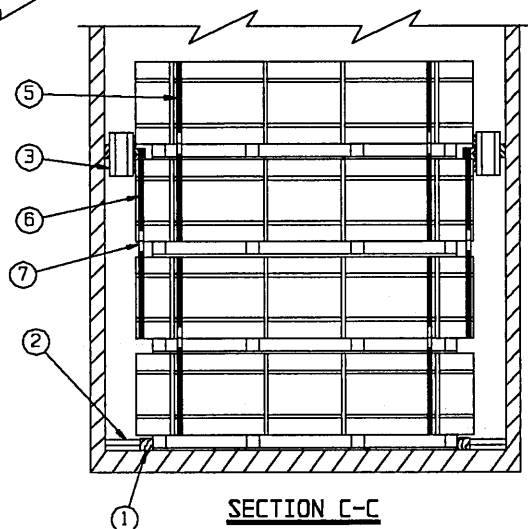
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (W/CBU ITEM)	56	103,880 LBS
DUNNAGE		2,676 LBS
TOTAL WEIGHT		106,556 LBS (APPROX)

**ALTERNATIVE METHOD
56-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOX CAR**



ISOMETRIC VIEW



SECTION C-C

KEY NUMBERS

- ① RETAINER PIECE, 4" X 4" X 6'-5" (14 REQD). POSITION AGAINST THE PALLET STRINGERS OF TWO LONGITUDINALLY ADJACENT CONTAINERS AS SHOWN.
- ② SIDE BLOCKING, 2" X 4" BY CUT TO FIT BETWEEN THE RETAINER PIECE AND THE CAR SIDE WALL (REF: 10") (DOUBLED) (24 REQD). POSITION TO CENTER ON EACH CONTAINER STACK AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. TO ENHANCE OUTLOADING OPERATIONS, PIECES MARKED ② CAN BE CUT TO A LENGTH THAT IS JUST SHORT OF A SIDEWALL. CAUTION: THE PERMITTED VOID MUST NOT EXCEED ONE-HALF INCH (1/2"). SEE GENERAL NOTE "R" ON PAGE 3.
- ③ SWAY BRACE (8 REQD). SEE THE DETAIL ON PAGE 15, INSTALL TO BRACE THE FIRST FOUR STACKS IN EACH END OF A CAR.
- ④ DOORWAY AREA SIDE BLOCKING, 2" X 6" X 72" (DOUBLED) (2 REQD). POSITION 6" FROM THE ADJACENT BULKHEAD, AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ⑤ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 16'-0" LONG STEEL STRAPPING (56 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.
- ⑥ STACK STABILIZING STRAP, 1-1/4" X .035" OR .031" X 23'-0" LONG STEEL STRAPPING (14 REQD). SEE SPECIAL NOTE 2 ON PAGE 11 FOR INSTALLATION GUIDANCE.
- ⑦ SEAL FOR 1-1/4" STRAPPING (140 REQD, 2 PER STRAP JOINT). DOUBLE CRIMP EACH SEAL AS SPECIFIED WITHIN GENERAL NOTE "N" ON PAGE 2.
- ⑧ STRUT ASSEMBLY (1 REQD). SEE THE "STRUT ASSEMBLY FOR 1-PIECE BULKHEADS" DETAIL ON PAGE 23. INSTALL BETWEEN THE LOAD DIVIDER BULKHEADS. SEE SPECIAL NOTE 3 ON PAGE 11.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. WIDER OR NARROWER CARS CAN BE USED FOR SHIPMENT OF THE DEPICTED LOAD BY ADJUSTING THE THICKNESS OF THE SWAY BRACE. THIS MAY BE ACCOMPLISHED BY ADDING OR REMOVING LAMINATIONS OF "FILL PIECES" IN THE SWAY BRACE.
2. EACH SET OF TWO STACK STABILIZING STRAPS MARKED AS PIECES ⑥ MUST BE INSTALLED TO ENCIRCLE THE SECOND AND THIRD CONTAINERS IN EACH SET OF TWO LONGITUDINALLY ADJACENT STACKS, AS LOADING PROGRESSES. IN THOSE STACKS WHERE SWAY BRACES ARE USED, A STRAP MUST PASS OVER THE TOP OF THE DOUBLED 2" X 4" RETAINER PIECE OF THE SWAY BRACE AS ILLUSTRATED IN THE "SECTION C-C VIEW ON PAGE 10.
3. THE STRUT ASSEMBLY, SHOWN AS PIECE MARKED ⑧, IS REQUIRED WHEN THE LOAD WEIGHT IN EITHER END OF THE CAR IS 50,000 POUNDS OR MORE.
4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS LESS CONTAINERS THAN SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER OR STACK, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 18, MUST BE SUBSTITUTED FOR EACH OMITTED CONTAINER. A "FILLER ASSEMBLY" CAN BE USED ON TOP OF ANY STACK, EXCEPT THOSE WHERE THE SWAY BRACE, PIECE MARKED ③, IS USED.
5. IF THE QUANTITY TO BE SHIPPED CANNOT BE ACHIEVED BY THE SUBSTITUTION OF ONE OR MORE FILLER ASSEMBLIES FOR THE OMITTED CONTAINERS, IT WILL BE NECESSARY TO INSTALL A K-BRACE ASSEMBLY TO RETAIN A PARTIAL LAYER. REFER TO PAGE 19 FOR BRACE AND INSTALLATION SPECIFICATIONS.
6. IF CARS WITH WIDER OR STAGGERED DOORS ARE USED, THE CAR SHOULD BE LOADED WITH AN EQUAL NUMBER OF STACKS WITHIN BOTH ENDS OF THE CAR. WHEN THIS METHOD IS USED, THE DOORWAY AREA SIDE BLOCKING, MARKED AS PIECE ④, MUST BE USED IN LIEU OF PIECES MARKED ② TO BLOCK THE STACKS THAT EXTEND MORE THAN 20" INTO THE DOORWAY AREA ON ONE OR BOTH SIDES OF THE CAR. SEE GENERAL NOTE "F" ON PAGE 2.
7. IF DESIRED, CRIB FILL LATERAL BRACING MAY BE USED IN LIEU OF PIECES MARKED ① THRU ③ FOR THOSE STACKS WHICH ARE NOT IN THE DOORWAY. PIECES MARKED ①, ④, ⑤ AND ⑦ ARE REQUIRED FOR THE STACKS IN THE DOORWAY AREA. SEE PIECE MARKED ① ON PAGE 8 AND THE "CRIB FILL A" DETAIL ON PAGE 16. NOTE THAT THE CRIB FILL ADJACENT TO PIECE MARKED ④ MUST BE WIRE TIED WITH NO. 14 GAGE WIRE AROUND THE SKID ON THE CONTAINER TO PREVENT DISPLACEMENT. APPLY WIRE NEAR THE TOP OF THE CRIB FILL.
8. FORTY-FOUR CONTAINERS CAN BE LOADED IN A 40'-6" LONG CAR AND 68 CONTAINERS CAN BE LOADED IN A 60'-8" LONG CAR BY EMPLOYING THE PROCEDURES SHOWN ON PAGE 10.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	64	22
1" X 8"	17	12
2" X 4"	267	178
2" X 6"	24	24
4" X 4"	125	167
NAILS	NO. REOD	POUNDS
6d (2")	114	3/4
10d (3")	434	6-3/4
12d (3-1/4")	16	1/2
16d (3-1/2")	128	3
STEEL STRAPPING, 1-1/4" - - - 1,218' REOD - - - 174 LBS		
SEAL FOR 1-1/4" STRAPPING - - - 140 REOD - - - 7 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (W/CBU ITEM)	56	103,880 LBS
DUNNAGE		999 LBS
TOTAL WEIGHT		104,879 LBS (APPROX)

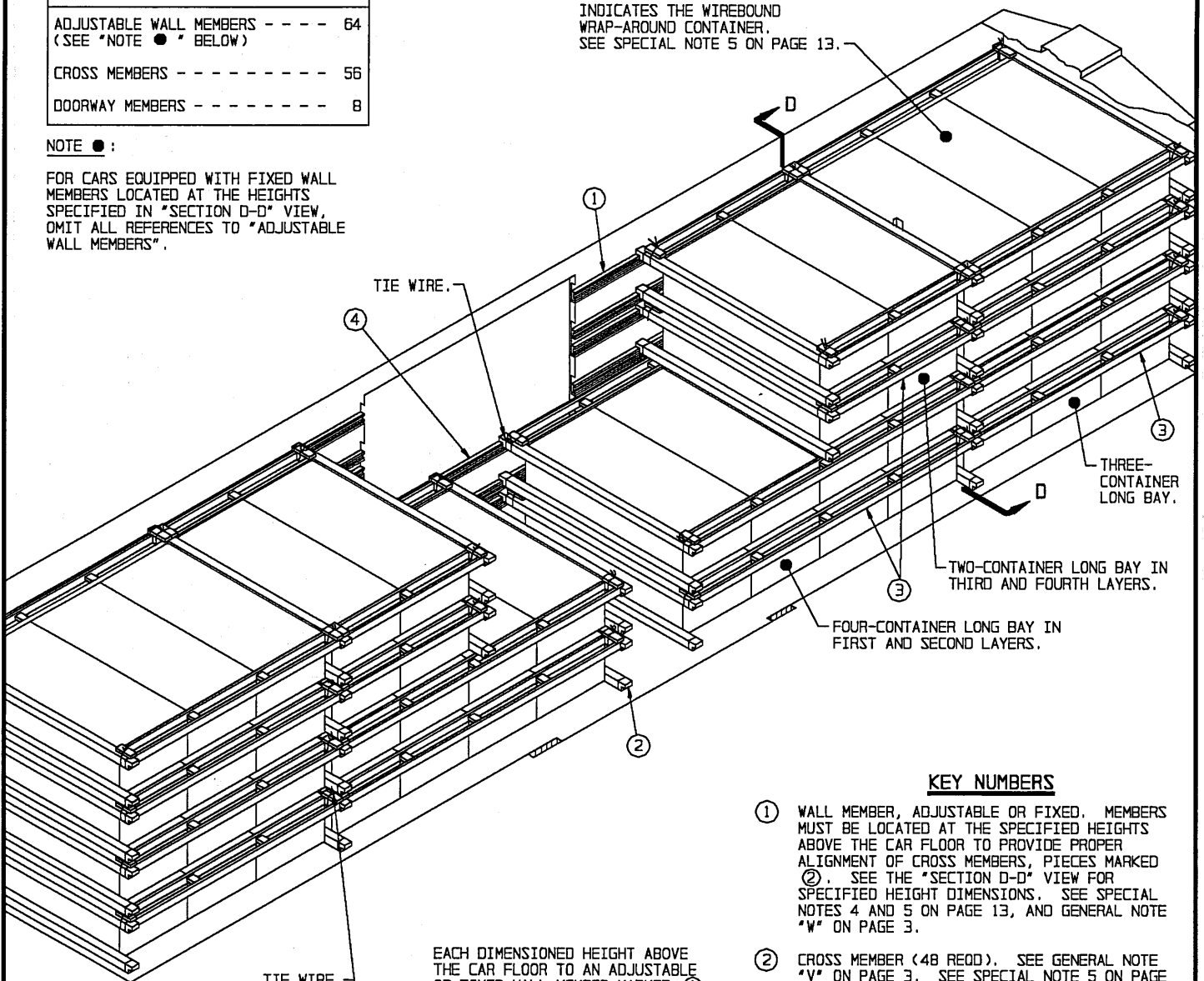
CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBERS - - - - -	64
(SEE "NOTE ●" BELOW)	
CROSS MEMBERS - - - - -	56
DOORWAY MEMBERS - - - - -	8

NOTE ●:

FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION D-D" VIEW, OMIT ALL REFERENCES TO "ADJUSTABLE WALL MEMBERS".

INDICATES THE WIREBOUND WRAP-AROUND CONTAINER. SEE SPECIAL NOTE 5 ON PAGE 13.



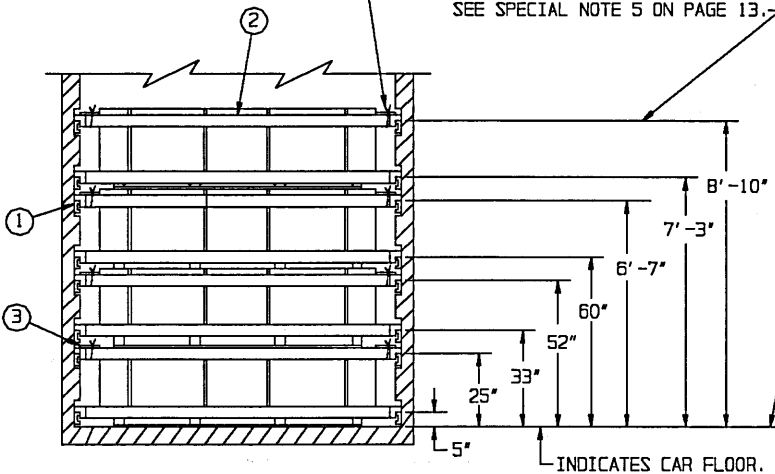
ISOMETRIC VIEW

TIE WIRE.

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ① AND/OR A DOORWAY MEMBER MARKED ④ IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER. SEE SPECIAL NOTE 5 ON PAGE 13.

KEY NUMBERS

- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS, PIECES MARKED ②. SEE THE "SECTION D-D" VIEW FOR SPECIFIED HEIGHT DIMENSIONS. SEE SPECIAL NOTES 4 AND 5 ON PAGE 13, AND GENERAL NOTE "W" ON PAGE 3.
- ② CROSS MEMBER (48 REOD). SEE GENERAL NOTE "V" ON PAGE 3. SEE SPECIAL NOTE 5 ON PAGE 13.
- ③ SIDE BLOCKING ASSEMBLY (32 REOD, 16 REOD FOR THREE-CONTAINER LONG BAYS, 8 REOD FOR TWO-CONTAINER LONG BAYS, AND 8 REOD FOR FOUR-CONTAINER LONG BAYS). SEE THE DETAIL ON PAGE 13. WIRE TIE EACH END TO A CROSS MEMBER WITH ONE WRAP OF NO. 14 GAGE WIRE OR TWO WRAPS OF NO. 14 GAGE WIRE. BRING ENDS OF WIRE TOGETHER AND TWIST TAUT.
- ④ DOORWAY MEMBER (8 REOD). POSITION AT HEIGHTS SPECIFIED IN THE "SECTION D-D" VIEW.



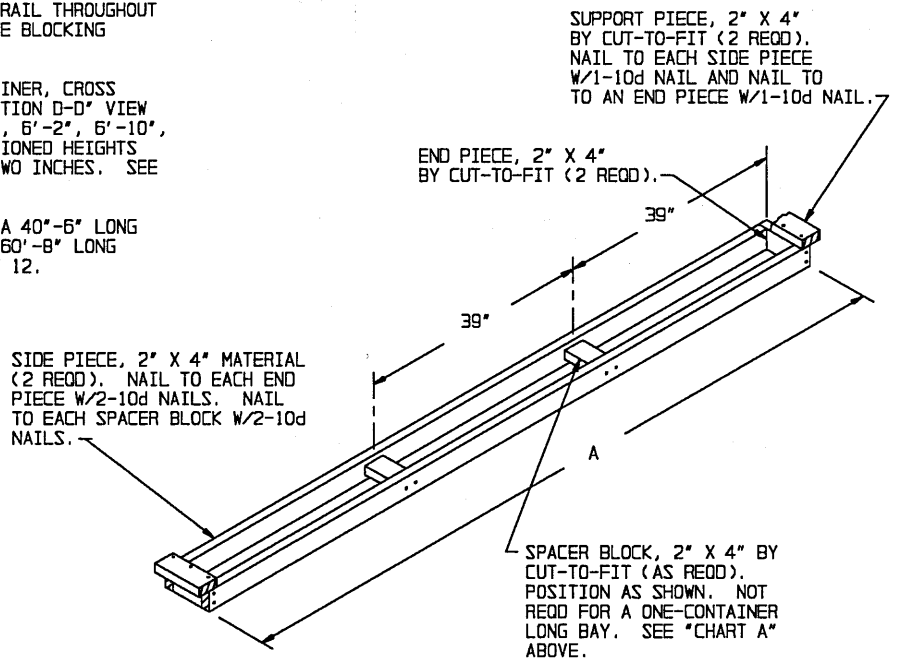
SECTION D-D

ALL CROSS MEMBER HEIGHT DIMENSIONS ARE PLUS OR MINUS TWO INCHES.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-0" WIDE (INSIDE CLEARANCE) BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" DOOR OPENINGS IS SHOWN. CARS WITH LARGER OR SMALLER DOORWAY OPENINGS MAY BE USED; HOWEVER, IT WILL BE DIFFICULT TO LOAD CARS THAT HAVE DOORWAYS THAT ARE LESS THAN 8'-0" WIDE.
2. A NARROWER OR A WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD BY ADJUSTING THE WIDTH OF THE "SIDE BLOCKING ASSEMBLY".
3. TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, ONE OR MORE CONTAINERS MAY BE OMITTED FROM THE TOP LAYER OF THE LOAD. ADJUST THE LONGITUDINAL LOCATION OF THE CROSS MEMBERS RETAINING THE TOP LAYER. ALSO, IF THE CAR BEING USED CONTAINS TWELVE DOORWAY MEMBERS AND FOUR MORE CROSS MEMBERS, A FULL THIRD LAYER OF CONTAINERS MAY BE LOADED IN THE CAR, PROVIDING THE LOAD LIMIT OF THE CAR IS NOT EXCEEDED. LIKEWISE, SIXTEEN DOORWAY MEMBERS AND EIGHT MORE CROSS MEMBERS WILL ACCOMMODATE FOUR FULL LAYERS THROUGHOUT THE ENTIRE LENGTH OF THE CAR.
4. THE WALL MEMBERS AT THE DIMENSIONED HEIGHTS OF 25", 52", 6'-7", AND 8'-10" MUST FORM A CONTINUOUS RAIL THROUGHOUT THE LENGTH OF THE CAR TO SUPPORT THE "SIDE BLOCKING ASSEMBLIES".
5. WHEN SHIPPING THE PLYWOOD TWIN PACK CONTAINER, CROSS MEMBER LOCATIONS AS SPECIFIED IN THE "SECTION D-D" VIEW MUST BE CHANGED TO 5", 23", 32", 48", 56", 6'-2", 6'-10", AND 8'-3" FROM BOTTOM TO TOP. ALL DIMENSIONED HEIGHTS WILL CARRY A TOLERANCE OF PLUS OR MINUS TWO INCHES. SEE GENERAL NOTE "Q" ON PAGE 2.
6. THIRTY-EIGHT CONTAINERS CAN BE LOADED IN A 40'-6" LONG CAR AND 58 CONTAINERS CAN BE LOADED IN A 60'-8" LONG CAR BY USING THE PROCEDURES SHOWN ON PAGE 12.

CHART A		NO. OF SPACER BLOCKS REQD
BAY LENGTH	DIM A	
ONE CONTAINER	39"	NONE
TWO CONTAINERS	6'-6"	ONE
THREE CONTAINERS	9'-9"	TWO
FOUR CONTAINERS	13'-0"	THREE



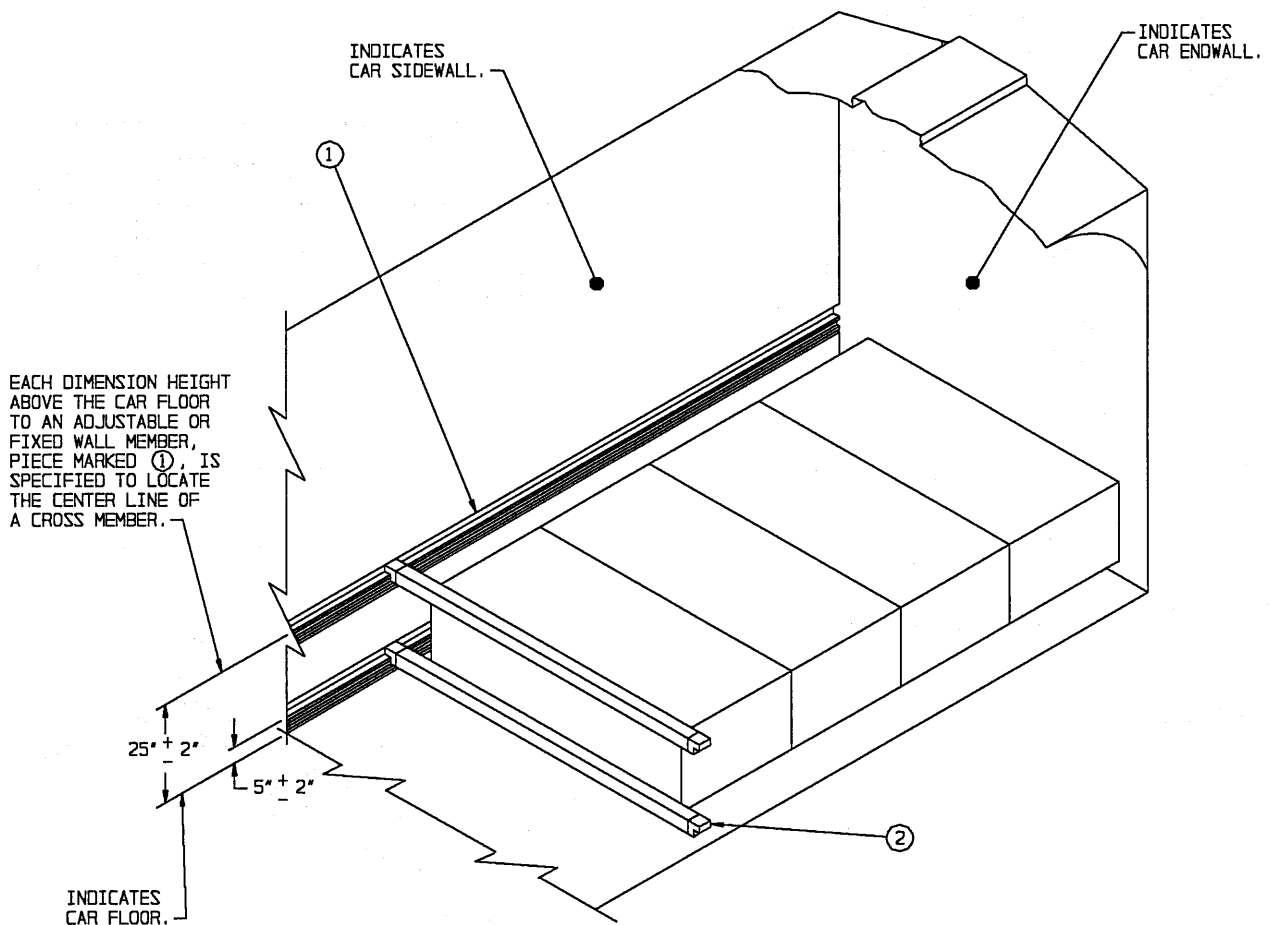
SIDE BLOCKING ASSEMBLY

THIS ASSEMBLY SHOULD BE OF A WIDTH THAT WILL PROVIDE FOR AN EASY-TO-FIT INSTALLATION, BUT NOT MORE THAN ONE INCH OF UNBLOCKED SPACE IS PERMITTED AT EITHER SIDE OF THE LOAD FOR A TOTAL VOID OF TWO INCHES. THE ASSEMBLY AS SHOWN IS FOR A 3-LONG BAY; SEE "CHART A" FOR CONSTRUCTION GUIDANCE APPLICABLE TO OTHER LENGTH ASSEMBLIES.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	716	478
NAILS	NO. REQD	POUNDS
10d (3")	704	11
WIRE, NO. 8 GAGE - - -	150' REQD - - - - -	14 LBS

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER (W/CBU ITEM)	48	89,040 LBS
DUNNAGE		967 LBS
TOTAL WEIGHT - - - - -		90,007 LBS (APPROX)



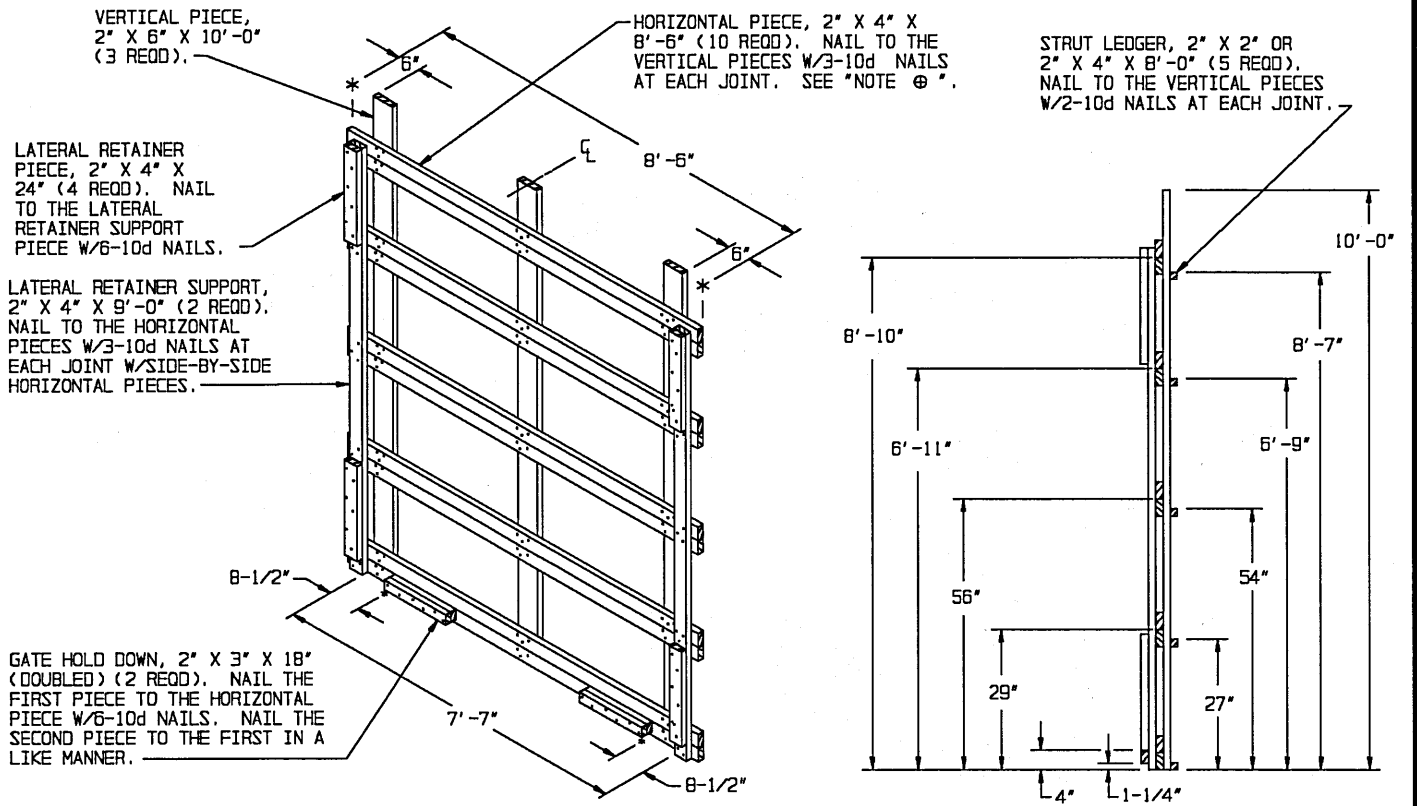
ISOMETRIC VIEW

SPECIAL NOTES:

- 1 AN 8'-11" WIDE BOXCAR IS SHOWN. A CAR OF OTHER WIDTHS CAN BE USED.
- 2 TWO CROSS MEMBERS, PIECE MARKED ②, ARE ADEQUATE FOR RETAINING NOT MORE THAN FOUR CONTAINERS. IF MORE THAN FOUR CONTAINERS ARE TO BE SHIPPED, ADDITIONAL BAYS WILL HAVE TO BE USED, OR ADDITIONAL LAYERS WILL NEED TO BE LOADED. SEE "SECTION D-D" ON PAGE 12 FOR WALL MEMBER LOCATIONS IF ONE OR MORE LAYERS ARE TO BE ADDED. SIDE BLOCKING ASSEMBLIES, SHOWN ON PAGE 12 AS PIECE MARKED ③, MUST BE INSTALLED IN EACH LAYER WHEN THE LOAD IS MORE THAN ONE LAYER.
- 3 WHEN SHIPPING THE PLYWOOD TWIN PACK CONTAINER, THE TOP WALL MEMBER LOCATION AS SPECIFIED ABOVE MUST BE CHANGED TO 23", PLUS OR MINUS TWO INCHES. SEE GENERAL NOTE "Q" ON PAGE 2.

KEY NUMBERS

- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE FOR PROPER INSTALLATION OF CROSS MEMBERS, PIECE MARKED ②. SEE GENERAL NOTE "W" ON PAGE 3.
- ② CROSS MEMBER (2 REOD). SEE SPECIAL NOTES 2 AND 3.



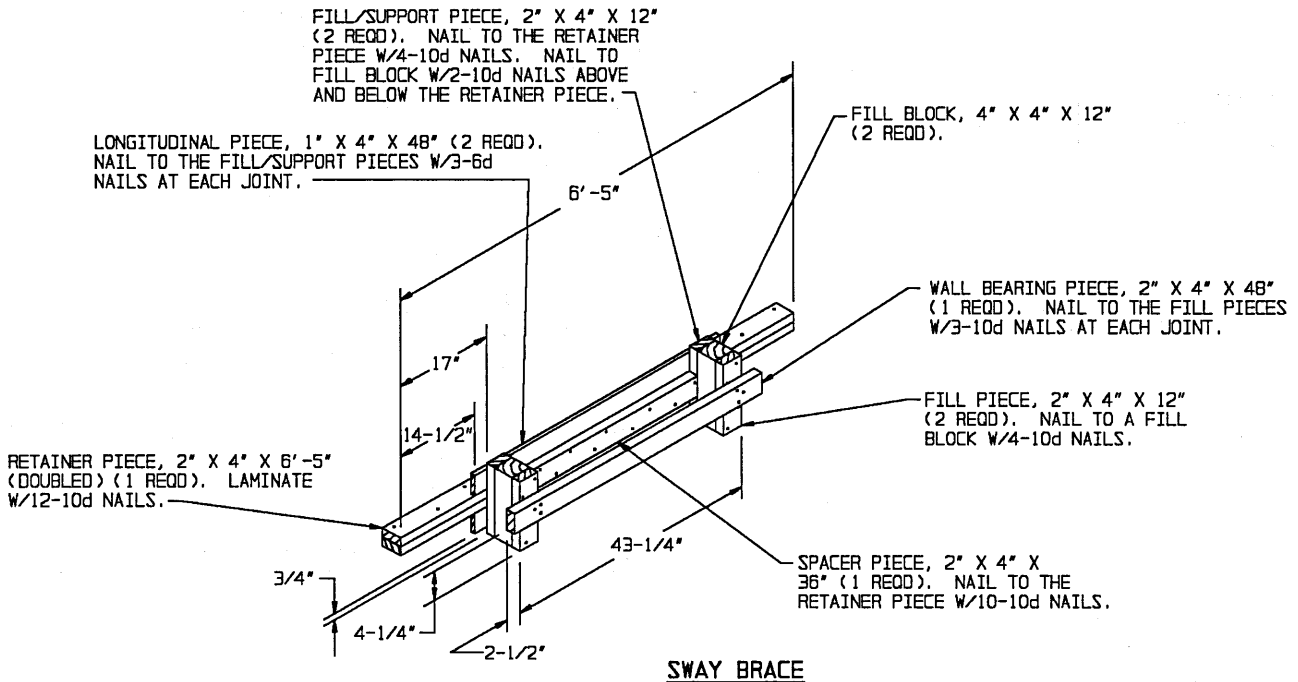
CENTER GATE A

SEE SPECIAL NOTE 6 ON PAGE 7.

END VIEW

NOTE @ :

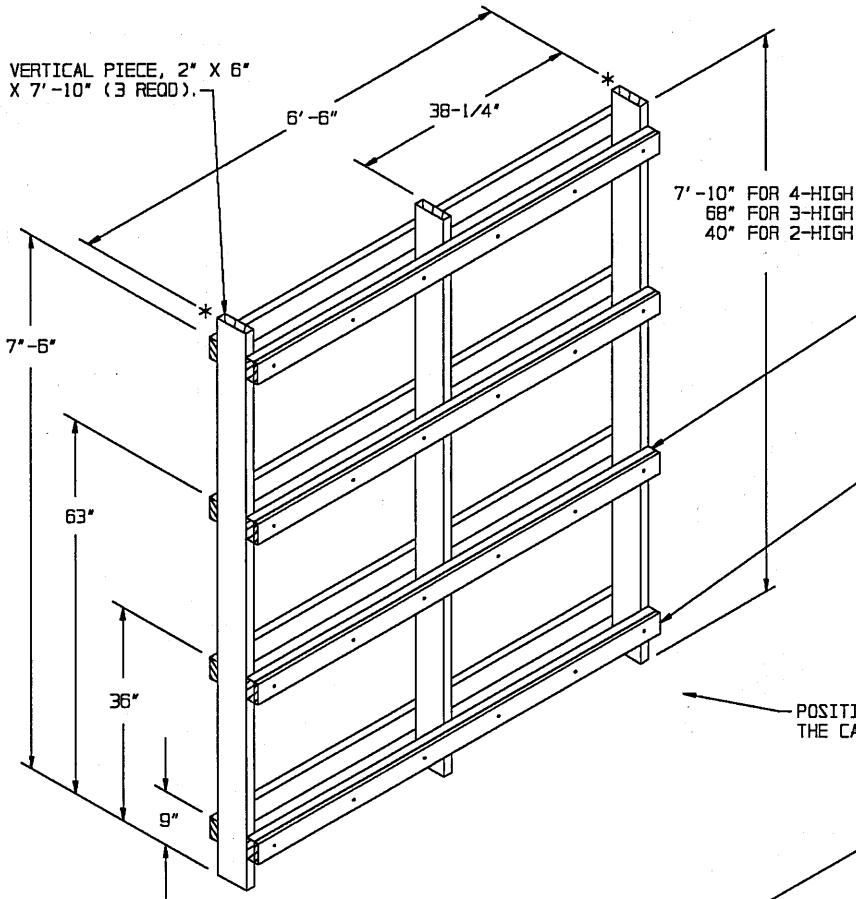
INSTEAD OF USING TWO PIECES OF 2" X 4" LUMBER (SIDE BY SIDE) AT EACH LOCATION, ONE PIECE OF 2" X 8" LUMBER MAY BE USED IF DESIRED.



SWAY BRACE

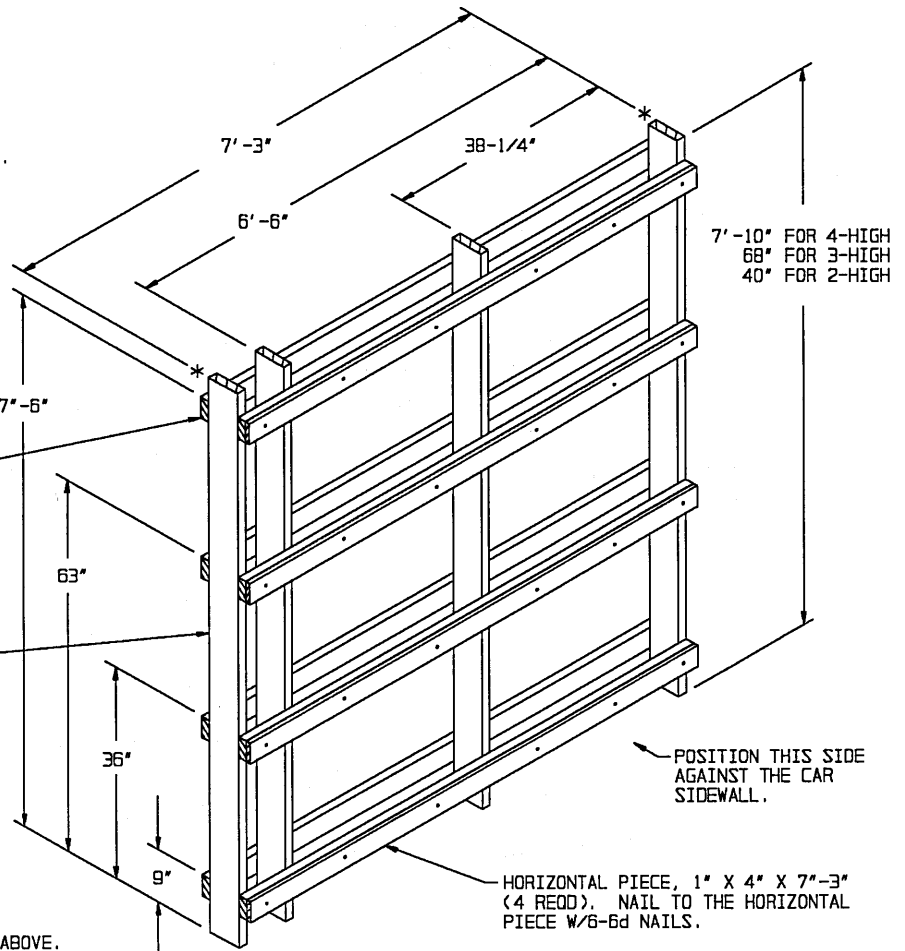
DETAILS

VERTICAL PIECE, 2" X 6"
X 7'-10" (3 REOD).



CRIB FILL A

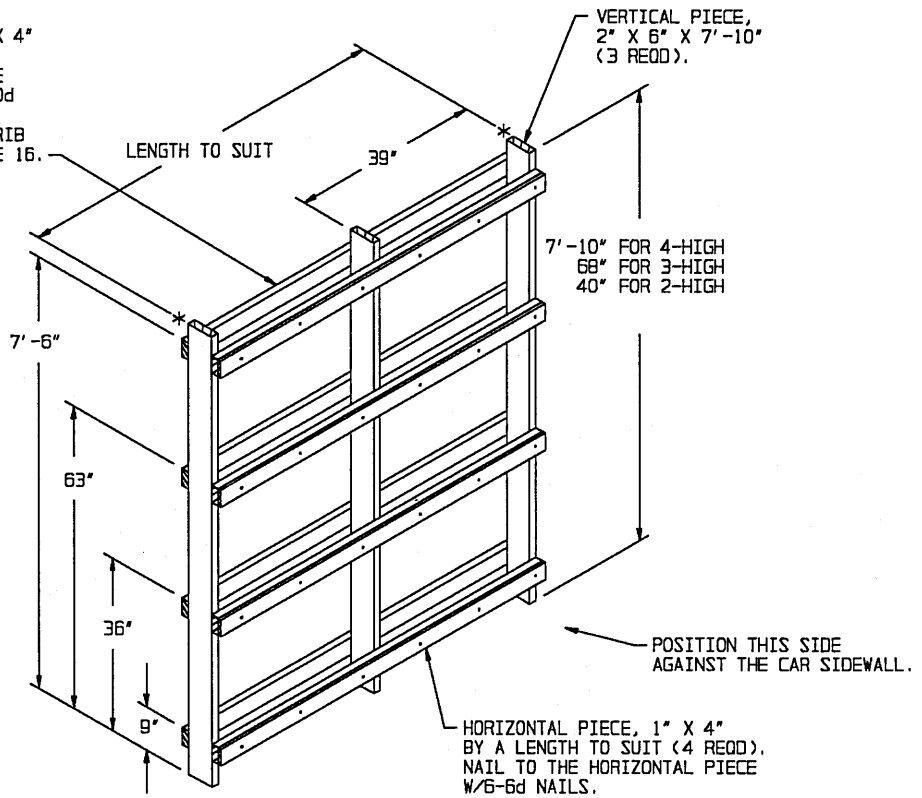
CRIB FILL ASSEMBLIES SHOULD BE PRE-FABRICATED. CONSTRUCT TO BE 1/2" TO 3/4" LESS THAN THE DISTANCE BETWEEN THE CONTAINERS AND THE CAR SIDEWALL. NOTE THAT THE WIDTH OF THE CRIB FILL CAN BE ADJUSTED BY ADDING OR REMOVING LAMINATIONS OF HORIZONTAL PIECES.



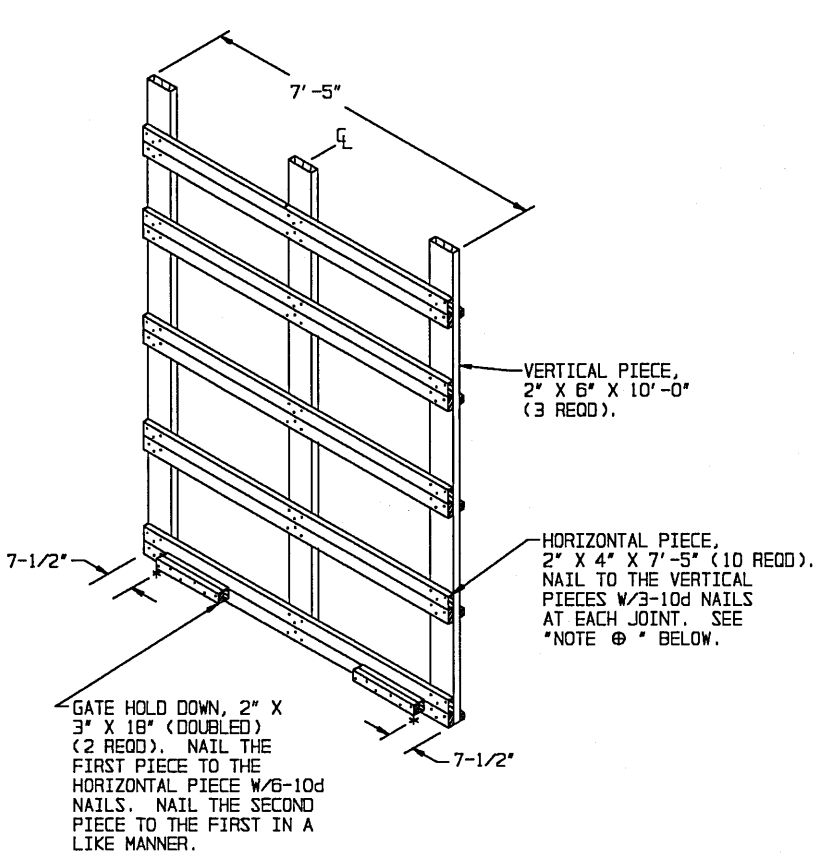
CRIB FILL B

SEE NOTE UNDER "CRIB FILL A" ABOVE. NOTE THAT LEFT HAND AND RIGHT HAND ASSEMBLIES ARE REQUIRED.

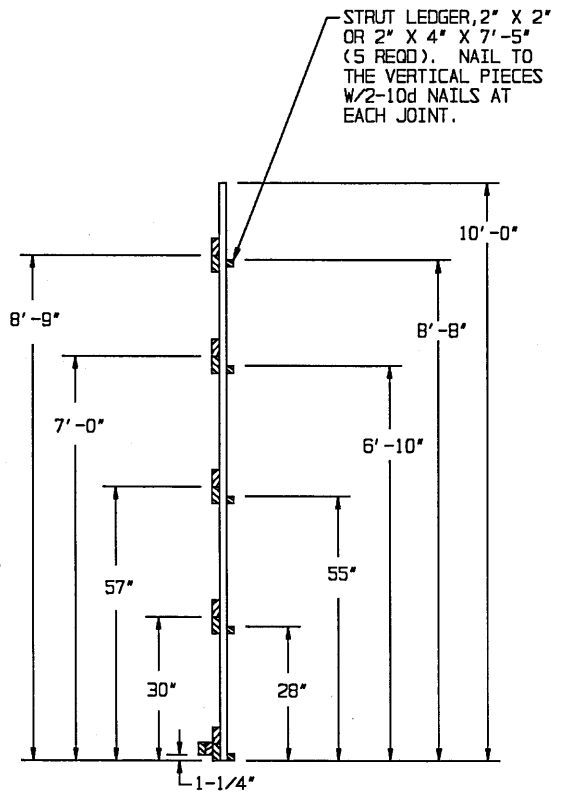
HORIZONTAL PIECE, 2" X 4" BY A LENGTH TO SUIT (8 REQD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT. SEE NOTE BELOW THE "CRIB FILL A" DETAIL ON PAGE 16.



CRIB FILL C



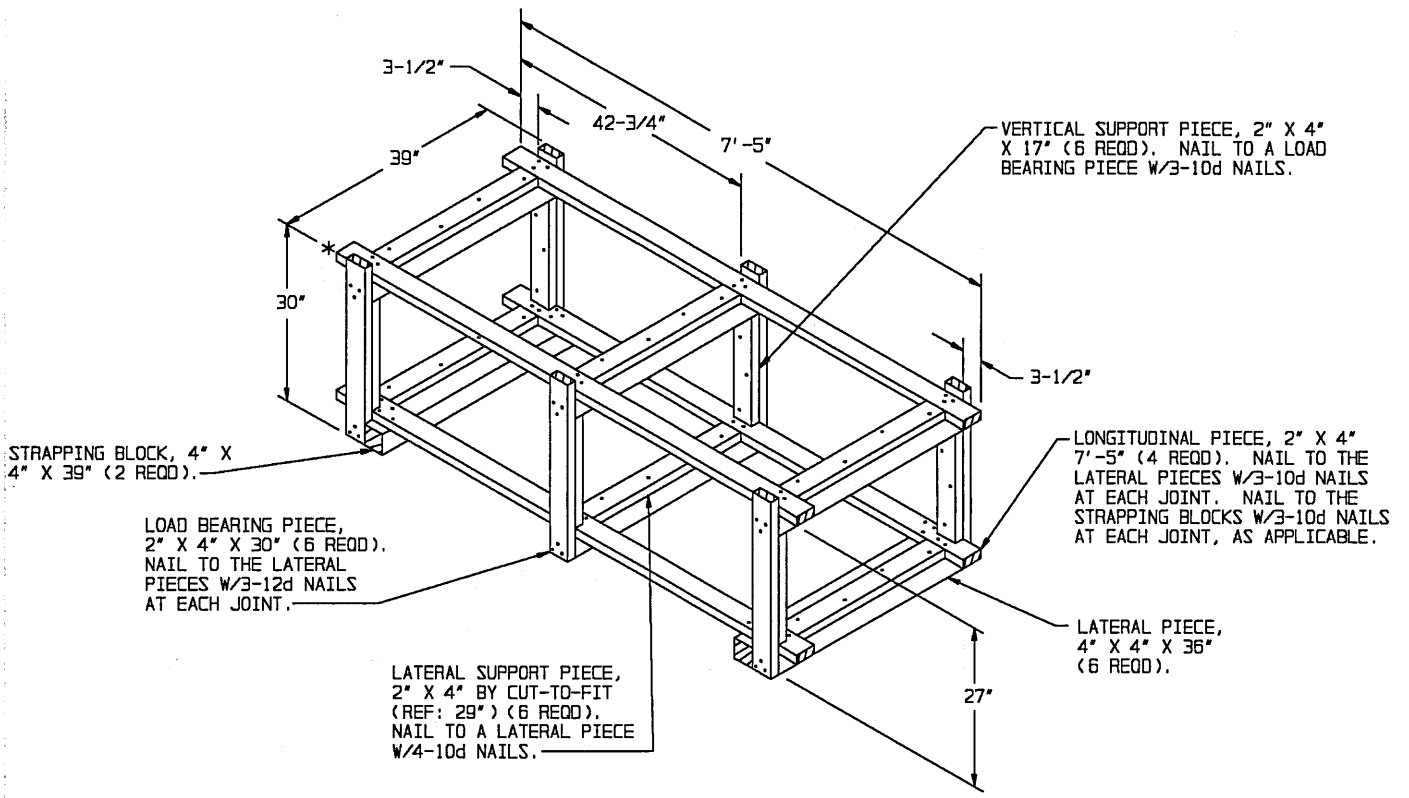
CENTER GATE B
SEE SPECIAL NOTE 7 ON PAGE 9.



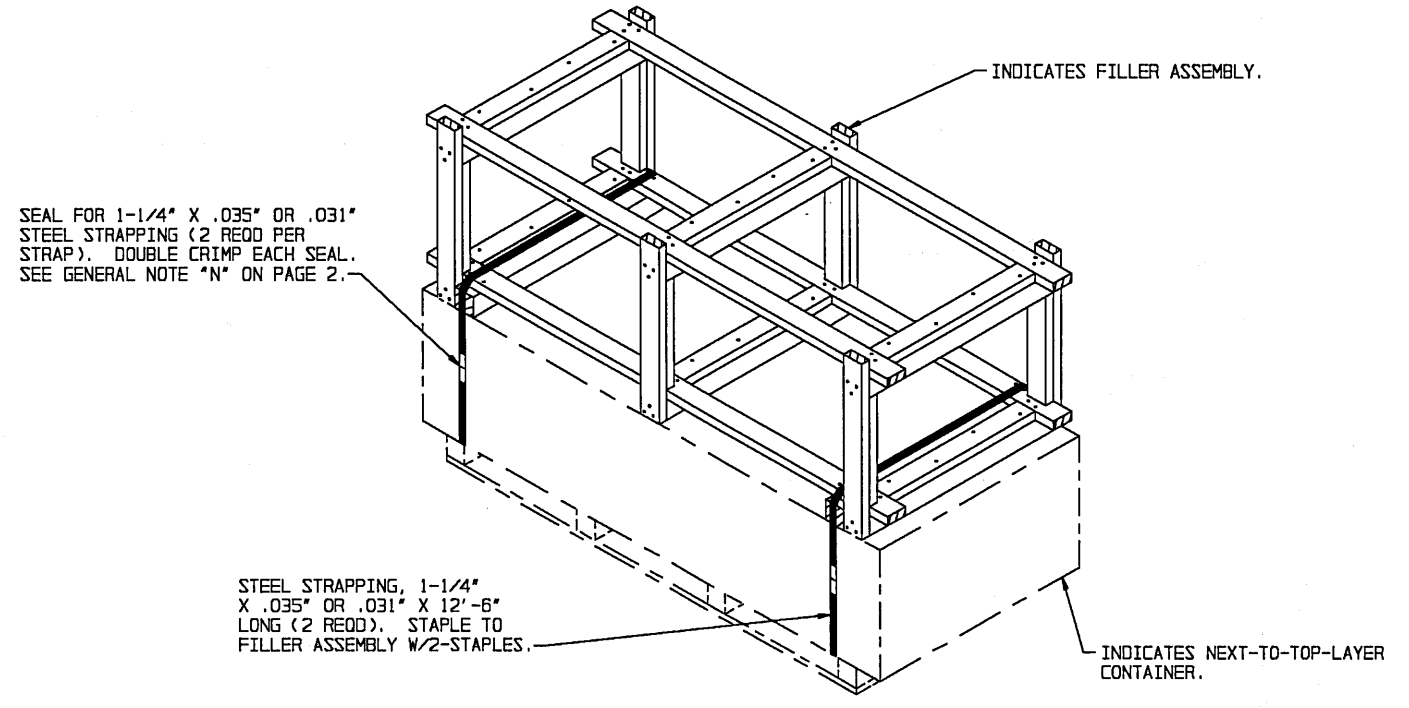
END VIEW

NOTE @ :
INSTEAD OF USING TWO PIECES OF 2" X 4" LUMBER (SIDE BY SIDE) AT EACH LOCATION, ONE PIECE OF 2" X 8" LUMBER MAY BE USED IF DESIRED.

DETAILS



FILLER ASSEMBLY

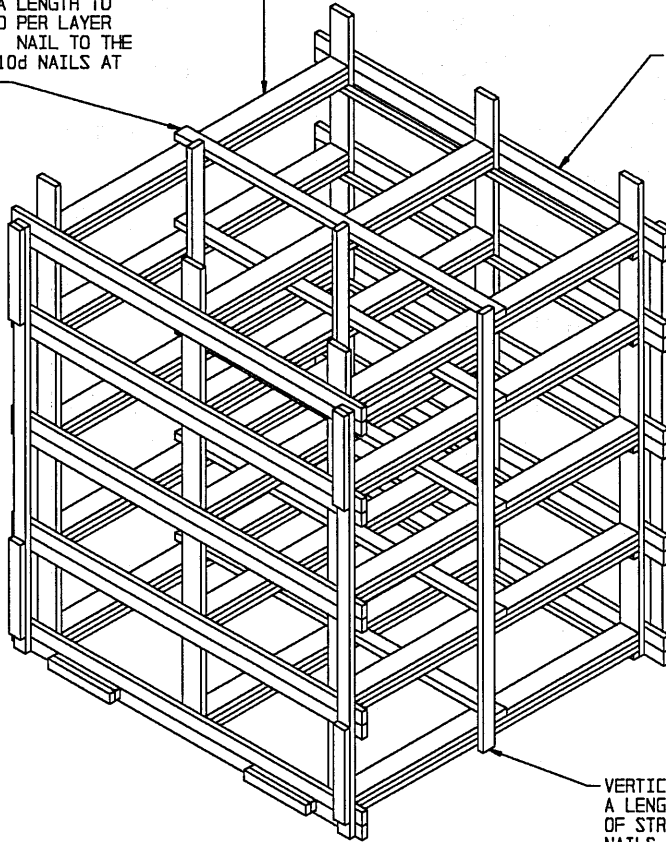


APPLICATION OF FILLER ASSEMBLY

HORIZONTAL STRUT BRACING, 2" X 4" BY A LENGTH TO SUIT (1 REQD PER LAYER OF STRUTS). NAIL TO THE STRUTS W/3-10d NAILS AT EACH JOINT.

INDICATES A TRIPLED 2" X 6" STRUT.

INDICATES CENTER GATE "A". SEE THE DETAIL ON PAGE 15.

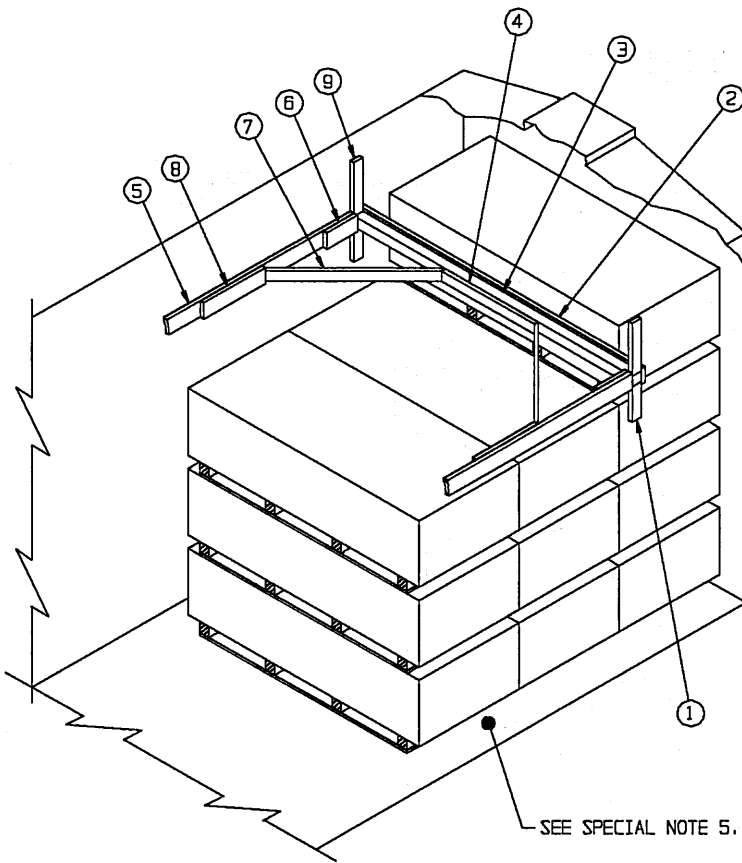


VERTICAL STRUT BRACING, 2" X 4" BY A LENGTH TO SUIT (1 REQD PER ROW OF STRUTS). NAIL TO STRUTS W/3-10d NAILS AT EACH JOINT.

TYPICAL STRUT BRACING
SEE GENERAL NOTE "T" ON PAGE 3.

KEY NUMBERS

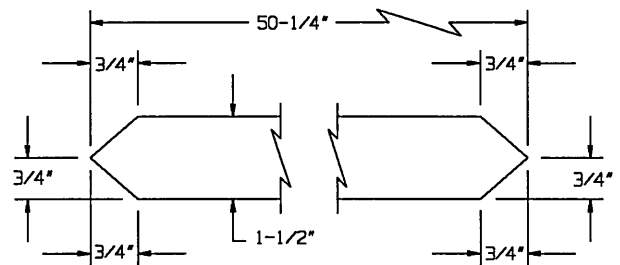
- ① SUPPORT CLEAT, 2" X 4" X 12" (2 REQD). NAIL TO THE CAR SIDEWALL W/3-10d NAILS. POSITION SO AS TO LOCATE PIECE MARKED ② APPROXIMATELY 7" FROM THE TOP OF THE LOAD.
- ② HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (1 REQD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6".
- ③ CROSS CAR BRACE, 4" X 4" X CAR WIDTH (CUT-TO-FIT) (1 REQD).
- ④ CENTER CLEAT, 2" X 4" X 36" (1 REQD). CENTER ON THE CROSS CAR BRACE, PIECE MARKED ③, AND NAIL W/7-16d NAILS. SEE SPECIAL NOTE 4 BELOW.
- ⑤ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (2 REQD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑥ POCKET CLEAT, 2" X 6" X 12" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/4-16d NAILS.
- ⑦ DIAGONAL BRACE, 2" X 4" X 50-1/4" (2 REQD). SEE THE DETAIL BELOW FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/2-16d NAILS AT EACH END.
- ⑧ BACK-UP CLEAT, 2" X 6" X 24" (2 REQD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/8-16d NAILS.
- ⑨ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDEWALL W/5-10d NAILS.



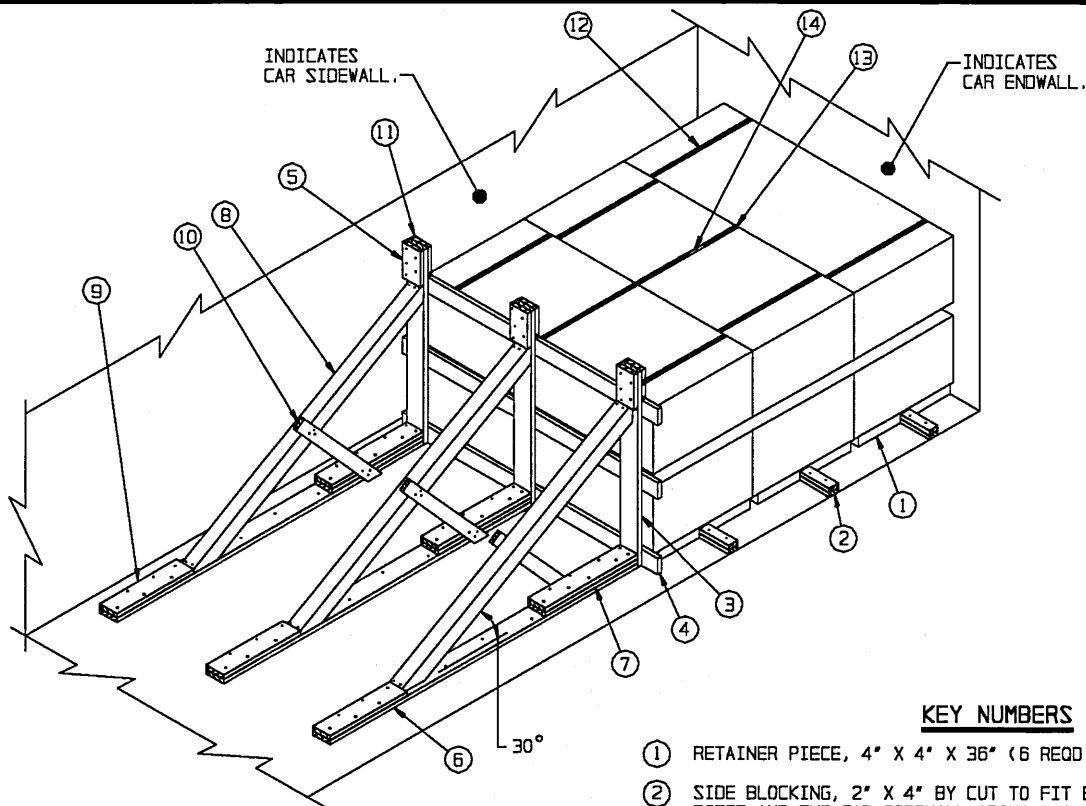
ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-2" WIDE WOOD-LINED CONVENTIONAL BOXCAR IS SHOWN. WOOD-LINED CARS OF OTHER WIDTHS CAN BE USED.
2. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN A WOOD LINED CAR FOR THE SECUREMENT OF A PARTIAL TOP TIER, BE IT A FIRST, SECOND, THIRD, OR FOURTH TIER. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN TWO CONTAINERS.
3. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL TIER TO BE SHIPPED AND/OR THE SIZE OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE K-BRACE. DUNNAGE PIECES MARKED ①, ②, ③, ⑥, AND ⑨ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES, PIECE MARKED ⑦, TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑤ MUST BE DOUBLED WITH THE DELETION OF THE POCKET CLEATS, PIECE MARKED ⑥, AND EXTENDED FROM THE CROSS CAR BRACE, PIECE MARKED ③, ACROSS THE DOORWAY AREA FAR ENOUGH TO ALLOW A MINIMUM OF 60" OF NAILABLE SURFACE AREA. NAIL WITH 16d NAILS EVERY 6", CLINCHING NAILS WHICH ARE EXPOSED IN THE DOORWAY AREA. NOTE THE DIAGONAL BRACE WILL BE 49-1/8" IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑤ IS DOUBLED.
4. THE CENTER CLEAT, SHOWN AS PIECE MARKED ④, WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2", AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.
5. LATERAL BRACING IS NOT SHOWN FOR CLARITY. LATERAL BRACING WILL BE AS SHOWN BY PIECES MARKED ① THRU ③ ON PAGE 6 OR WILL BE CRIB FILL AS SHOWN ON PAGE 8. MODIFY AS NECESSARY TO ACCOMMODATE THE PARTIAL LAYER.



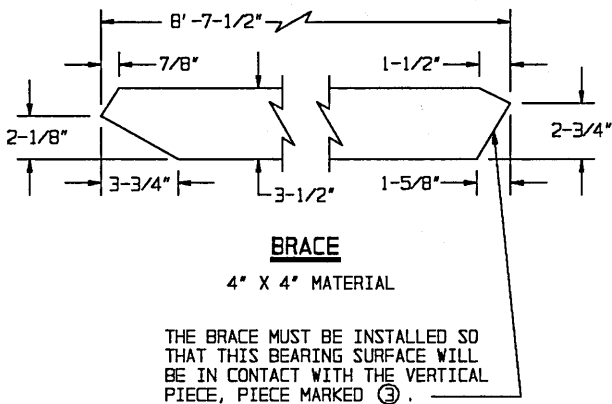
DIAGONAL BRACE



ISOMETRIC VIEW

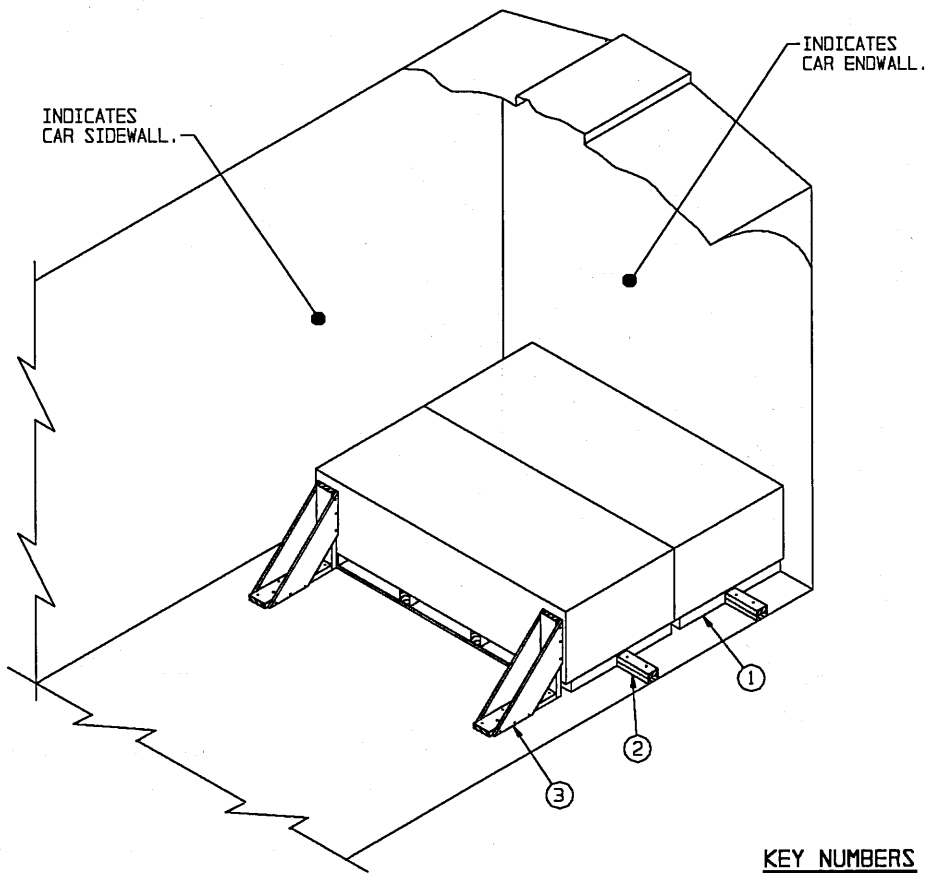
SPECIAL NOTES:

1. A 9'-2" WIDE BOXCAR IS SHOWN; HOWEVER, ANY WIDTH CAR CAN BE USED FOR THE TYPE OF UNLOADING DEPICTED. CAUTION: CONTAINERS WILL NOT BE STACKED MORE THAN 2 CONTAINERS IN HEIGHT FOR THE TYPE OF LCL UNLOADING PROCEDURES SPECIFIED.
2. THREE (3) KNEE BRACE ASSEMBLIES AS SHOWN ARE ADEQUATE FOR RETAINING AN LCL LOAD OF NOT MORE THAN 21,000 POUNDS. NOT LESS THAN TWO (2) KNEE BRACE ASSEMBLIES WILL BE USED FOR BLOCKING AN LCL LOAD.
3. WHEN SHIPPING THE PLYWOOD TWIN PACK CONTAINER, THE SECOND LOAD BEARING PIECE MARKED ④ MUST BE POSITIONED AT 29-1/4" AND THE THIRD AT 52-1/2" FROM THE FLOOR. ALSO, THE LENGTH OF THE KNEE BRACE MARKED ⑧ MUST BE 8'-7" LONG, AND THE VERTICAL PIECE MARKED ③ MUST BE 62-1/2" LONG. SEE GENERAL NOTE "O" ON PAGE 2.



KEY NUMBERS

- ① RETAINER PIECE, 4" X 4" X 36" (6 REQD).
- ② SIDE BLOCKING, 2" X 4" BY CUT TO FIT BETWEEN THE RETAINER PIECE AND THE CAR SIDEWALL (DOUBLED) (6 REQD). POSITION TO CENTER ON EACH CONTAINER STACK AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "R" ON PAGE 3.
- ③ VERTICAL PIECE, 2" X 6" X 66" (3 REQD). POSITION THE OUTSIDE VERTICALS THREE INCHES (3") FROM THE ENDS OF THE LOAD BEARING PIECES AND CENTER THE MIDDLE VERTICAL ON THE LENGTH OF THE LOAD BEARING PIECES. SEE SPECIAL NOTE 3.
- ④ LOAD BEARING PIECE, 2" X 6" X 8'-0" (3 REQD). POSITION THE FIRST PIECE ON THE FLOOR, THE SECOND PIECE 31" FROM THE FLOOR TO THE TOP OF THE PIECE, AND THE THIRD PIECE 56" FROM THE FLOOR TO THE TOP OF THE PIECE. NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.
- ⑤ HOLD DOWN PIECE, 2" X 6" X 12" (3 REQD). NAIL TO A VERTICAL PIECE W/5-10d NAILS.
- ⑥ FLOOR CLEAT, 2" X 6" X 10'-0" (3 REQD). ALIGN WITH A VERTICAL PIECE AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8".
- ⑦ POCKET CLEAT, 2" X 6" X 36" (DOUBLED) (3 REQD). NAIL THE FIRST PIECE TO A FLOOR CLEAT W/8-40d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL IT TO THE ADJACENT VERTICAL PIECE W/2-16d NAILS.
- ⑧ BRACE, 4" X 4" X 8'-7-1/2" (3 REQD). SEE THE "BRACE" DETAIL AT LEFT FOR BEVEL CUTS. TOENAIL TO A VERTICAL PIECE AND TO A FLOOR CLEAT W/2-16d NAILS AT EACH END.
- ⑨ BACK-UP CLEAT, 2" X 6" X 30" (3 REQD). NAIL TO A FLOOR CLEAT W/6-40d NAILS.
- ⑩ SUPPORT PIECE, 2" X 4" X 36" (3 REQD). POSITION SO AS TO CENTER ON THE LENGTH OF A "BRACE" AND SO AS TO BE PERPENDICULAR TO SAME. NAIL TO THE BRACE AND TO A DOUBLED POCKET CLEAT W/3-10d NAILS AT EACH END.
- ⑪ REINFORCING PIECE, 2" X 6" X 10" (3 REQD). NAIL TO THE VERTICAL PIECE W/4-10d NAILS.
- ⑫ UNITIZING STRAP, 1-1/4" X .035" OR .031" X 16'-0" LONG STEEL STRAPPING (6 REQD). SEE THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 5.
- ⑬ STACK STABILIZING STRAP, 1-1/4" X .035" OR .031" X 18'-0" LONG STEEL STRAPPING (1 REQD). INSTALL TO ENCIRCLE THE TWO TOP LAYER CONTAINERS WHICH ARE ADJACENT TO THE LOAD BLOCKING ASSEMBLY.
- ⑭ SEAL FOR 1-1/4" STRAPPING (14 REQD, 2 PER STRAP JOINT). SEE GENERAL NOTE "N" ON PAGE 2.



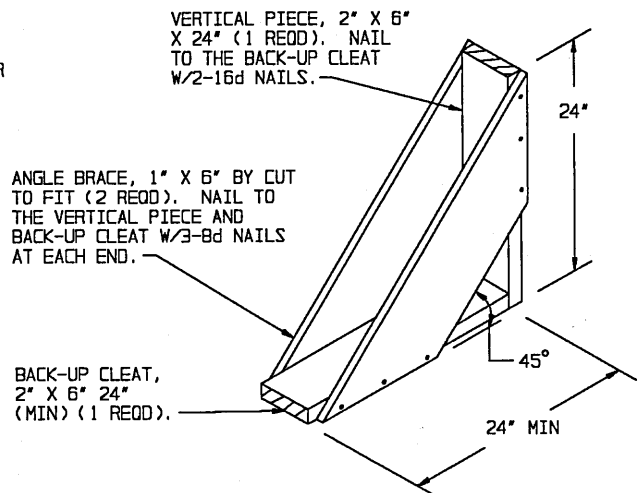
ISOMETRIC VIEW

KEY NUMBERS

- ① RETAINER PIECE, 4" X 4" X 36" (4 REQD).
- ② SIDE BLOCKING, 2" X 4" BY CUT TO FIT BETWEEN THE RETAINER PIECE AND THE CAR SIDEWALL (DOUBLED) (4 REQD). POSITION TO CENTER ON EACH CONTAINER AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/2-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "R" ON PAGE 3.
- ③ LCL BRACE (2 REQD). SEE THE DETAIL BELOW. NAIL TO THE CAR FLOOR W/7-16d NAILS.

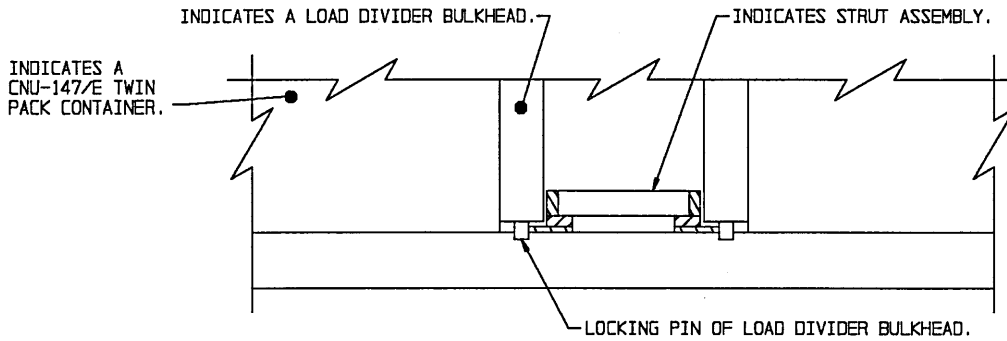
SPECIAL NOTES:

- 1. A 9'-2" WIDE BOXCAR IS SHOWN; HOWEVER, ANY WIDTH CAR CAN BE USED FOR THE TYPE OF UNLOADING DEPICTED.
- 2. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS OF LADING. A MINIMUM OF TWO (2) BRACES MUST BE USED.
- 3. THE BRACING PROCEDURES SHOWN ON THIS PAGE ARE RESTRICTED TO LCL SHIPMENTS THAT ARE ONLY ONE (1) LAYER HIGH.



LCL BRACE

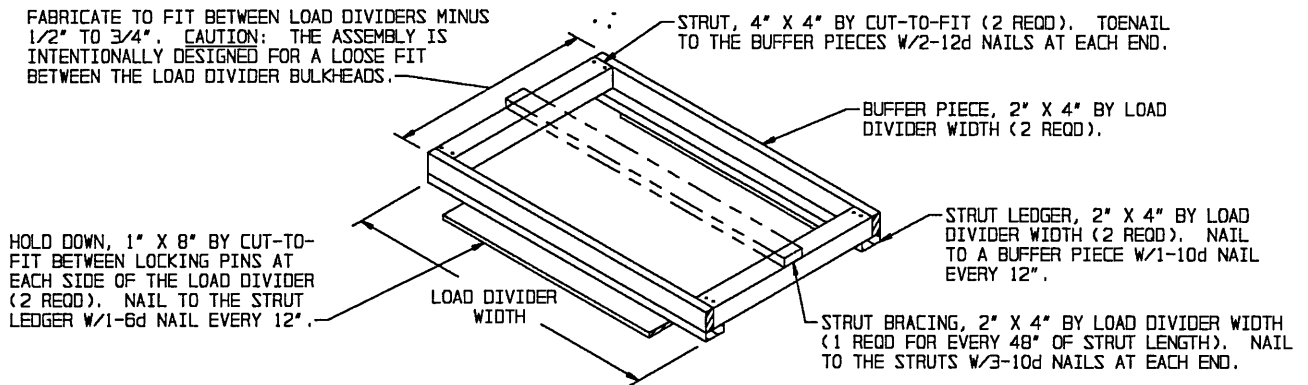
SEE SPECIAL NOTE 2 AT LEFT.



INSTALLATION OF STRUT ASSEMBLY

THIS VIEW SHOWS THE STRUT ASSEMBLY INSTALLED BETWEEN THE LOAD DIVIDER BULKHEADS. NOTE THE 1/2" TO 3/4" (TOTAL) SPACE INTENTIONALLY PROVIDED BETWEEN THE ASSEMBLY AND THE BULKHEADS.

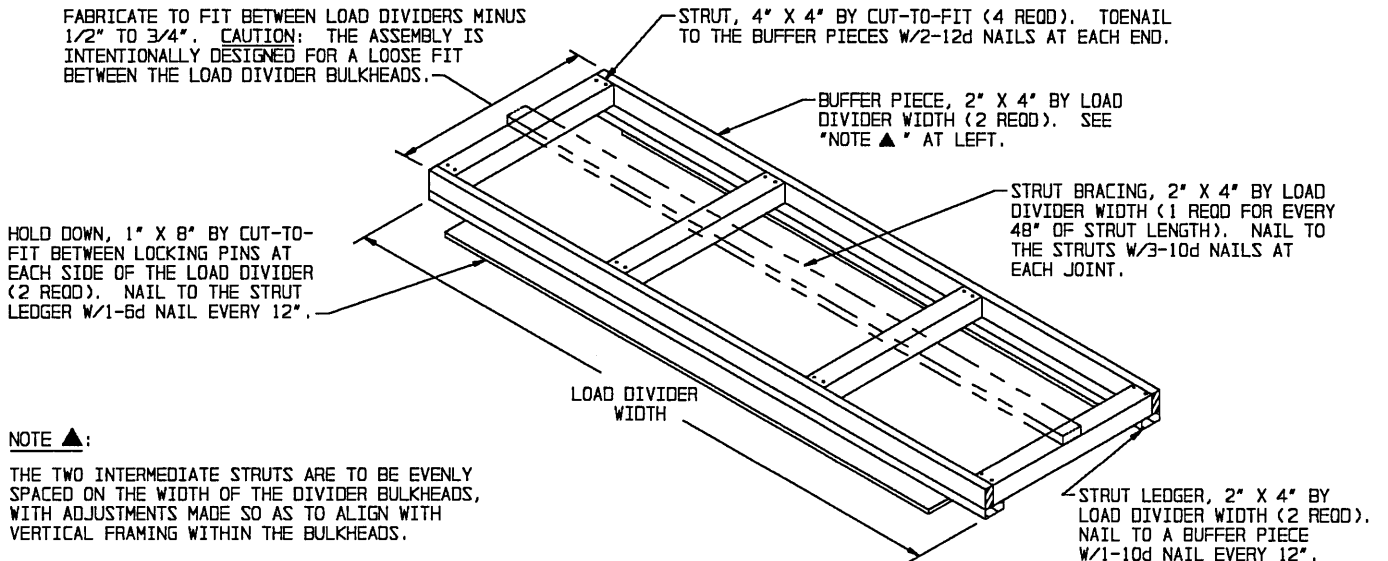
FABRICATE TO FIT BETWEEN LOAD DIVIDERS MINUS 1/2" TO 3/4". CAUTION: THE ASSEMBLY IS INTENTIONALLY DESIGNED FOR A LOOSE FIT BETWEEN THE LOAD DIVIDER BULKHEADS.



STRUT ASSEMBLY FOR 2-PIECE BULKHEADS

THIS STRUT ASSEMBLY IS DESIGNED FOR USE WITH 2-PIECE BULKHEADS, WITH 2 ASSEMBLIES BEING REQUIRED PER LOAD. SEE GENERAL NOTE "DD" ON PAGE 4.

FABRICATE TO FIT BETWEEN LOAD DIVIDERS MINUS 1/2" TO 3/4". CAUTION: THE ASSEMBLY IS INTENTIONALLY DESIGNED FOR A LOOSE FIT BETWEEN THE LOAD DIVIDER BULKHEADS.



NOTE ▲:

THE TWO INTERMEDIATE STRUTS ARE TO BE EVENLY SPACED ON THE WIDTH OF THE DIVIDER BULKHEADS, WITH ADJUSTMENTS MADE SO AS TO ALIGN WITH VERTICAL FRAMING WITHIN THE BULKHEADS.

STRUT ASSEMBLY FOR 1-PIECE BULKHEADS

THIS STRUT ASSEMBLY IS DESIGNED FOR USE WITH 1-PIECE BULKHEADS. SEE GENERAL NOTE "DD" ON PAGE 4.

