

APPROVED BY
BUREAU OF EXPLOSIVES

G. H. Fishman
DATE 11/12/92

LOADING AND BRACING (CL & LCL) IN BOXCARS OF AIR INFLATABLE RETARDER, BSU-49/B PACKED IN THE CNU-335/E OR CNU-335A/E CONTAINER, AND BSU-50/B PACKED IN THE CNU-336/E OR CNU-336A/E CONTAINER

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES -----	2-4
MATERIAL SPECIFICATIONS -----	2
CONTAINER DETAILS -----	5
TYPICAL FULL LOADS, CNU-335A/E OR CNU-336A/E CONTAINER -----	6-13
DETAILS -----	14-19
TYPICAL FULL LOADS, CNU-335/E OR CNU-336/E CONTAINER -----	20-27
DETAILS -----	28-33
LCL PROCEDURES FOR CARS EQUIPPED WITH MECHANICAL BRACING DEVICES --	34, 35
LCL PROCEDURES FOR CONVENTIONAL BOXCAR -----	36-48
GENERAL DETAILS -----	49-55
PRVISIONS FOR BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS - - - -	56-57

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

U.S. ARMY MATERIEL COMMAND DRAWING

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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 SPECIFIED IN THIS DRAWING ARE APPLICABLE FOR THE AIR INFLATABLE RETARDER, BSU-49/B PACKED IN THE CNU-335/E OR CNU-335A/E CONTAINER OR BSU-50/B PACKED IN THE CNU336/E OR CNU-336A/E CONTAINER. SEE THE PICTORIAL VIEWS ON PAGE 5 FOR SIZE AND WEIGHT. REFER TO T.O. 11A6-13-7 FOR FURTHER INFORMATION.
- C. 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.
- D. THE SELECTION OF RAIL CARS FOR THE TRANSPORT OF THE DEPICTED ITEMS 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.
- E. 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 END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. REFER TO PAGE 49 FOR GUIDANCE.
- F. 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.
- G. 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.
- H. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN CARS WHICH ARE PARTIALLY LOADED WITH THE DEPICTED ITEMS, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED HEREIN. 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.
- 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 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 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 51 FOR GUIDANCE.
- N. 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.
- 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.

(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.
- PLYWOOD - - - - - : FED SPEC NN-P-530; GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
- STRAPPING, STEEL - - : ASTM D3953; FLAT STRAPPING, TYPE I OR 2, HEAVY DUTY, COATED FINISH (ORGANIC), ZINC-COATED (GRADE 2), OR UNCOATED.
- SEAL, STRAP - - - - : ASTM D3953; CLASS H, FINISH A, B (GRADE 2), OR C, TYPE D, STYLE I, II, OR IV.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.
- STAPLE, STRAP - - - : COMMERCIAL GRADE.
- HARDBOARD - - - - - : ANSI/AHA A135.4, CLASS 1.
- SOLID FIBERBOARD - - : FED SPEC PP-F-320. TYPE SF, CLASS DOMESTIC, GRADE 175 OR STRONGER; OR TYPE SF, CLASS WEATHER-RESISTANT, GRADE W6S OR STRONGER.

(CONTINUED ON PAGE 3)

GENERAL NOTES

(FOR CONVENTIONAL TYPE BOXCARS)

- P. 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 "K" ON PAGE 2.
- Q. NOTICE: WHEN POSITIONING CONTAINERS IN A CAR, THEY SHOULD BE PLACED TIGHTLY AGAINST A CAR SIDEWALL AND ARE TO BE PRESSED 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 NEAR THE BASE OF THE CONTAINER. PADDING, OF 2" THICK LUMBER OR ANY OTHER MATERIAL OF SIMILAR CONSISTENCY, SHOULD BE PLACED BETWEEN THE JACK AND THE LADING.
- R. LOAD-BLOCKING STRUTS WHICH ARE 48" OR LONGER MUST BE STIFFENED BY THE APPLICATION OF HORIZONTAL AND VERTICAL STRUT BRACING AS SHOWN BY KEY NUMBERS ⑥ AND ⑦ ON PAGE 6. 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.
- S. 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. SEE THE "BEVEL CUT" DETAIL ON PAGE 51 FOR BEVELING INSTRUCTIONS AND THE "STRUT INSTALLATION" DETAIL ON THAT PAGE FOR A PICTORIAL VIEW SHOWING THE PROPER POSITIONING OF A BEVELED STRUT FOR INSTALLATION. NOTE THAT THE UPPER CORNER NEEDS TO BE BEVELED ONLY IF THE STRUTS ARE VERY SHORT. IF ONLY ONE END IS BEVEL CUT, THE BEVELED EDGE WILL BE PLACED IN THE DOWNWARD POSITION SO THAT IT WILL ALLOW THE STRUT END TO SLIDE MORE FREELY DOWN THE FACE OF THE VERTICAL PIECE ON THE ADJACENT CENTER GATE AS THE STRUT IS DRIVEN DOWN INTO ITS FINAL BLOCKING POSITION.
- T. WHERE 2" X 2" PIECES ARE SPECIFIED FOR STRUT LEDGERS, 2" X 4" MATERIAL MAY BE SUBSTITUTED, IF DESIRED.
- U. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.

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GENERAL NOTES

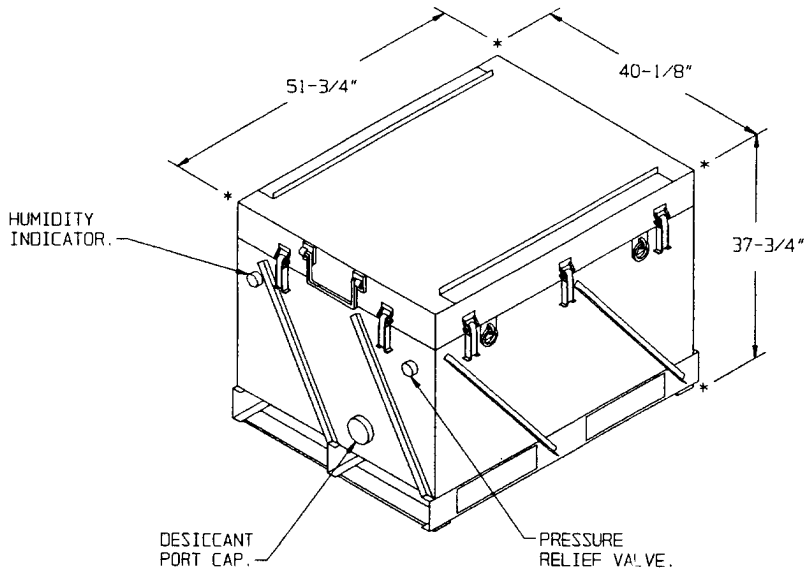
(FOR BOXCARS EQUIPPED WITH MECHANICAL BRACING DEVICES)

- 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. FOR BLOCKING THE LOAD WHICH IS DEPICTED, A CROSS MEMBER WILL NOT BE RELIED UPON TO RETAIN MORE LADING ON EITHER SIDE THAN AS SHOWN. 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 UNITS 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.

GENERAL NOTES

(FOR CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS)

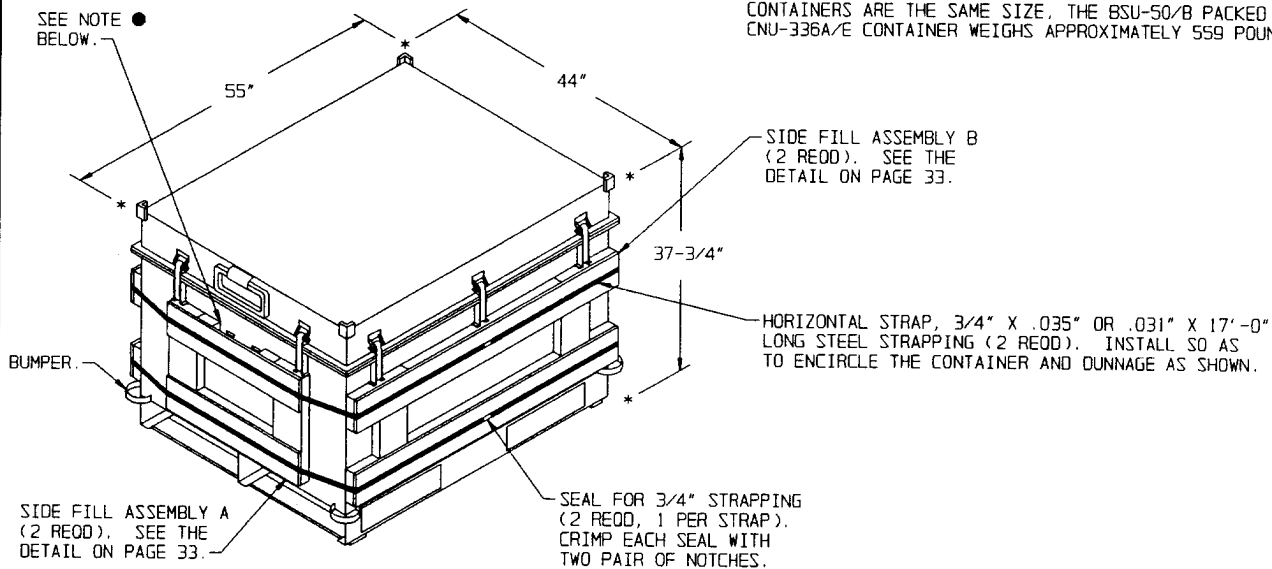
- AA. CAUTION: FOR CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS, ONLY CARS EQUIPPED WITH LOAD DIVIDERS MANUFACTURED BY EVANS, EQUIPCO, OR PRECO MAY BE USED. LOAD DIVIDERS MANUFACTURED BY TRANSCO ARE NOT ACCEPTABLE WHETHER OF ALUMINUM OR STEEL CONSTRUCTION. THE DEPICTED PROCEDURES ARE APPLICABLE 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 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.
- CC. 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 57 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 57, THE "FILL PIECE" MATERIAL IS NOT REQUIRED.
- DD. 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.
- EE. 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 "FF-1" BELOW. DETAILS OF STRUT ASSEMBLIES FOR USE BETWEEN 2-PIECE BULKHEADS AND BETWEEN 1-PIECE BULKHEADS ARE SHOWN ON PAGE 56.
- FF. 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 PALLET UNITS 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. 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 AND STRUTS AS SHOWN ON THE APPLICABLE CONVENTIONAL BOXCAR DRAWING HEREIN TO PROVIDE FOR A TIGHT LOAD BETWEEN THE BULKHEADS.
 2. 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 46 OR WITH KNEE BRACE ASSEMBLIES, AS SHOWN ON PAGE 44.
- GG. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHOD.



ISOMETRIC VIEW

⊕ AIR INFLATABLE RETARDER, BSU-49/B
(CNU-335A/E CNTR) - - 1,038 LBS (APPROX)

⊕ THE UNIT SHOWN ABOVE IS APPLICABLE TO BOTH THE AIR INFLATABLE RETARDER, BSU-49/B PACKED IN THE CNU-335A/E CONTAINER OR BSU-50/B PACKED IN THE CNU-336A/E CONTAINER. ALTHOUGH BOTH CONTAINERS ARE THE SAME SIZE, THE BSU-50/B PACKED IN THE CNU-336A/E CONTAINER WEIGHS APPROXIMATELY 559 POUNDS.



ISOMETRIC VIEW

⊕ AIR INFLATABLE RETARDER, BSU-49/B
(CNU-335/E CNTR) - - - - 1,038 LBS (APPROX)
DUNNAGE - - - - - 78 LBS

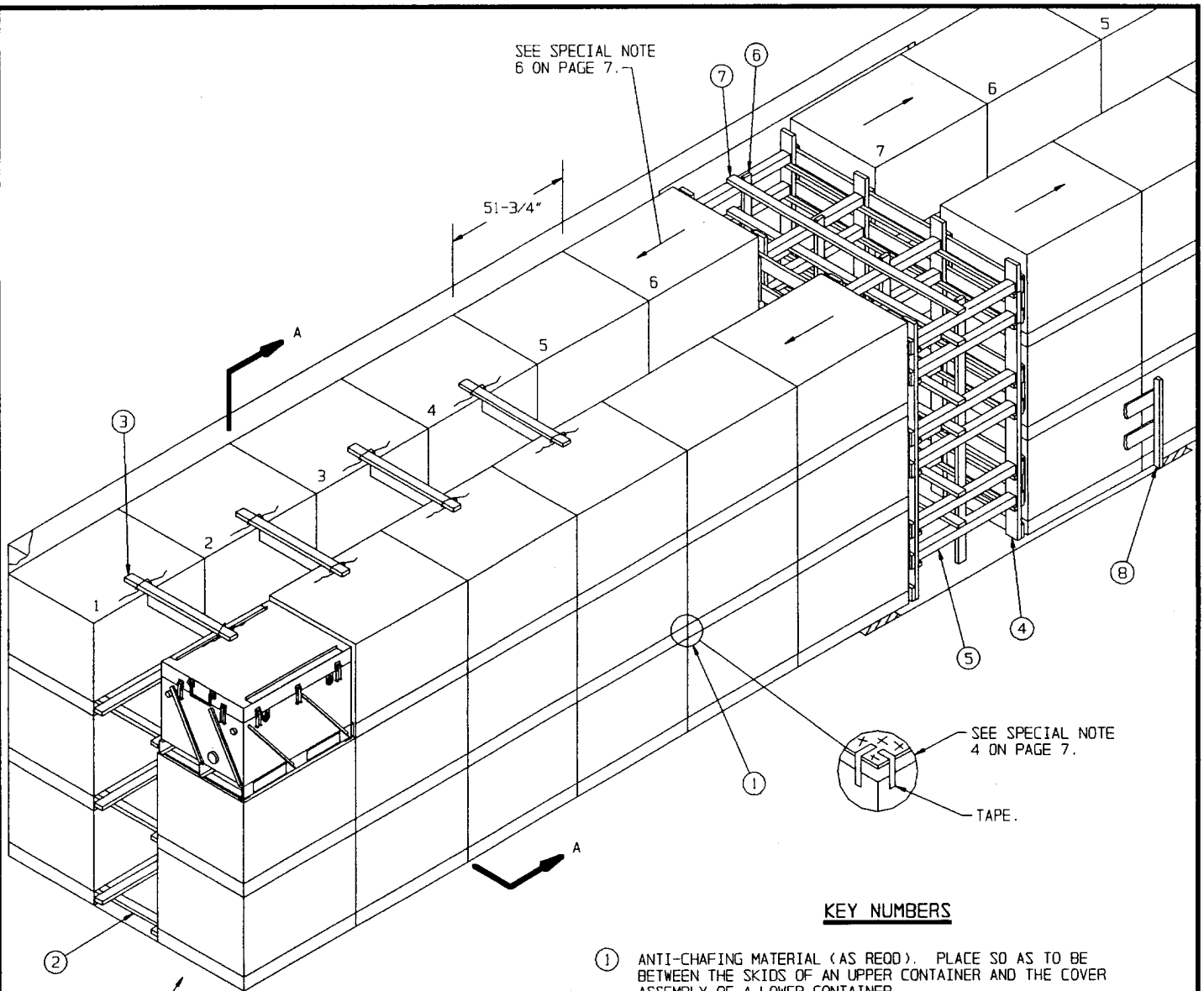
TOTAL WEIGHT - - - - 1,116 LBS (APPROX)

⊕ THE UNIT SHOWN ABOVE IS APPLICABLE TO BOTH THE AIR INFLATABLE RETARDER, BSU-49/B PACKED IN THE CNU-335/E CONTAINER OR BSU-50/B PACKED IN THE CNU-336/E CONTAINER. ALTHOUGH BOTH CONTAINERS ARE THE SAME SIZE, THE BSU-50/B PACKED IN THE CNU-336/E CONTAINER WEIGHS APPROXIMATELY 559 POUNDS.

NOTE ●: THE INTERMEDIATE FILLER PIECE OF "SIDE FILL ASSEMBLY A" MAY BE NOTCHED OR PARTIALLY OMITTED AS NECESSARY TO PROVIDE ACCESS TO THE HUMIDITY INDICATOR AND PRESSURE RELIEF VALVE. SEE "DETAIL A" ON PAGE 33.

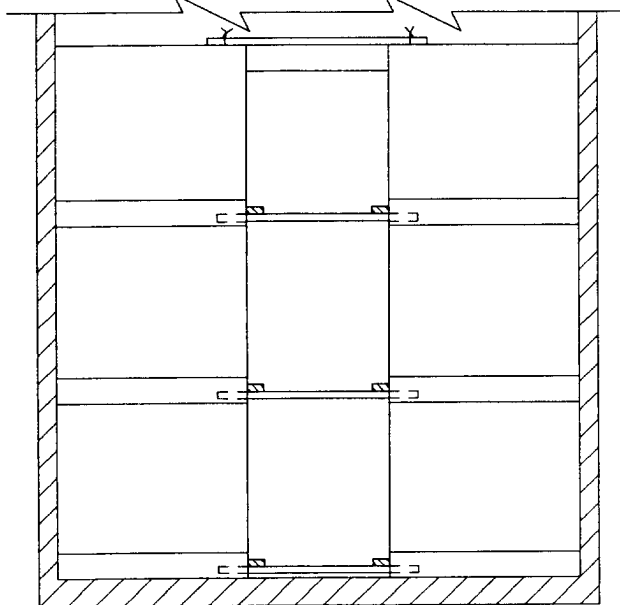
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	29	29
NAILS	NO. REOD	POUNDS
6d (2")	88	1/2
STEEL STRAPPING, 3/4"	- - 36.00' REOD	- - 2-1/2 LBS
SEAL FOR 3/4" STRAPPING	- - - 2 REOD	- - - - - NIL
PLYWOOD, 1/2"	- - - 9.60 SQ FT REOD	- - 10.00 LBS

SEE SPECIAL NOTE
6 ON PAGE 7.



SEE GENERAL NOTE
"E" ON PAGE 2.

ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REQD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② ANTI-SWAY BRACE (39 REQD). SEE THE "ANTI-SWAY BRACE A" DETAIL ON PAGE 14. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTE "K" AND "L" ON PAGE 2 AND SPECIAL NOTE 10 ON PAGE 7.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (8 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 15. WIRE TIE TO THE CONTAINER LATCH BRACKETS WITH NO. 14 GAGE WIRE AS TYPICALLY SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53. SEE SPECIAL NOTE 5 ON PAGE 7.
- ④ CENTER GATE (2 REQD). SEE THE "CENTER GATE A" DETAIL ON PAGE 14. SEE SPECIAL NOTES 6 THRU 8 ON PAGE 7.
- ⑤ STRUT, 4" X 4" BY CUT TO FIT (REF: 49") (24 REQD). TOENAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2, AND GENERAL NOTES "R" AND "S" ON PAGE 3.
- ⑥ VERTICAL STRUT BRACING, 2" X 4" X 8'-10" (4 REQD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 2" (6 REQD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION A" DETAIL ON PAGE 16. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 9 AND 10 ON PAGE 7.

(SPECIAL NOTES CONTINUED)

11. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF SIX UNITS, A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR UNITS, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 46 FOR GUIDANCE.

SPECIAL NOTES:

1. A 60'-8" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "F" ON PAGE 2.
2. A TYPICAL LOAD OF 85U-49/B RETARDERS PACKED IN CNU-335A/E CONTAINERS IS SHOWN IN THE LOAD ON PAGE 6. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.

60'-8" CARS	-----	78 UNITS	-----	80,964 LBS (APPROX)
50'-6" CARS	-----	66 UNITS	-----	68,508 LBS (APPROX)
40'-6" CARS	-----	48 UNITS	-----	49,824 LBS (APPROX)
3. THE DEPICTED LOADING PATTERN IS ADEQUATE FOR CARS HAVING DOOR OPENINGS 8' THRU 10' OR WIDER. IF THE CAR TO BE LOADED HAS DOOR OPENINGS LESS THAN 8'-0" WIDE AND NOT OF SUFFICIENT HEIGHT TO ALLOW PERSONNEL TO EXIT THE CAR OVER THE TOP OF THE LOAD WHEN NECESSARY, THE PALLET SHOULD BE POSITIONED SO THERE ARE SIX LOAD UNITS IN EACH END. NOTE THAT ALTHOUGH CARS HAVING DOOR OPENINGS AS NARROW AS 6'-0" WIDE CAN BE USED FOR FULL LOADS, LOADING IS PROGRESSIVELY MORE DIFFICULT AS THE WIDTH OF THE DOOR OPENING DECREASES.
4. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
5. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED ③ MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF 40' AND 50' CARS. FOUR ARE REQUIRED IN EACH END OF A 60' CAR.
6. CONTAINERS WHICH ARE ADJACENT TO THE CENTER GATES MUST BE POSITIONED WITH THE HUMIDITY INDICATOR AND PRESSURE RELIEF VALVE TOWARD THE CAR ENDWALL.
7. CENTER GATE "A" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. NOTE THAT THE PLYWOOD MUST BE SECURED TO THE BEARING PIECES ASSOCIATED WITH CENTER GATES "A" AND "B". SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 50 FOR GUIDANCE.
8. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE A", SHOWN AS PIECE MARKED ④ IN THE LOAD ON PAGE 6, INSTALL TWO "CENTER GATES B" AS SHOWN ON PAGE 15. AFTER THE SPIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 50.
9. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO IT BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED ⑥ IN THE LOAD ON PAGE 6, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS; OR NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MAY BE USED. REFER TO PAGES 52 THRU 55 FOR OTHER TYPES OF DOORWAY PROTECTION.
10. 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; OMIT EACH LOWER ANTI-SWAY BRACE IN THE DOORWAY AREA; IN LIEU OF PIECE MARKED ⑧, USE PIECES MARKED ④ THRU ⑦ ON PAGE 12. SEE SPECIAL NOTES 6 AND 7 ON PAGE 13 FOR GUIDANCE.

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LOAD AS SHOWN

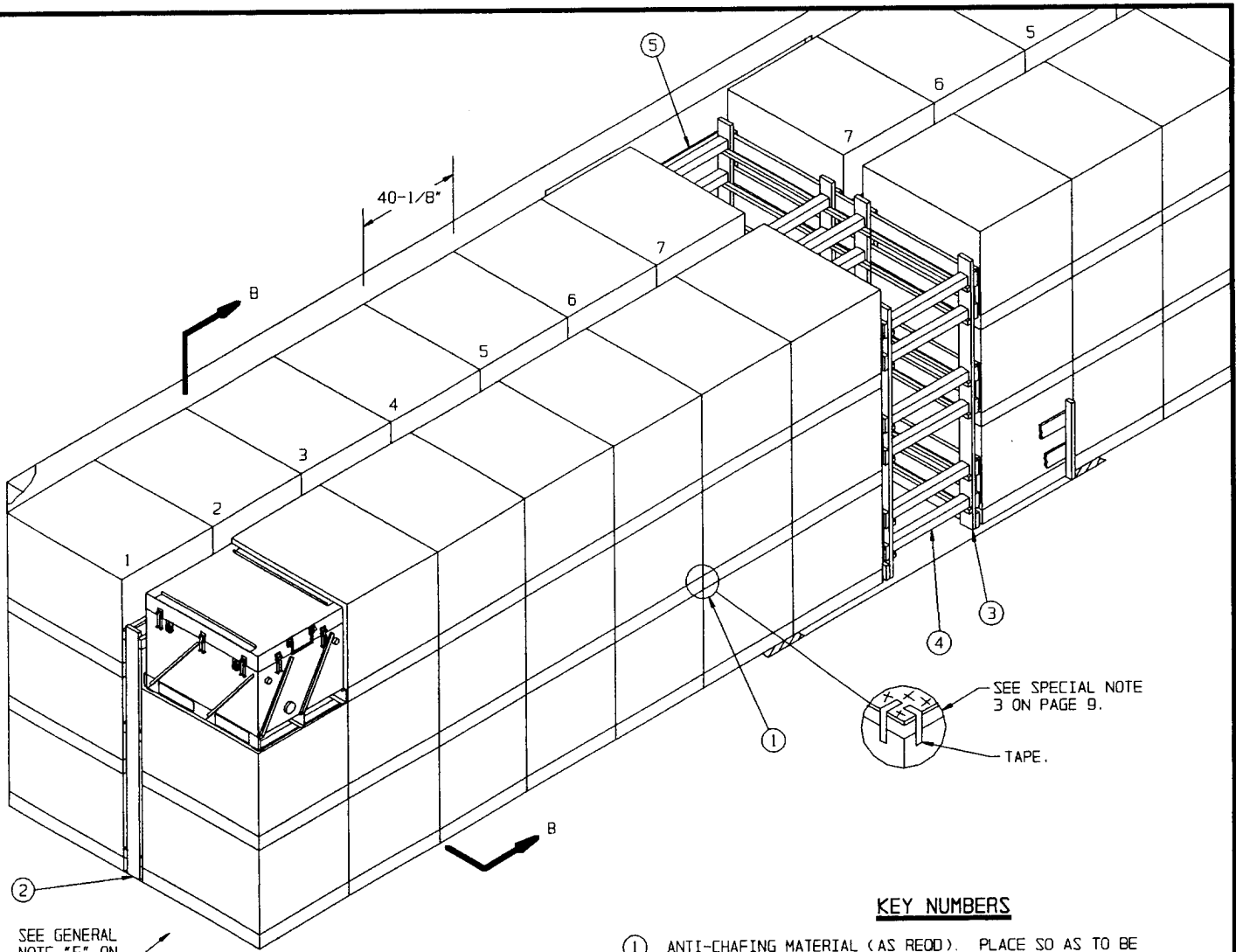
ITEM	QUANTITY	WEIGHT (APPROX)
CNU-335A/E CNTR	78	80,964 LBS *
DUNNAGE		2,014 LBS

TOTAL WEIGHT ----- 82,978 LBS (APPROX)

* CNU-335A/E CONTAINERS WILL WEIGH 43,602 LBS.

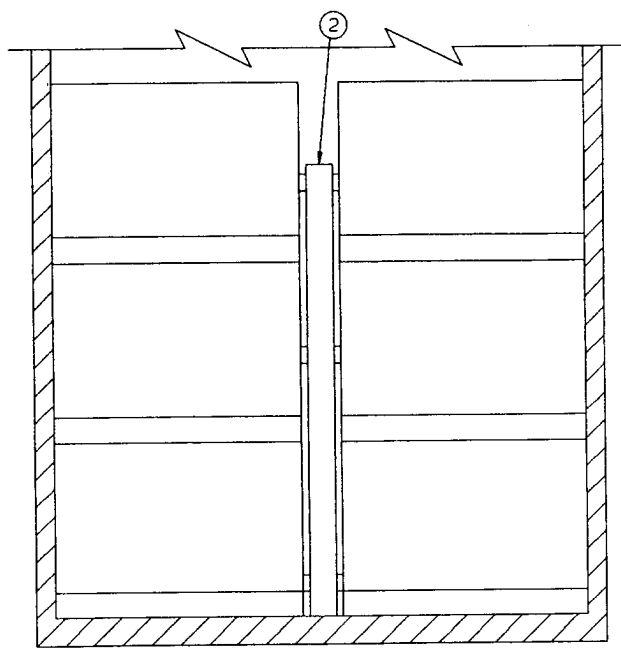
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	120	60
2" X 2"	110	37
2" X 3"	35	18
2" X 4"	781	521
2" X 6"	230	230
4" X 4"	98	131
NAILS	NO. REOD	POUNDS
6d (2")	72	1/2
10d (3")	900	15
12d (3-1/4")	72	1-1/4
16d (3-1/2")	96	2
WIRE, NO. 14 GAGE	----- 64' REOD	----- 1 LB

78-UNIT LOAD IN A 60'-8" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR



SEE GENERAL NOTE "E" ON PAGE 2.

ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REQD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② CRIB FILL (4 REQD). SEE THE "CRIB FILL A" DETAIL AND "NOTE" ON PAGE 17. SEE SPECIAL NOTES 4 AND 10 ON PAGE 9.
- ③ CENTER GATE (2 REQD). SEE THE "CENTER GATE C" DETAIL ON PAGE 18. SEE SPECIAL NOTES 5, 6, AND 8 ON PAGE 9.
- ④ STRUT 4" X 4" CUT TO FIT (REF 3B") (24 REQD). TOENAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "K" ON PAGE 2. SEE GENERAL NOTES "R" AND "S" ON PAGE 3.
- ⑤ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION B" DETAIL ON PAGE 16. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 7 AND 8 ON PAGE 9.

(SPECIAL NOTES CONTINUED)

9. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF SIX PALLET UNITS, A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR PALLET UNITS, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO PALLET UNITS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 48 FOR GUIDANCE.
10. ANTI-SWAY BRACE "B" DETAILED ON PAGE 17 MAY BE USED IN LIEU OF THE DEPICTED CRIB FILL MARKED ②, IF THERE IS ENOUGH SPACE BETWEEN CONTAINERS TO PERMIT NAILING.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-4" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR EQUIPPED WITH A 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTE "E" ON PAGE 2.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN CNU-335A/E CONTAINER IS SHOWN IN THE TYPICAL LOAD ON PAGE 8. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.

60'-8" CAR	-----	102 UNITS	-----	105,876 LBS (APPROX)
50'-6" CAR	-----	84 UNITS	-----	87,192 LBS (APPROX)
40'-6" CAR	-----	66 UNITS	-----	68,508 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUNDS BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. IF DESIRED, IN CARS HAVING NAILABLE SIDEWALLS, 1" X 6" OR 2" X 6" FILL MATERIAL MAY BE NAILED TO THE SIDEWALLS AT THE HEIGHTS SPECIFIED FOR THE DOORWAY PROTECTION IN LIEU OF USING THE DEPICTED CRIB FILL. NOTE THAT THE TOTAL ACCUMULATED SPACE ACROSS A CAR SHOULD NOT EXCEED THREE INCHES. SEE SPECIAL NOTE 10.
5. CENTER GATE "C" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. NOTE THAT THE PLYWOOD MUST BE SECURED TO THE BEARING PIECES ASSOCIATED WITH CENTER GATES "C" AND "D". SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 50 FOR GUIDANCE.
6. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR WIDTH GATES. IN LIEU OF EACH "CENTER GATE C", SHOWN AS PIECE MARKED ③ IN THE LOAD ON PAGE 8, INSTALL TWO "CENTER GATES D" AS SHOWN ON PAGE 19. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 50.
7. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO IT BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED ⑤ IN THE LOAD ON PAGE 8, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS; OR NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MAY BE USED. REFER TO PAGES 52 THRU 55 FOR OTHER TYPES OF DOORWAY PROTECTION.
8. 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 "DOORWAY PROTECTION E" DETAIL ON PAGE 55 FOR INSTALLATION GUIDANCE; NOTE THAT THE CRIB FILL PIECE MARKED ② MUST HAVE 3" CUT OFF THE BOTTOM OF EACH VERTICAL PIECE THAT RESTS ON THE FLOORLINE BLOCKING, AND THAT THE CENTER VERTICAL PIECES ON THE CENTER GATE, PIECE MARKED ③ MUST BE NOTCHED TO ACCOMMODATE THE FLOORLINE BLOCKING.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	141	47
1" X 6"	120	60
2" X 2"	112	38
2" X 3"	40	20
2" X 4"	177	118
2" X 6"	553	553
4" X 4"	76	102
NAILS	NO. REQD	POUNDS
6d (2")	408	2-1/2
10d (3")	720	11
12d (3-1/4")	32	1/2
16d (3-1/2")	96	2

(CONTINUED AT LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-335A/E CNTR	84	87,192 LBS *
DUNNAGE		1,892 LBS
TOTAL WEIGHT		89,084 LBS (APPROX)

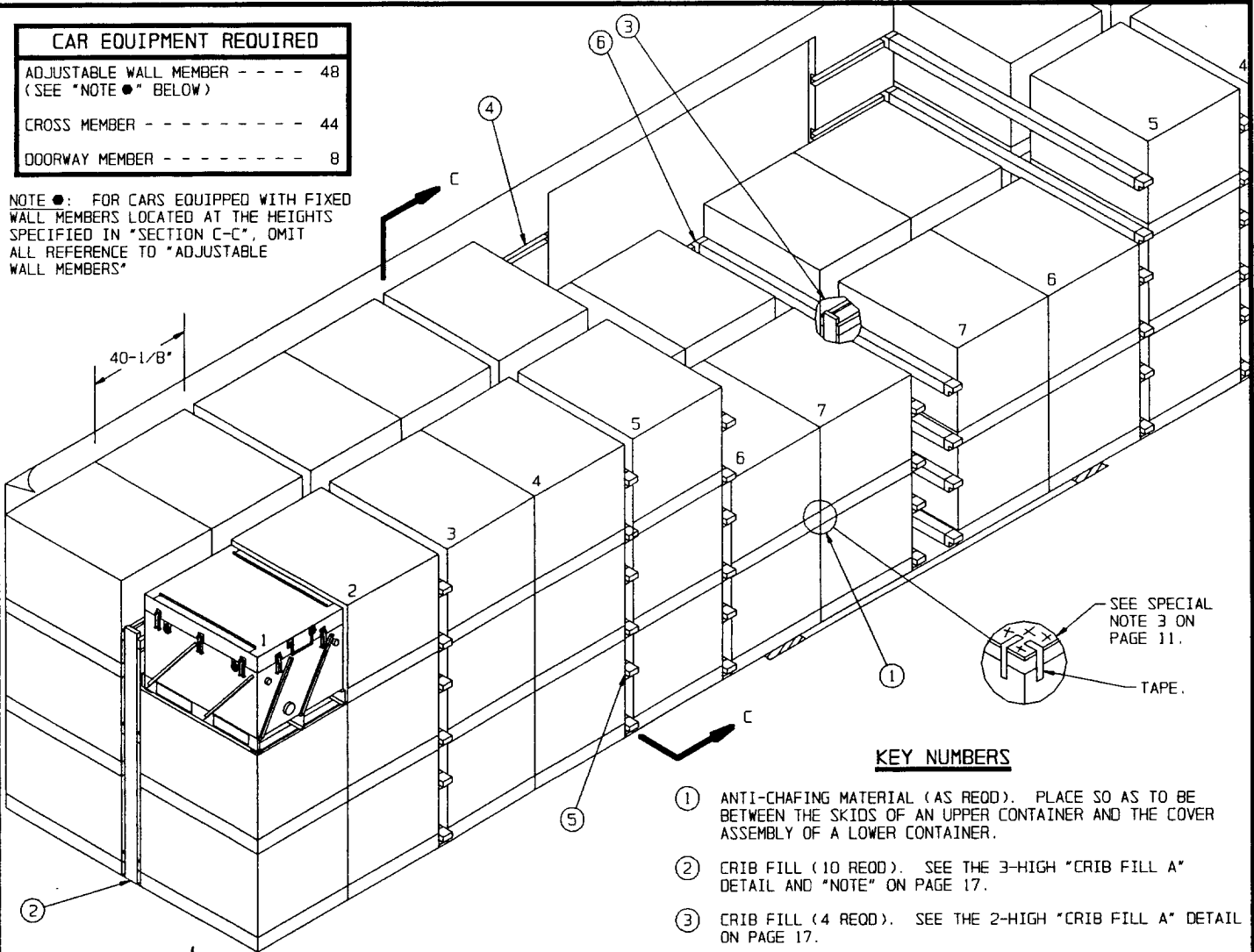
* CNU-336A/E CONTAINERS WILL WEIGH 46,956 LBS

84-UNIT LOAD IN A 50'-6" LONG BY 9'-4" WIDE CONVENTIONAL BOXCAR

CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBER - - - - -	48
(SEE "NOTE ●" BELOW)	
CROSS MEMBER - - - - -	44
DOORWAY MEMBER - - - - -	8

NOTE ●: FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION C-C", OMIT ALL REFERENCE TO "ADJUSTABLE WALL MEMBERS"

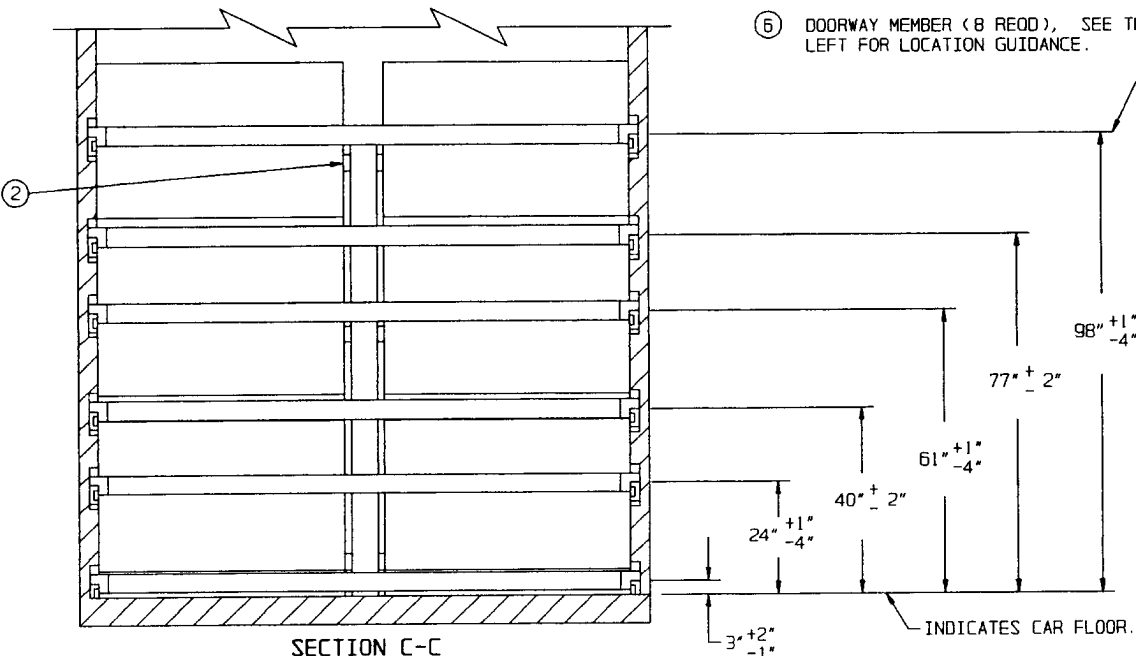


SEE GENERAL NOTE "E" ON PAGE 2 AND SPECIAL NOTE 4 ON PAGE 11.

ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REOD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② CRIB FILL (10 REOD). SEE THE 3-HIGH "CRIB FILL A" DETAIL AND "NOTE" ON PAGE 17.
- ③ CRIB FILL (4 REOD). SEE THE 2-HIGH "CRIB FILL A" DETAIL ON PAGE 17.
- ④ WALL MEMBER, ADJUSTABLE OR FIXED. MEMBER MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBER MARKED ⑤. SEE THE "SECTION C-C" VIEW BELOW FOR LOCATION GUIDANCE.
- ⑤ CROSS MEMBER (44 REOD). SEE GENERAL NOTE "V" ON PAGE 3.
- ⑥ DOORWAY MEMBER (8 REOD), SEE THE "SECTION C-C" VIEW AT LEFT FOR LOCATION GUIDANCE.



SECTION C-C

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE (INSIDE CLEARANCE) BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN CNU-335A/E CONTAINERS IS SHOWN IN THE TYPICAL LOAD ON PAGE 10. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.
 50'-6" CARS ----- 76 UNITS ----- 78,888 LBS (APPROX)
 40'-6" CARS ----- 52 UNITS ----- 53,976 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUNDS BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. IF A CAR HAS BOWED ENDWALLS WHICH ARE BOWED OUTWARD TWO INCHES OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, CROSS MEMBERS CAN BE INSTALLED NEAR THE ENDWALL OF THE CAR TO PROVIDE A "SQUARED END" RATHER THAN INSTALLING DUNNAGE AS SPECIFIED IN GENERAL NOTE "E" ON PAGE 2. THESE CROSS MEMBERS SHOULD BE INSTALLED AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS BLOCKING MEMBERS.
5. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A LOAD MAY BE REDUCED BY MULTIPLES OF TWO CONTAINERS BY OMITTING LATERALLY ADJACENT UNITS FROM THE TOP ONE OR TWO LAYERS OF ONE OR MORE LOAD UNITS, OR BY MULTIPLES OF SIX PALLET UNITS BY OMITTING ONE OR MORE ENTIRE LOAD UNITS. TO REDUCE A LOAD BY ONE PALLET UNIT, REFER TO THE LCL PROCEDURES ON PAGE 34 AND 35 FOR GUIDANCE.

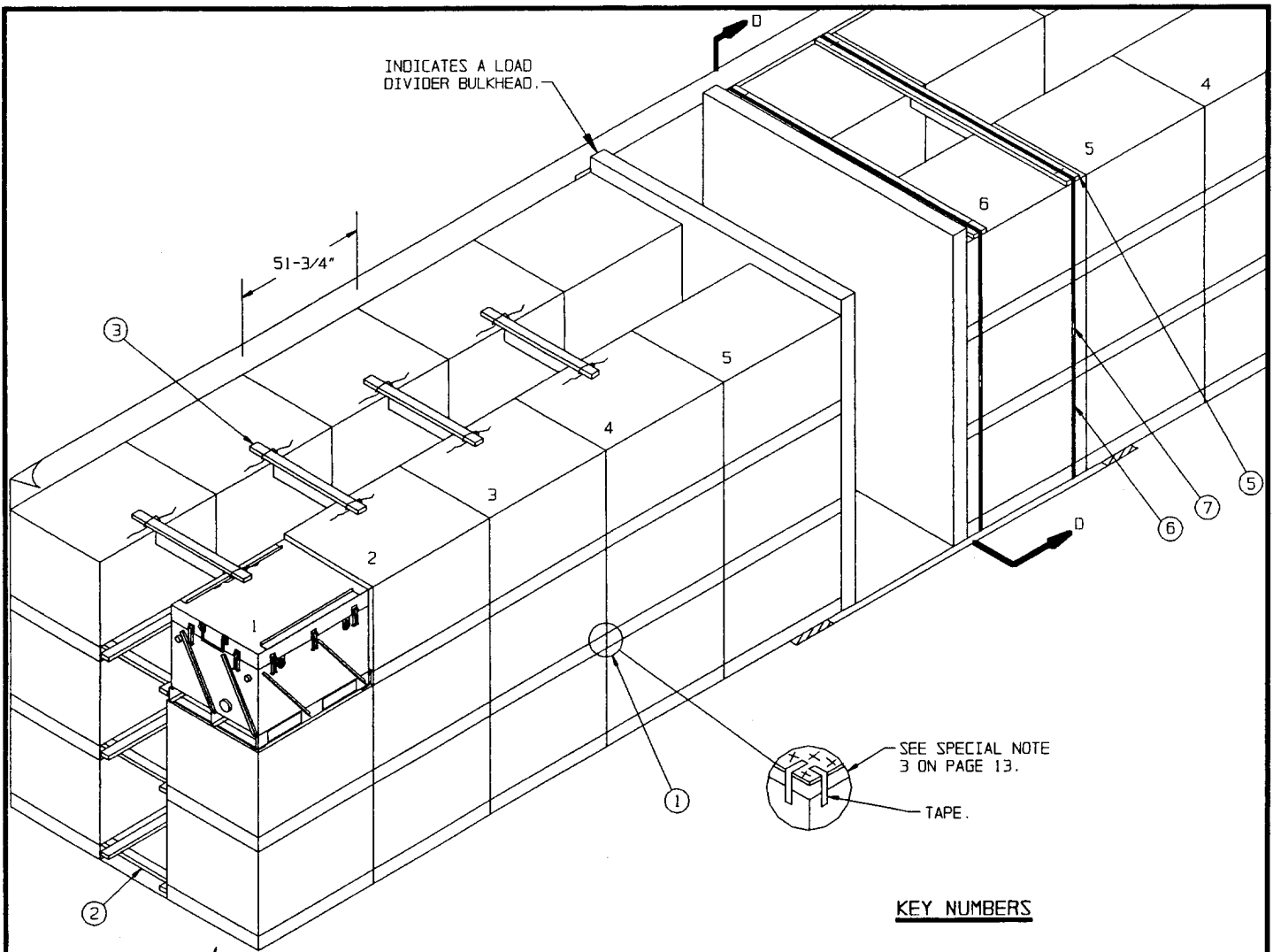
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	128	43
2" X 4"	445	297
NAILS	NO. REQD	POUNDS
6d (2")	304	2
10d (3")	304	4-3/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-335A/E CNTR	76	78,888 LBS *
DUNNAGE		687 LBS
TOTAL WEIGHT		79,575 LBS (APPROX)

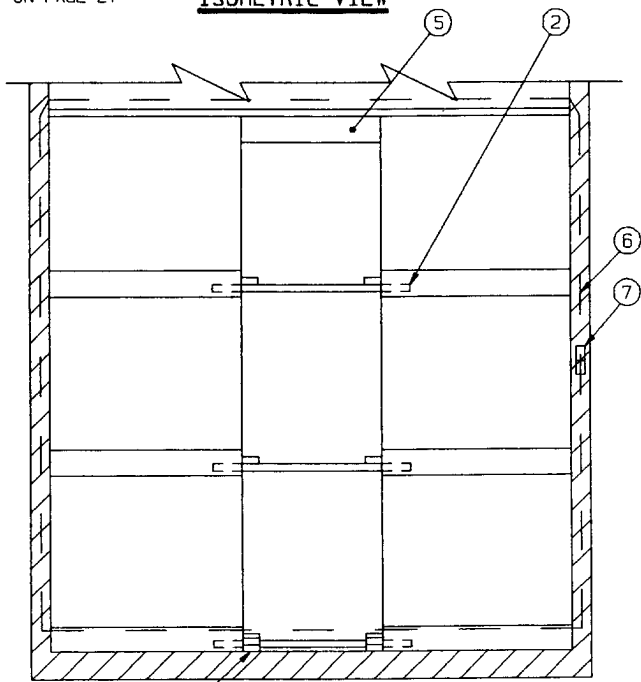
* CNU-336A/E CONTAINERS WILL WEIGH 42,484 LBS

76-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE BOXCAR EQUIPPED WITH MECHANICAL BRACING DEVICES



SEE GENERAL NOTE "E" ON PAGE 2.

ISOMETRIC VIEW



SECTION D-D

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REQD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. SEE SPECIAL NOTE 3 ON PAGE 13.
- ② ANTI-SWAY BRACE (32 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 14. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 4 ON PAGE 13.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 15. WIRE TIE TO THE CONTAINER LATCH BRACKETS WITH NO. 14 GAGE WIRE AS TYPICALLY SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53. SEE SPECIAL NOTE 5 ON PAGE 13.
- ④ FLOORLINE BLOCKING, 2" X 4" X 48" (DOUBLED) (2 REQD). PRE-POSITION TO CONTACT THE CONTAINERS TO BE PLACED IN THE DOORWAY AREA. NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE FIRST IN A LIKE MANNER. SEE SPECIAL NOTES 6 AND 7 ON PAGE 13.
- ⑤ STRAPPING BOARD (2 REQD). SEE THE "STRAPPING BOARD" DETAIL ON PAGE 19.
- ⑥ DOORWAY PROTECTION STRAP, 1-1/4" X .031" OR .035" X 39'-0" LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENIRCLE THE LOAD UNITS IN THE DOORWAY AREA. STAPLE TO THE STRAPPING BOARD W/3 STAPLES. SEE SPECIAL NOTE 7 ON PAGE 13.
- ⑦ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-4" WIDE WOOD-LINED CUSHIONED BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "AA" THRU "EE" ON PAGE 4.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN CNU-335A/E CONTAINERS IS SHOWN IN THE TYPICAL LOAD ON PAGE 12. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.

60'-8" CARS	-----	78 UNITS	-----	80,964 LBS (APPROX)
50'-6" CARS	-----	66 UNITS	-----	68,508 LBS (APPROX)
40'-6" CARS	-----	48 UNITS	-----	49,824 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. IF THE WOODEN GATE TYPE DOORWAY PROTECTION, PIECE MARKED (B) ON PAGE 6, IS USED IN LIEU OF THE NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAP PROCEDURES, THE LOWER ANTI-SWAY BRACES IN THE DOORWAY AREA ARE REQUIRED.
5. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED (C) MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF 40' AND 50' CARS. FOUR ARE REQUIRED IN EACH END OF A 60' CAR.
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 WIDTH. THE DEPICTED DOORWAY PROTECTION IS APPLICABLE FOR CARS EQUIPPED WITH EITHER SLIDING TYPE OR PLUG TYPE DOORS, OR A COMBINATION THEREOF. IF THE CAR BEING LOADED IS EQUIPPED WITH SLIDING TYPE DOORS, WOODEN DOOR GATES, SHOWN AS PIECE MARKED (2) ON PAGE 6, OR ANY OF THE ALTERNATIVES ON PAGE 52 THRU 55 MAY BE USED.
7. FLOORLINE BLOCKING SHOWN AS PIECE MARKED (4) IN THE LOAD ON PAGE 12 MUST BE USED IN LIEU OF THE LOWER ANTI-SWAY BRACE MARKED (2), FOR ALL UNITS REQUIRING DOORWAY PROTECTION STRAPS. TWO DOORWAY PROTECTION STRAPS ARE REQUIRED FOR EACH CONTAINER STACK AND/OR LOAD UNIT WHICH IS COMPLETELY WITHIN THE DOORWAY AREA OR WHICH IS NOT RETAINED BY AT LEAST SIX INCHES OF CAR SIDEWALL ON BOTH SIDES OF THE CAR. ONE DOORWAY PROTECTION STRAP IS REQUIRED FOR EACH CONTAINER STACK AND/OR LOAD UNIT WHICH IS RETAINED BY FROM 6" TO ONE-HALF THE LOAD UNIT LENGTH OR WIDTH.
8. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER, 2-TIER, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF 6, 4, OR 2 CONTAINERS RESPECTIVELY, BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 48 AND GENERAL NOTE "FF" ON PAGE 4 FOR GUIDANCE.

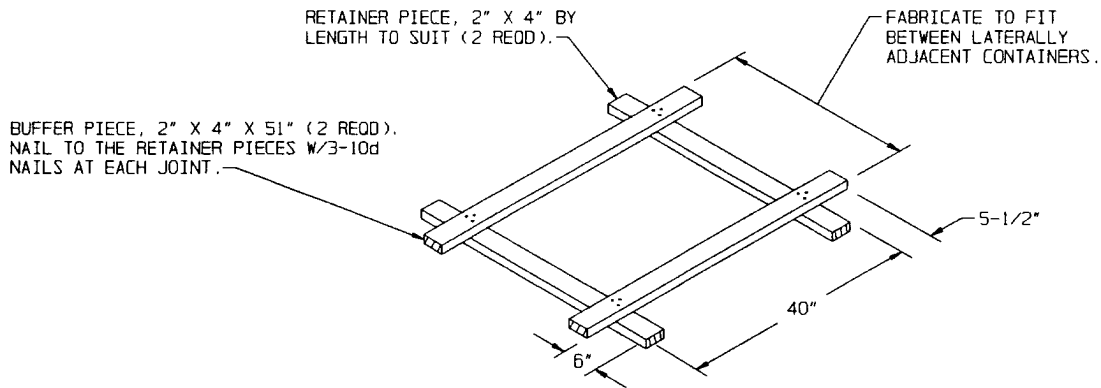
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	566	378
2" X 6"	22	22
NAILS	NO. REQD	POUNDS
10d (3")	384	6
12d (3-1/4")	40	3/4
16d (3-1/2")	24	1/2
STEEL STRAPPING, 1-1/4" -	78.00' REQD	-- 11.00 LBS
SEAL FOR 1-1/4" STRAPPING	-- 4 REQD	----- NIL
WIRE, NO. 14 GAGE	----- 48' REQD	----- 1 LB
STAPLE, 15/16" X 1-1/4"	----- 6 REQD	----- NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-335A/E CNTR	66	68,508 LBS *
DUNNAGE	-----	819 LBS
TOTAL WEIGHT		----- 69,327 LBS (APPROX)

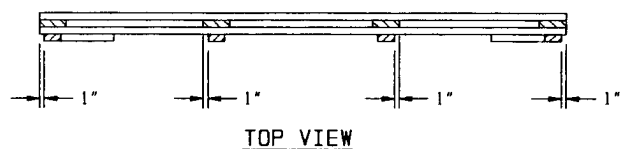
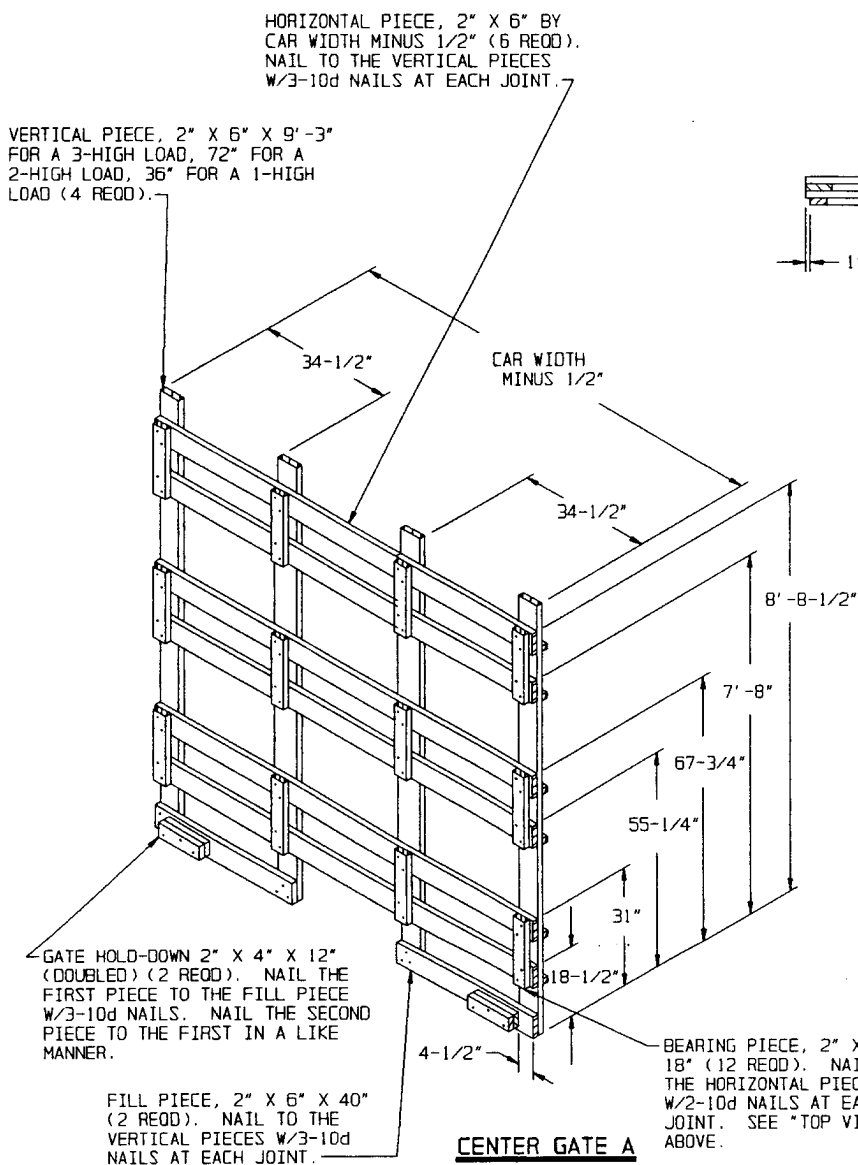
* CNU-335A/E CONTAINERS WILL WEIGH 36,894 LBS

66-UNIT LOAD IN A 50'-6" LONG BY 9'-4" WIDE BOXCAR EQUIPPED WITH LOAD DIVIDERS



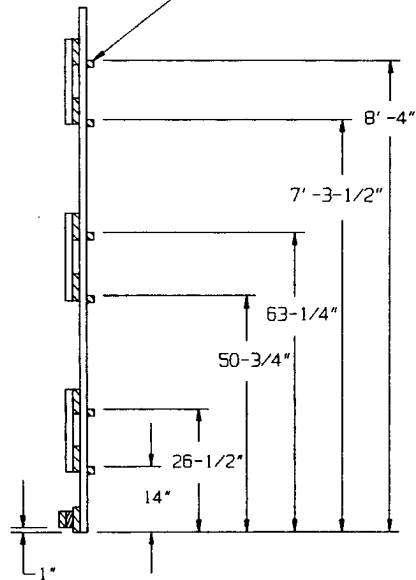
ANTI-SWAY BRACE A

IF DESIRED, THE ANTI-SWAY BRACE CAN BE PARTIALLY PRE-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.

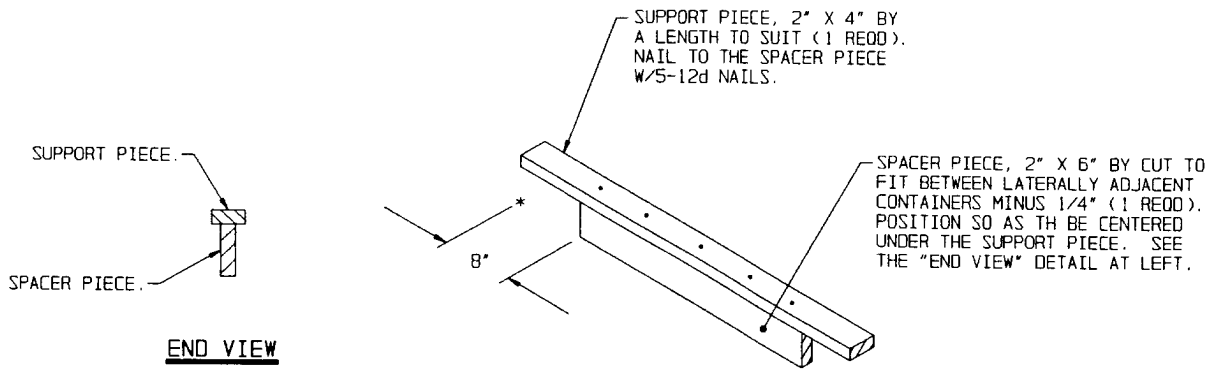


TOP VIEW

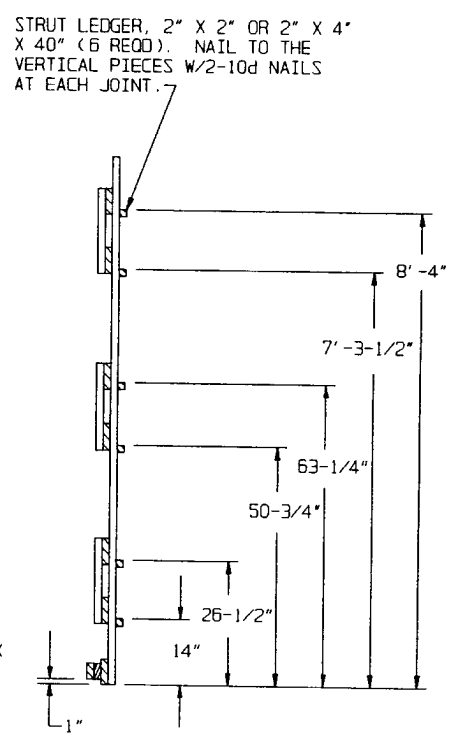
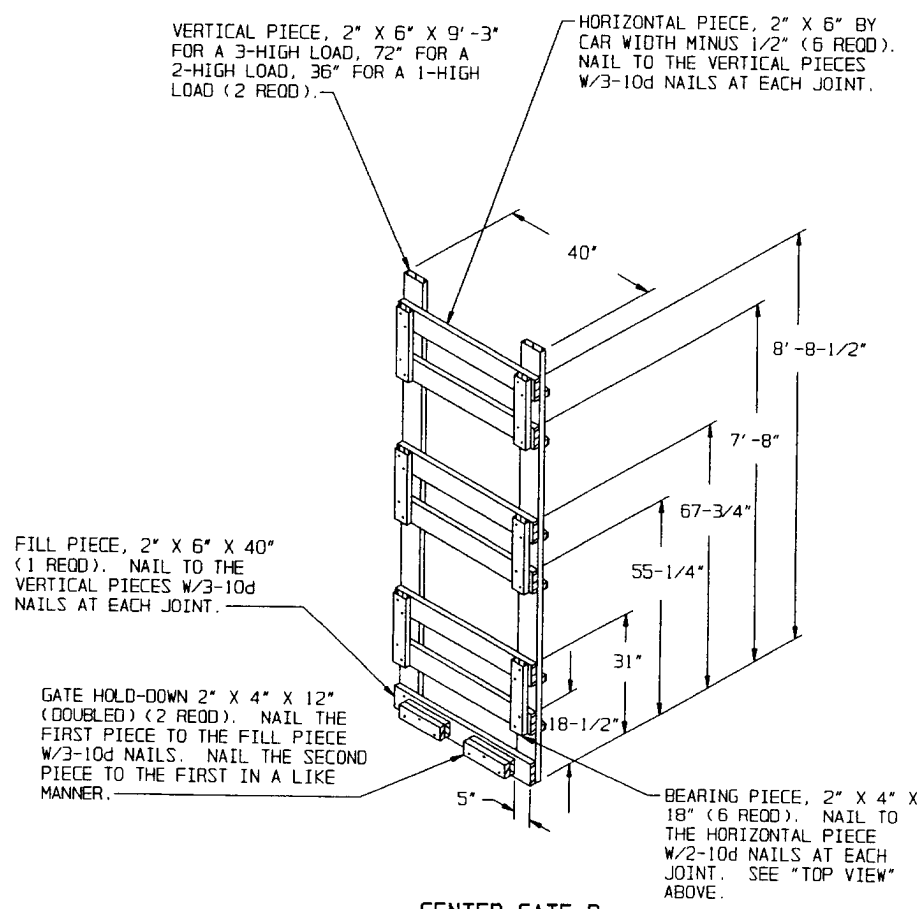
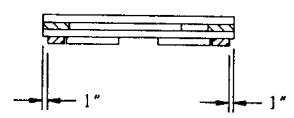
STRUT LEDGER, 2" X 2" OR 2" X 4" BY CAR WIDTH MINUS 1/2" (6 REOD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.



END VIEW



TOP-OF-LOAD ANTI-SWAY BRACE A

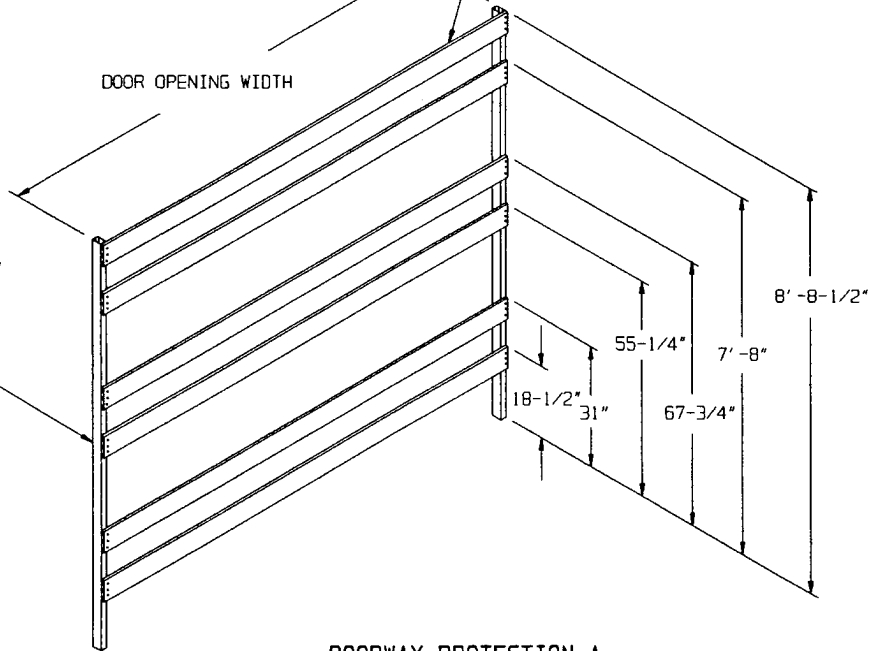


DETAILS

HORIZONTAL PIECE, 1" X 6" BY
DOOR OPENING WIDTH (6 REOD). NAIL
TO THE VERTICAL PIECES W/3-6d NAILS
AT EACH END.

DOOR OPENING WIDTH

VERTICAL PIECE, 2" X 3"
X 8'-8-1/2" (2 REOD). NAIL
TO A DOOR POST
W/12d NAILS.

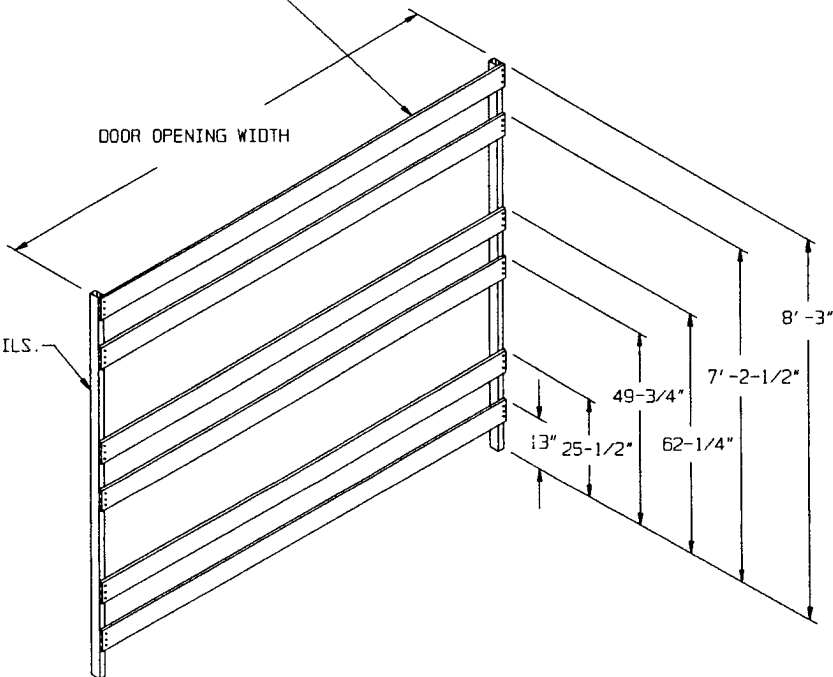


DOORWAY PROTECTION A

HORIZONTAL PIECE, 1" X 6" BY
DOOR OPENING WIDTH (6 REOD). NAIL
TO THE VERTICAL PIECES W/3-6d NAILS
AT EACH END.

DOOR OPENING WIDTH

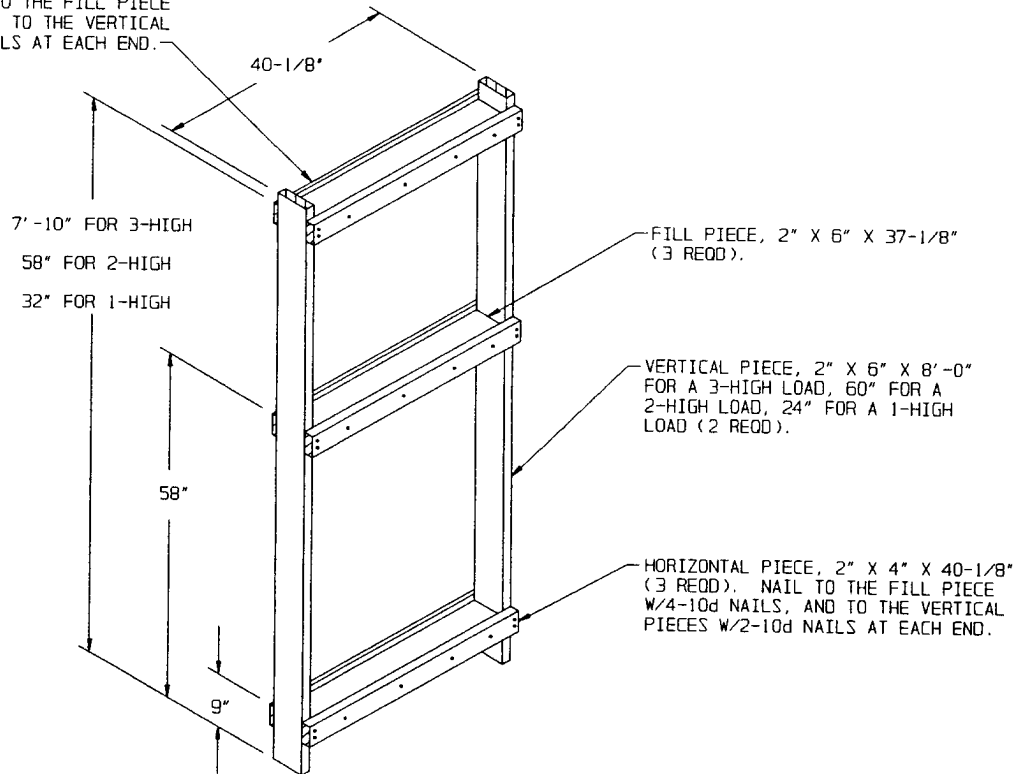
VERTICAL PIECE, 2" X 3"
X 8'-3" (2 REOD). NAIL
TO A DOOR POST W/12d NAILS.



DOORWAY PROTECTION B

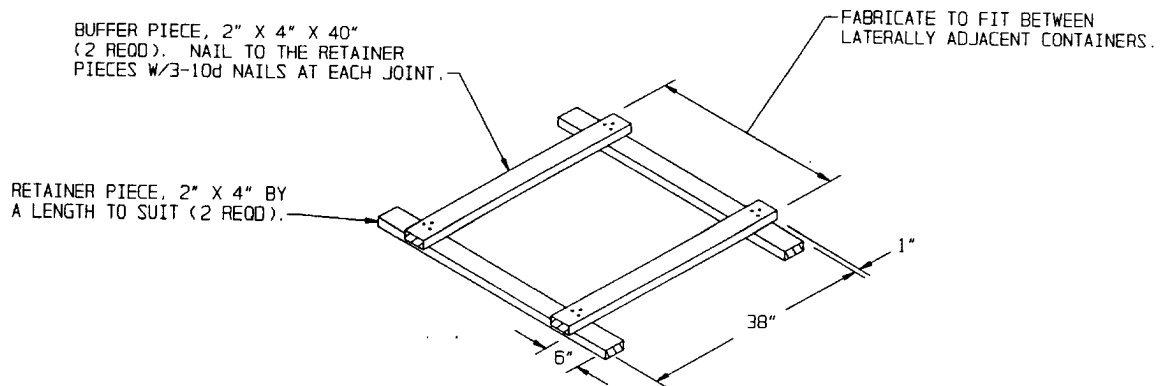
DETAILS

HORIZONTAL PIECE, 1" X 4" X 40-1/8"
(3 REQD). NAIL TO THE FILL PIECE
W/4-6d NAILS, AND TO THE VERTICAL
PIECES W/2-6d NAILS AT EACH END.



CRIB FILL A

CRIB FILL ASSEMBLY "A" SHOULD BE PRE-FABRICATED. CONSTRUCT TO BE 1/2" TO 3/4" LESS IN WIDTH THAN THE DISTANCE BETWEEN LATERALLY ADJACENT CONTAINERS. OMIT THE MID-HEIGHT HORIZONTAL AND FILL PIECES WHEN USING CRIB FOR A 1 OR 2 HIGH LOAD. NOTE THAT THE WIDTH OF THE CRIB FILL MAY BE DECREASED BY USING 2" X 4" VERTICAL PIECES, AND 1" X 4" HORIZONTAL PIECES, OR IT CAN BE INCREASED BY ADDING LAMINATIONS OF 1" OR 2" MATERIAL.



ANTI-SWAY BRACE B

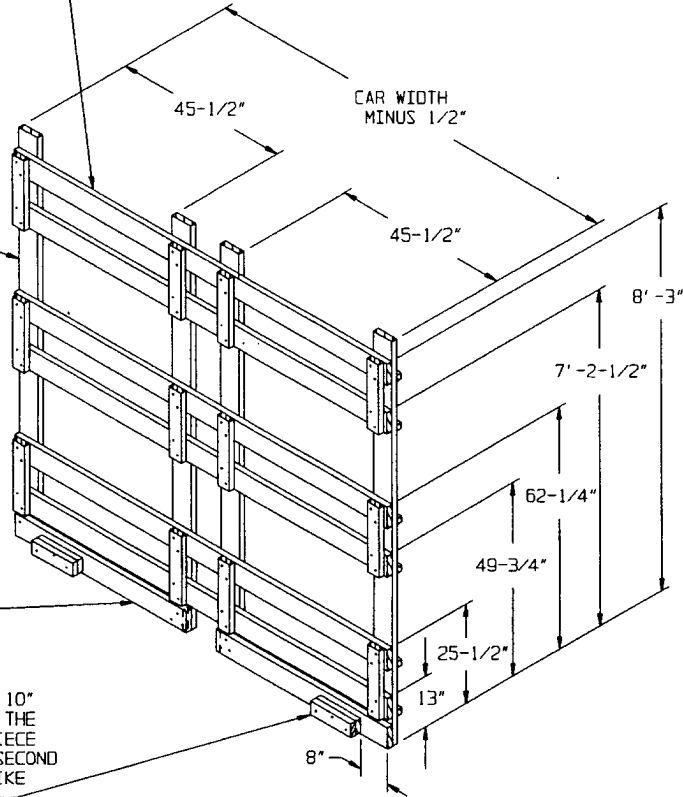
IF DESIRED, THE ANTI-SWAY BRACE CAN BE PARTIALLY PRE-ASSEMBLED; ONE BUFFER PIECE CAN BE NAILED TO BOTH RETAINER PIECES. THE LONG ENDS OF THE ASSEMBLY CAN THEN BE INSTALLED INTO THE FORKLIFT OPENING OF A LOADED CONTAINER PRIOR TO POSITIONING OF THE LATERALLY ADJACENT CONTAINER.

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

VERTICAL PIECE, 2" X 6" X 8'-8" FOR A 3-HIGH LOAD, 6'-6" FOR A 2-HIGH LOAD, 30" FOR A 1-HIGH LOAD (4 REOD).

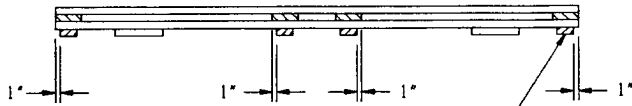
FILL PIECE, 2" X 6" X 51" (2 REOD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

GATE HOLD-DOWN, 2" X 3" X 10" (DOUBLED) (2 REOD). NAIL THE FIRST PIECE TO THE FILL PIECE W/3-10d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.



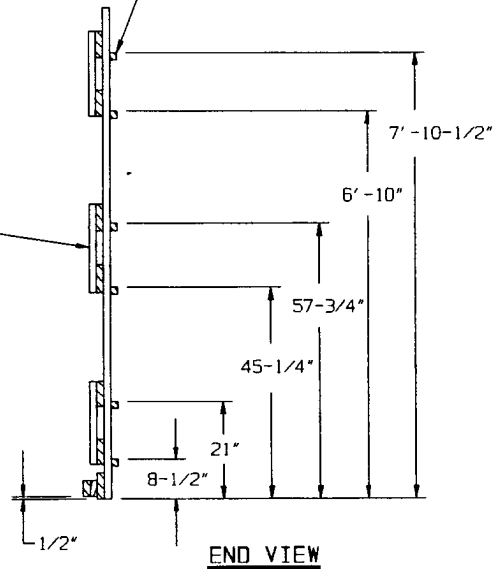
CENTER GATE C

STRUT LEDGER, 2" X 2" OR 2" X 4" BY CAR WIDTH MINUS 1/2" IN LENGTH (6 REOD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.



TOP VIEW

BEARING PIECE, 2" X 4" X 18" (12 REOD). NAIL TO THE HORIZONTAL PIECES W/2-10d NAILS AT EACH END.

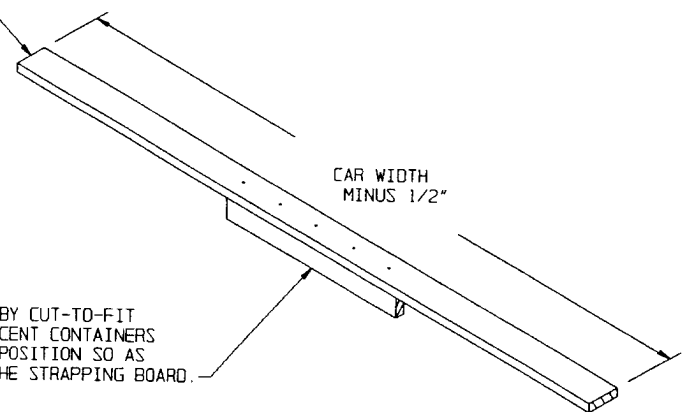


END VIEW

DETAILS

STRAPPING BOARD, 2" X 6" BY
CAR WIDTH MINUS 1/2" (1 REED).
NAIL TO THE SPACER PIECE
W/5-10d NAILS.

SPACER PIECE, 2" X 6" BY CUT-TO-FIT
BETWEEN LATERALLY ADJACENT CONTAINERS
MINUS 1/4" (1 REED). POSITION SO AS
TO BE CENTERED UNDER THE STRAPPING BOARD.



STRAPPING BOARD A



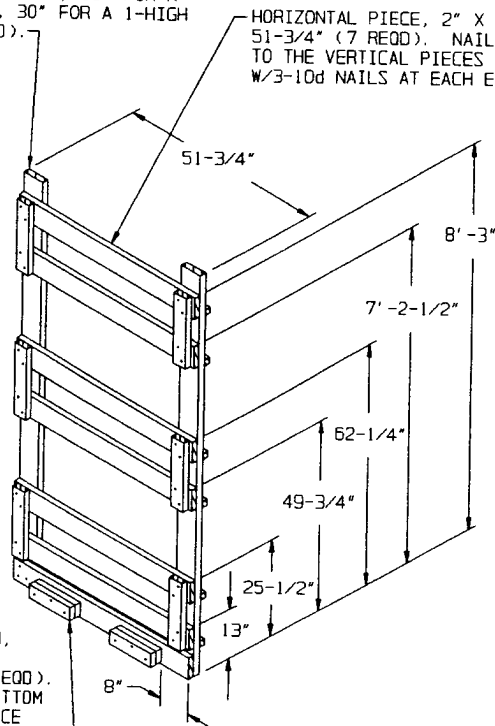
TOP VIEW

VERTICAL PIECE, 2" X 6" X 8'-8"
FOR A 3-HIGH LOAD, 66" FOR A
2-HIGH LOAD, 30" FOR A 1-HIGH
LOAD (2 REED).

HORIZONTAL PIECE, 2" X 6" X
51-3/4" (7 REED). NAIL
TO THE VERTICAL PIECES
W/3-10d NAILS AT EACH END.

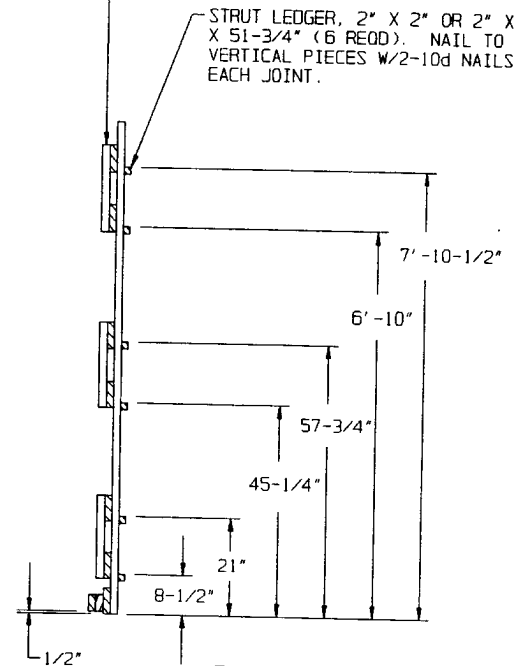
BEARING PIECE, 2" X 4" X 18"
(6 REED). NAIL TO THE
HORIZONTAL PIECES W/2-10d
NAILS AT EACH END.

STRUT LEDGER, 2" X 2" OR 2" X 4"
X 51-3/4" (6 REED). NAIL TO THE
VERTICAL PIECES W/2-10d NAILS AT
EACH JOINT.



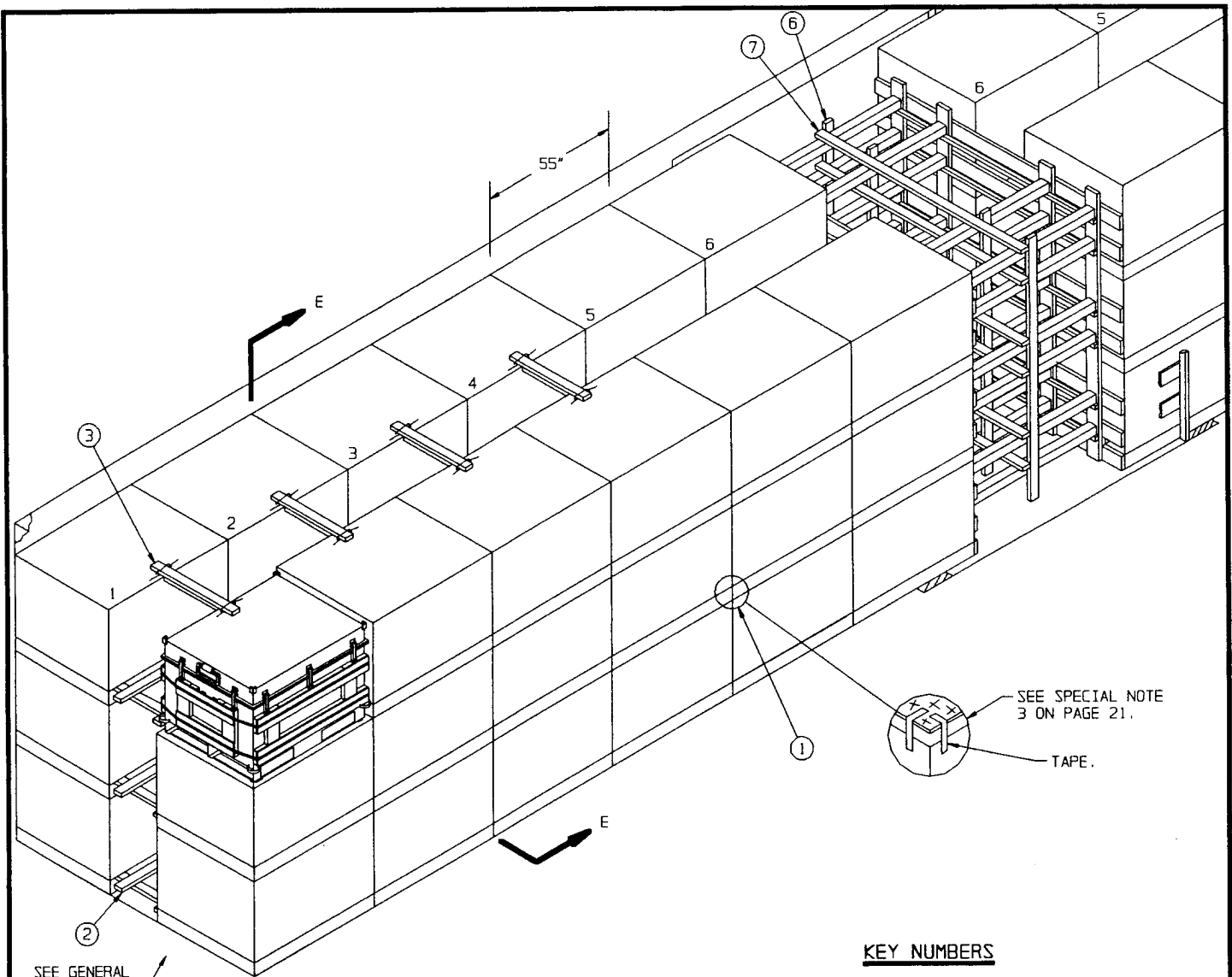
CENTER GATE D

GATE HOLD-DOWN,
2" X 3" X 10"
(DOUBLED) (2 REED).
NAIL TO THE BOTTOM
HORIZONTAL PIECE
W/3-10d NAILS. NAIL
THE SECOND PIECE TO
THE FIRST IN A LIKE
MANNER.



END VIEW

DETAILS

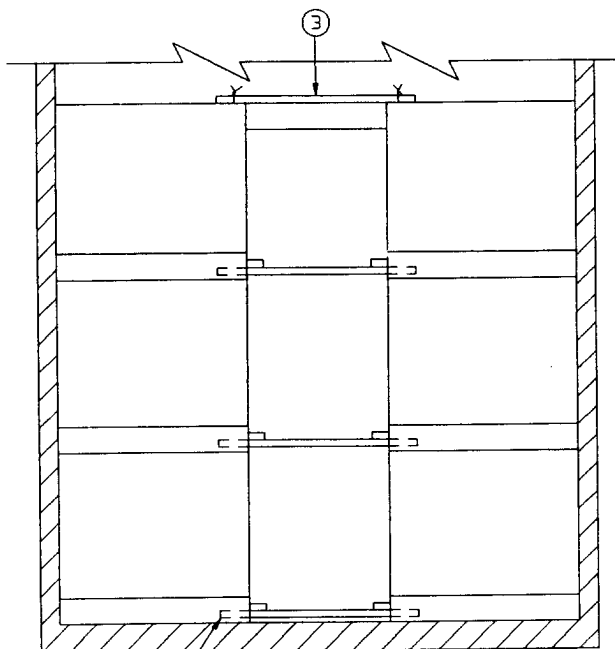


SEE GENERAL NOTE "E" ON PAGE 2.

ISOMETRIC VIEW

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS RECD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② ANTI-SWAY BRACE (36 RECD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 14. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTES "K" AND "L" ON PAGE 2 AND SPECIAL NOTE 8 ON PAGE 21.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (8 RECD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 28. WIRE TIE TO THE CONTAINER LATCH BRACKETS WITH NO. 14 GAGE WIRE AS TYPICALLY SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53. SEE SPECIAL NOTE 4 ON PAGE 21.
- ④ CENTER GATE (2 RECD). SEE THE "CENTER GATE E" DETAIL ON PAGE 28 SEE SPECIAL NOTES 5 AND 6 ON PAGE 21.
- ⑤ STRUT, 4" X 4" BY CUT TO FIT (REF: 62") (24 RECD). TOENAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑥ VERTICAL STRUT BRACE, 2" X 4" X 8'-8" (4 RECD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.
- ⑦ HORIZONTAL STRUT BRACING, 2" X 4" BY CAR WIDTH MINUS 12" (6 RECD). NAIL TO THE STRUTS W/2-10d NAILS AT EACH JOINT.
- ⑧ DOORWAY PROTECTION (2 RECD). SEE THE "DOORWAY PROTECTION C" DETAIL ON PAGE 31. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 7 AND 8 ON PAGE 21.



② **SECTION E-E**

SPECIAL NOTES:

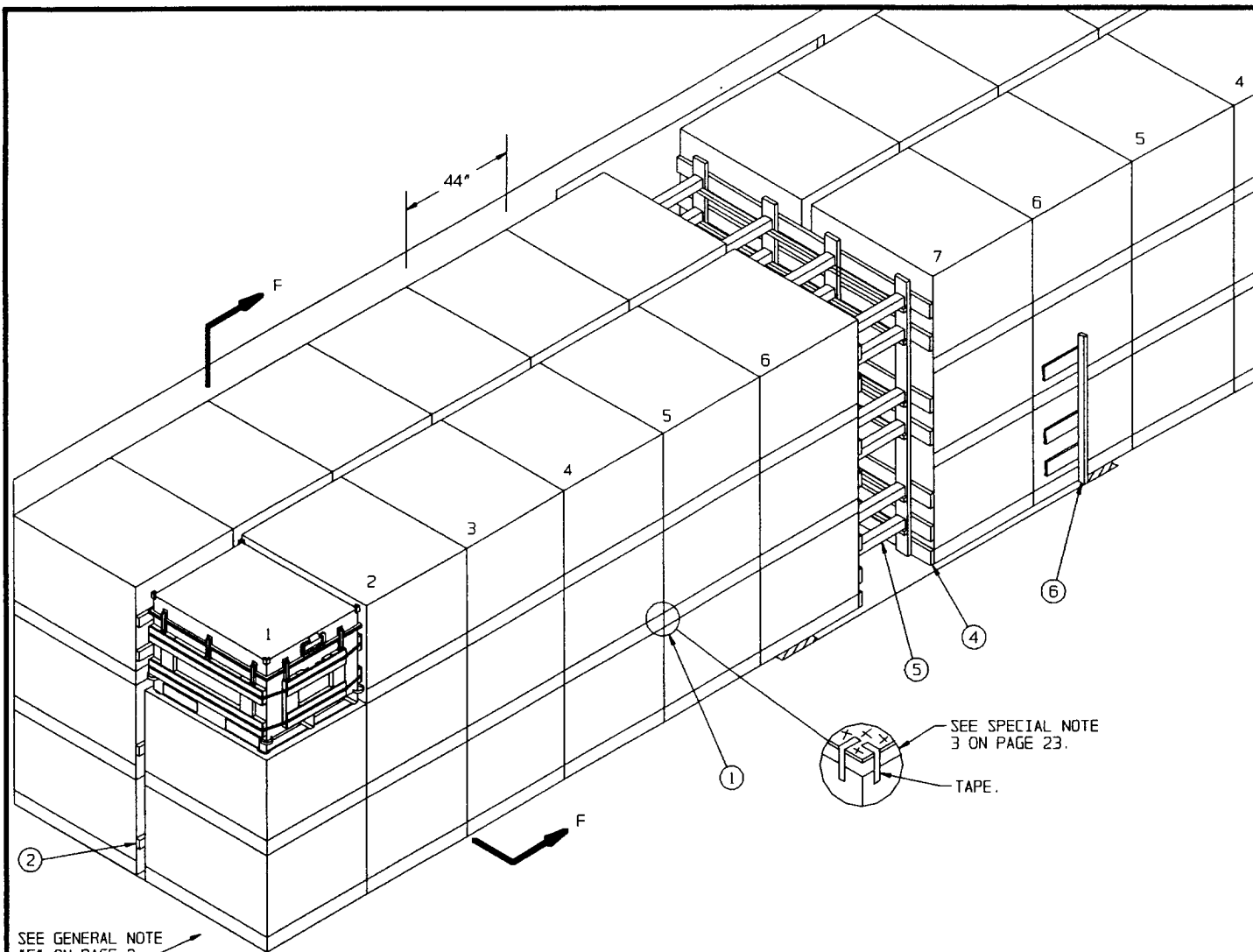
1. A 60'-8" LONG BY 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR EQUIPPED WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN THE CNU-335/E CONTAINER IS SHOWN IN THE TYPICAL LOAD ON PAGE 20. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.
 60'-8" CARS ----- 72 UNITS ----- 80,370 LBS (APPROX)
 50'-6" CARS ----- 60 UNITS ----- 66,975 LBS (APPROX)
 40'-6" CARS ----- 48 UNITS ----- 53,580 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED ③ MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF 40' AND 50' CARS. FOUR ARE REQUIRED IN EACH END OF A 60' CAR.
5. CENTER GATE "E" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 50 FOR GUIDANCE.
6. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT UPON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE E", SHOWN AS PIECE MARKED ④ IN THE LOAD ON PAGE 20, INSTALL TWO "CENTER GATES F" AS SHOWN ON PAGE 29. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 50.
7. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO IT BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED ⑤ IN THE LOAD ON PAGE 20 IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POSTS; OR NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MAY BE USED. REFER TO PAGES 52 THRU 55 FOR OTHER TYPES OF DOORWAY PROTECTION.
8. 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; OMIT EACH LOWER ANTI-SWAY BRACE IN THE DOORWAY AREA; IN LIEU OF PIECE MARKED ⑥, USE PIECES MARKED ④ THRU ⑦ ON PAGE 12. SEE SPECIAL NOTE 7 ON PAGE 13 FOR GUIDANCE. NOTE THAT THE CENTER GATES MUST BE RESTRAINED FROM LATERAL MOVEMENT BY EXTENDING THE LENGTH OF THE FLOORLINE BLOCKING 9" BEYOND THE CENTER GATE OR BY NAILING TO THE CAR FLOOR A DOUBLED 2" X 4" X 18" POSITIONED LONGITUDINALLY SO AS TO BE CENTERED AGAINST THE BOTTOM HORIZONTAL PIECES OF A CENTER GATE. TWO PIECES WILL BE REQUIRED FOR EACH CENTER GATE WHICH IS IN THE DOOR OPENING, OR WITHIN SIX INCHES OF IT.
9. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF SIX CONTAINERS OR A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF FOUR CONTAINERS OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF TWO CONTAINERS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR THE ENTIRE ONE OR TWO TOP TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 48 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	120	60
2" X 2"	92	31
2" X 3"	34	17
2" X 4"	654	436
2" X 6"	189	189
4" X 4"	124	166
NAILS	NO. REQD	POUNDS
6d (2")	72	1/2
10d (3")	868	13
12d (3-1/4")	32	1/2
16d (3-1/2")	96	2
WIRE, NO. 14 GAGE	64' REQD	-1 LB

LOAD AS SHOWN

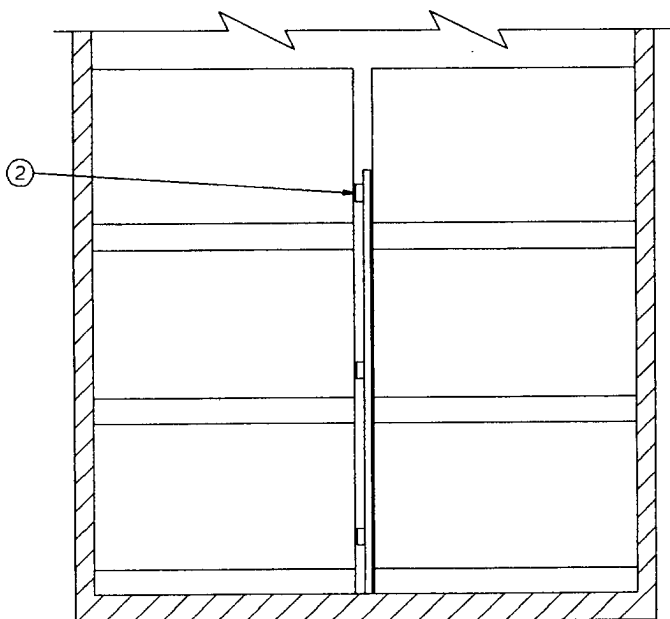
ITEM	QUANTITY	WEIGHT (APPROX)
SHIPPING STORAGE		
CNU-335/E CNTR	78	80,370 LBS *
DUNNAGE		1,815 LBS
TOTAL WEIGHT		82,185 LBS (APPROX)

* BSU-50/B RETARDERS IN CNU-336/E CONTAINERS WILL WEIGH 45,882 LBS.



SEE GENERAL NOTE "E" ON PAGE 2.

ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REQD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② CRIB FILL (6 REQD). SEE THE "CRIB FILL B" DETAIL ON PAGE 32. SEE SPECIAL NOTE 5 ON PAGE 23.
- ③ CRIB FILL (7 REQD). SEE THE "CRIB FILL C" DETAIL ON PAGE 32.
- ④ CENTER GATE (2 REQD). SEE THE "CENTER GATE G" DETAIL ON PAGE 30. SEE SPECIAL NOTES 6, 7, AND 10 ON PAGE 23.
- ⑤ STRUT, 4" X 4" BY CUT TO FIT (REF: 28") (24 REQD). TOENAIL TO PIECES MARKED ④ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "J" ON PAGE 2. SEE GENERAL NOTES "R" AND "S" ON PAGE 3.
- ⑥ DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION C" DETAIL ON PAGE 31. NAIL TO THE DOOR POSTS W/12d NAILS. SEE SPECIAL NOTES 8 AND 9 ON PAGE 23.

(SPECIAL NOTES CONTINUED)

10. IF SPECIAL NOTE 9 APPLIES, CENTER GATE IN THE DOORWAY MUST BE RESTRAINED FROM LATERAL MOVEMENT BY EXTENDING THE LENGTH OF THE FLOORLINE BLOCKING NINE INCHES BEYOND THE CENTER GATES.
11. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER, 2-TIER, OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF 6, 4, OR 2 CONTAINERS RESPECTIVELY BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR THE ENTIRE ONE OR TWO TIERS CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 48 FOR GUIDANCE.

SPECIAL NOTES

1. A 50'-6" LONG BY 9'-4" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR EQUIPPED WITH 8'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
 - 60'-8" CARS ----- 96 UNITS ----- 107,160 LBS (APPROX)
 - 50'-6" CARS ----- 78 UNITS ----- 87,068 LBS (APPROX)
 - 40'-6" CARS ----- 60 UNITS ----- 66,975 LBS (APPROX)
2. A LOAD OF BSU-49/B RETARDERS PACKED IN THE CNU-335/E CONTAINER IS SHOWN IN THE TYPICAL LOAD ON PAGE 22. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.
3. THE DEPICTED LOADING PATTERN IS ADEQUATE FOR CARS HAVING DOOR OPENINGS 8' OR WIDER. IF THE CAR TO BE LOADED HAS DOOR OPENINGS LESS THE 8'-0" WIDE AND NOT OF SUFFICIENT HEIGHT TO ALLOW PERSONNEL TO EXIT OVER THE TOP OF THE LOAD WHEN NECESSARY, THE PALLET SHOULD BE POSITIONED SO THERE ARE SIX LOAD UNITS IN EACH END. NOTE THAT ALTHOUGH CARS HAVING DOOR OPENINGS AS NARROW AS 6'-0" WIDE CAN BE USED FOR FULL LOADS, LOADING IS PROGRESSIVELY MORE DIFFICULT AS THE WIDTH OF THE DOOR OPENING DECREASES.
4. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
5. THE "HIGH" CRIB, SHOWN AS PIECE MARKED ②, MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF THE LOAD IN A 50' CAR. FOUR ARE REQUIRED IN EACH END OF A 60' CAR. IF DESIRED, IN CARS HAVING NAILABLE SIDEWALLS, 1" X 6" OR 2" X 6" FILL MATERIAL MAY BE NAILED TO THE SIDEWALLS AT THE HEIGHTS SPECIFIED FOR THE DOORWAY PROTECTION IN LIEU OF USING THE DEPICTED CRIB FILL. NOTE THAT THE TOTAL ACCUMULATED SPACE ACROSS A CAR SHOULD NOT EXCEED THREE INCHES.
6. CENTER GATE "G" MAY BE PARTIALLY FORMED FROM 1/2" OR THICKER PLYWOOD, IF DESIRED. PLYWOOD MAY BE USED IN LIEU OF THE 2" X 6" HORIZONTAL PIECES. SEE THE "PLYWOOD CENTER GATE ALTERNATIVE" DETAIL ON PAGE 50 FOR GUIDANCE.
7. FOR EASE OF HANDLING, SPLIT CENTER GATES, WHICH ARE NOT DEPENDENT ON THE WIDTH OF THE CAR, MAY BE USED AS AN ALTERNATIVE TO THE CAR-WIDTH GATES. IN LIEU OF EACH "CENTER GATE G", SHOWN AS PIECE MARKED ④ IN THE LOAD ON PAGE 22, INSTALL TWO "CENTER GATES H" AS SHOWN ON PAGE 31. AFTER THE SPLIT GATES AND STRUTS HAVE BEEN INSTALLED, THE SPLIT GATES MUST BE TIED TOGETHER AS DEPICTED BY THE "TIE PIECE APPLICATION" DETAIL ON PAGE 50.
8. DOORWAY PROTECTION IS REQUIRED FOR ALL CONTAINER STACKS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO IT BY ONE-HALF OR MORE OF THE STACK WIDTH. THE WOODEN GATE TYPE OF DOORWAY PROTECTION, SHOWN AS PIECE MARKED ⑥ IN THE LOAD ON PAGE 22, IS APPLICABLE FOR BOXCARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS AND NAILABLE DOOR POST; OR NAILED FLOORLINE BLOCKING AND DOORWAY PROTECTION STRAPS MAY BE USED. REFER TO PAGE 52 THRU 55 FOR ALTERNATIVE TYPES OF DOORWAY PROTECTION.
9. 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. OMIT PIECE MARKED ⑥ ON PAGE 22, AND INSTALL PIECES MARKED ④ THRU ⑦ ON PAGE 26. SEE SPECIAL NOTE 5 ON PAGE 27 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	120	60
2" X 2"	92	31
2" X 3"	34	17
2" X 4"	367	245
2" X 6"	200	200
4" X 4"	56	75
NAILS	NO. REOD	POUNDS
6d (2")	72	1/2
10d (3")	526	8
12d (3-1/4")	32	1/2
16d (3-1/2")	96	2

(CONTINUED AT LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHIPPING STORAGE		
CNU-335/E CNTR	78	87,068 LBS *
DUNNAGE		1,267 LBS

TOTAL WEIGHT ----- 88,335 LBS (APPROX)

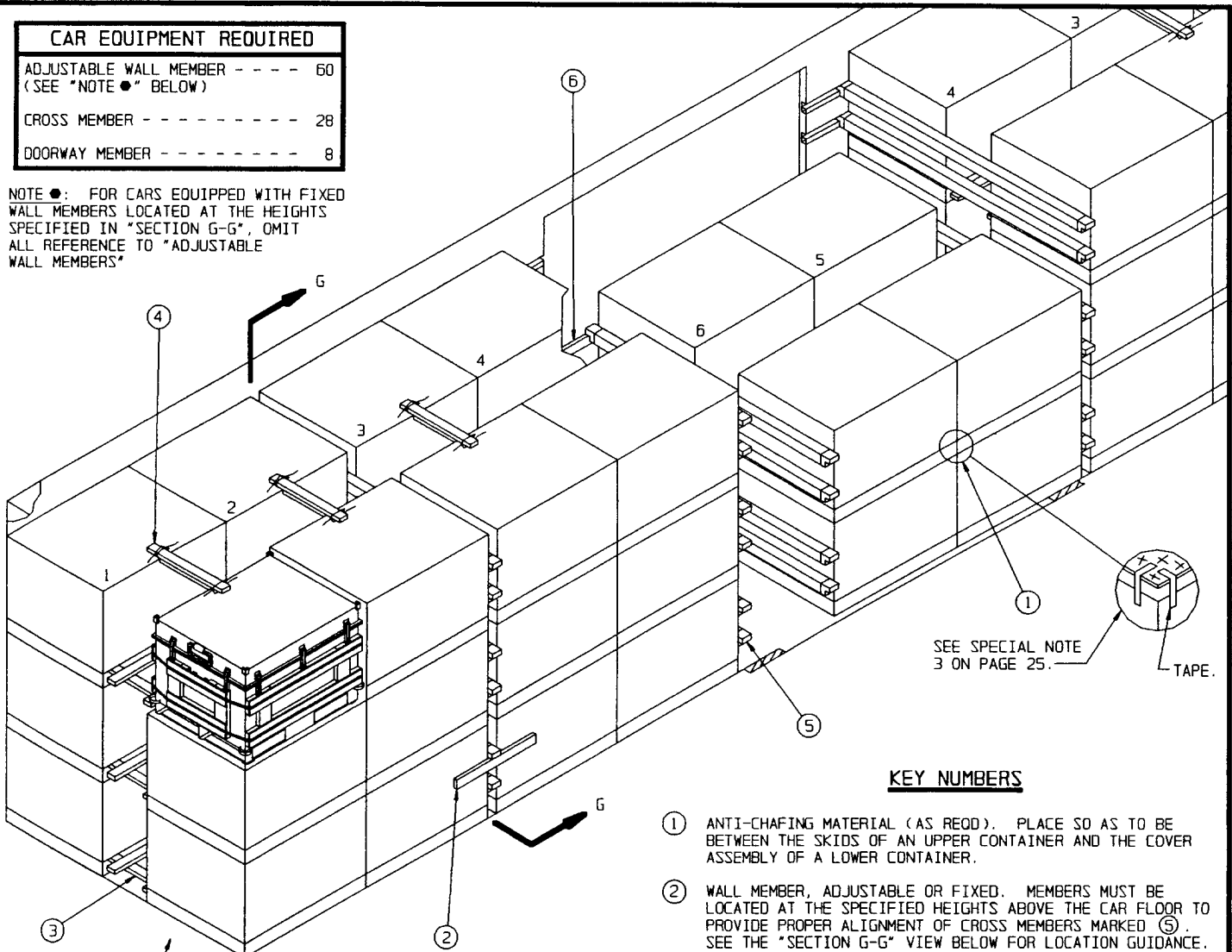
* BSU-50/B RETARDERS IN CNU-336/E CONTAINERS WILL WEIGH 45,882 LBS.

78-UNIT LOAD IN A 50'-6" LONG BY 9'-6" WIDE CONVENTIONAL BOXCAR

CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBER - - - - -	60
(SEE "NOTE ●" BELOW)	
CROSS MEMBER - - - - -	28
DOORWAY MEMBER - - - - -	8

NOTE ●: FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT THE HEIGHTS SPECIFIED IN "SECTION G-G", OMIT ALL REFERENCE TO "ADJUSTABLE WALL MEMBERS"



SEE SPECIAL NOTE 3 ON PAGE 25. TAPE.

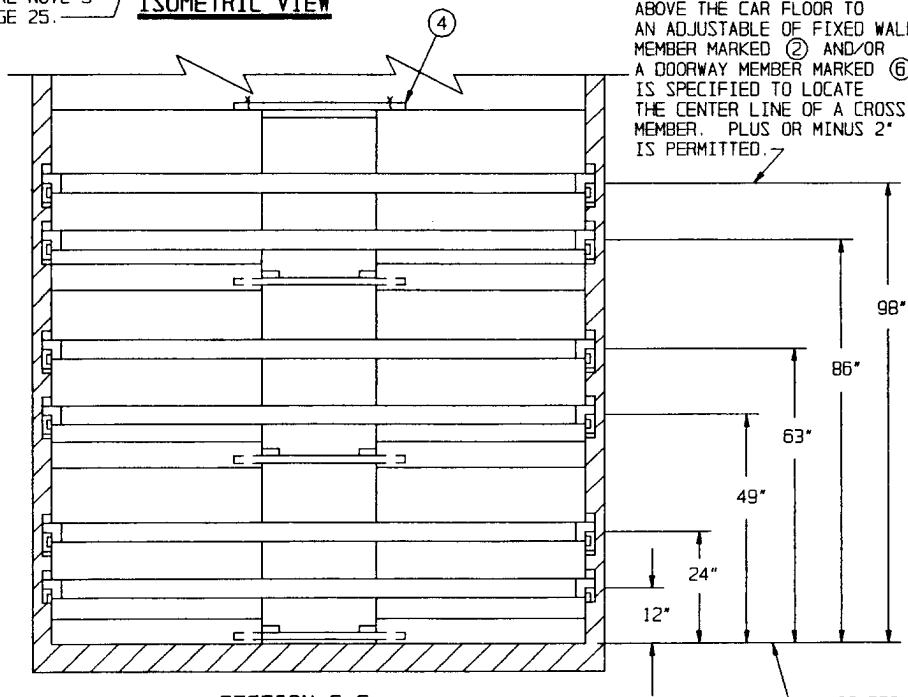
KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS REQD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ⑤. SEE THE "SECTION G-G" VIEW BELOW FOR LOCATION GUIDANCE.
- ③ ANTI-SWAY BRACE (28 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 11. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- ④ TOP-OF-LOAD ANTI-SWAY BRACE (6 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 28. WIRE TIE TO THE CONTAINER LATCH BRACKETS WITH NO. 14 GAGE WIRE AS TYPICALLY SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53. SEE SPECIAL NOTE 4 ON PAGE 25.
- ⑤ CROSS MEMBER (28 REQD). SEE GENERAL NOTE "V" ON PAGE 3.
- ⑥ DOORWAY MEMBER (8 REQD). SEE THE "SECTION G-G" VIEW AT LEFT FOR LOCATION GUIDANCE.

GENERAL NOTE "E" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 25.

ISOMETRIC VIEW

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ② AND/OR A DOORWAY MEMBER MARKED ⑥ IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER. PLUS OR MINUS 2" IS PERMITTED.



SECTION G-G

INDICATES CAR FLOOR.

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-4" WIDE (INSIDE CLEARANCE) BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS, AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN THE CNU-335/E CONTAINER IS SHOWN IN THE TYPICAL LOAD ON PAGE 24. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.

 50'-6" CARS ----- 56 UNITS ----- 58,128 LBS (APPROX)
 40'-6" CARS ----- 44 UNITS ----- 49,115 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. TOP-OF-LOAD ANTI-SWAY BRACES SHOWN AS PIECE MARKED ④ MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF THE LOAD REGARDLESS OF THE CAR LENGTH.
5. IF A CAR HAS BOWED ENDWALLS WHICH ARE BOWED OUTWARD TWO INCHES OR MORE EITHER FROM SIDE-TO-SIDE OR FROM FLOOR-TO-ROOF, CROSS MEMBERS CAN BE INSTALLED NEAR THE ENDWALL OF THE CAR TO PROVIDE A "SQUARED END" RATHER THAN INSTALLING DUNNAGE AS SPECIFIED IN GENERAL NOTE "E" ON PAGE 2. THESE CROSS MEMBERS SHOULD BE INSTALLED AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS BLOCKING MEMBERS.
6. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A LOAD MAY BE REDUCED BY MULTIPLES OF TWO CONTAINERS BY OMITTING LATERALLY ADJACENT UNITS FROM THE TOP LAYER OF ONE OR MORE LOAD UNITS OR BY MULTIPLES OF FOUR CONTAINERS BY OMITTING ONE OR MORE ENTIRE LOAD UNITS. TO REDUCE A LOAD UNIT BY ONE CONTAINER, REFER TO THE LCL PROCEDURES ON PAGES 34 AND 35 FOR GUIDANCE.

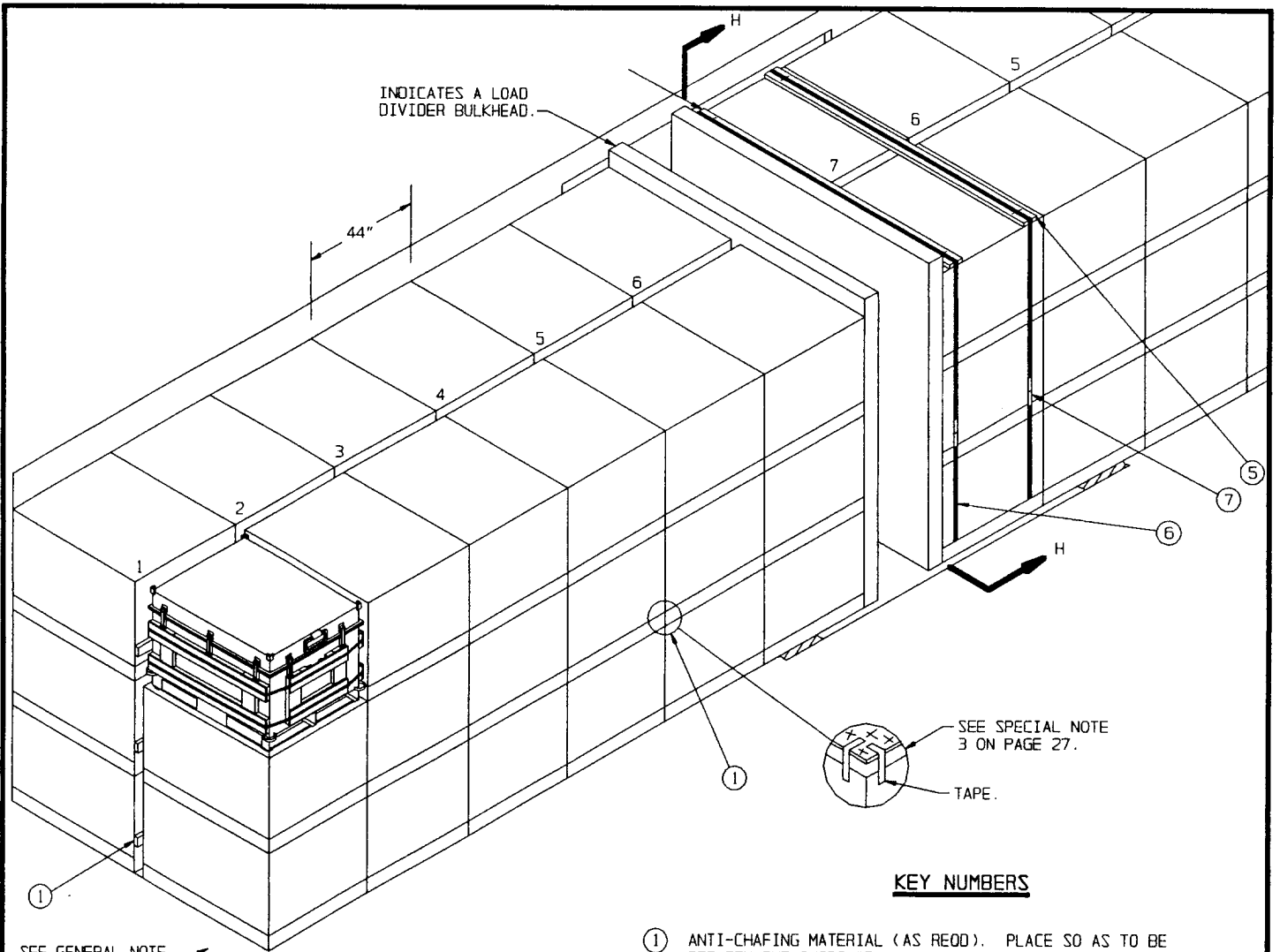
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	436	291
NAILS	NO. REQD	POUNDS
10d (3")	360	6
WIRE, NO. 14 GAGE	48' REQD	1 LB

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHIPPING STORAGE		
CNU-335/E CNTR	56	58,128 LBS *
DUNNAGE		589 LBS
TOTAL WEIGHT		58,717 LBS (APPROX)

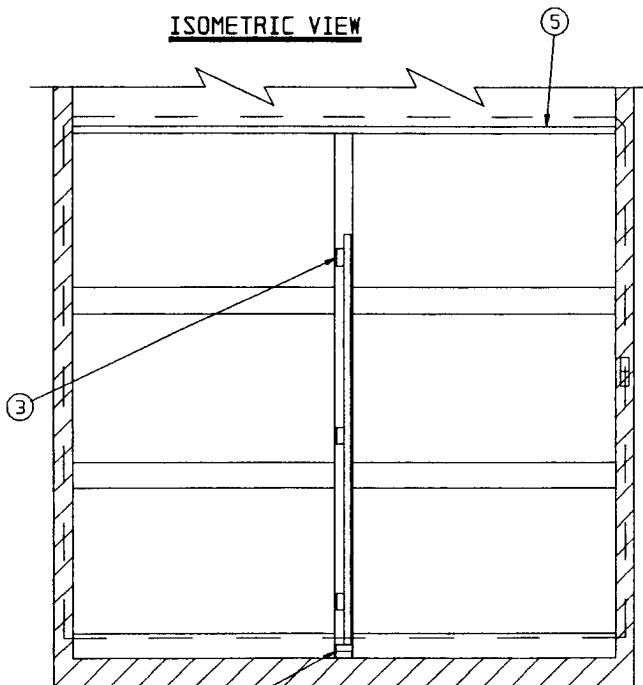
* BSU-50/B RETARDERS IN CNU-336/E CONTAINERS WILL WEIGH 35,686 LBS.



KEY NUMBERS

- ① ANTI-CHAFING MATERIAL (AS RECD). PLACE SO AS TO BE BETWEEN THE SKIDS OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER.
- ② CRIB FILL (6 RECD). SEE THE "CRIB FILL C" DETAIL ON PAGE 32. SEE SPECIAL NOTE 4 ON PAGE 27.
- ③ CRIB FILL (7 RECD). SEE THE "CRIB FILL D" DETAIL ON PAGE 32.
- ④ FLOORLINE BLOCKING, 2" X 4" X 42" (DOUBLED) (1 RECD). PRE-POSITION SO AS TO CONTACT THE CONTAINER TO BE PLACED IN THE DOORWAY AREA. NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE SPECIAL NOTE 5 ON PAGE 27.
- ⑤ STRAPPING BOARD (2 RECD). SEE THE "STRAPPING BOARD B" DETAIL ON PAGE 29.
- ⑥ DOORWAY PROTECTION STRAP, 1-1/4" X .031" OR .035" X 39'-0" LONG STEEL STRAPPING (2 RECD). INSTALL SO AS TO ENIRCLE THE LOAD UNITS IN THE DOORWAY AREA. STAPLE TO THE STRAPPING BOARD W/3 STAPLES. SEE SPECIAL NOTE 5 ON PAGE 27.
- ⑦ SEAL FOR 1-1/4" STRAPPING (4 RECD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.

ISOMETRIC VIEW



SECTION H-H

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-6" WIDE WOOD-LINED CUSHIONED BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH 10'-0" WIDE DOOR OPENINGS IS SHOWN. CARS OF OTHER DIMENSIONS AND CARS HAVING WIDER OR NARROWER DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "AA" THRU "EE" ON PAGE 4.
2. A LOAD OF BSU-49/B RETARDERS PACKED IN THE CNU-335/E CONTAINER IS SHOWN IS THE TYPICAL LOAD ON PAGE 26. USE THE CHART BELOW TO DETERMINE MAXIMUM LOADS AS APPLICABLE.

60'-8" CARS	-----	90 UNITS	-----	100,126 LBS (APPROX)
50'-6" CARS	-----	78 UNITS	-----	87,068 LBS (APPROX)
40'-6" CARS	-----	60 UNITS	-----	66,975 LBS (APPROX)
3. ANTI-CHAFING MATERIAL SUCH AS CORRUGATED OR THIN SOLID FIBERBOARD SHOULD BE PLACED BETWEEN THE AREAS OF CONTACT BETWEEN THE SKIDS (RUNNERS) OF AN UPPER CONTAINER AND THE COVER ASSEMBLY OF A LOWER CONTAINER. TEN FOLDS OF 50-POUND BASIS WEIGHT OR HEAVIER KRAFT PAPER COULD BE SUBSTITUTED FOR THE FIBERBOARD MATERIAL. REGARDLESS OF THE TYPE OF ANTI-CHAFING MATERIAL USED, IT SHOULD BE FASTENED TO THE COVER ASSEMBLY OF A LOWER CONTAINER BY TAPING THE ENDS OF THE MATERIAL TO THE SIDEWALLS OF THE LOWER CONTAINER WITH SHORT PIECES OF SUITABLE TAPE.
4. THE "HIGH" CRIB, SHOWN AS PIECE MARKED ②, MUST BE INSTALLED IN EACH END OF THE LOAD. THREE ASSEMBLIES ARE REQUIRED IN EACH END OF THE LOAD IN A 50' CAR. FOUR ARE REQUIRED IN EACH END OF A 60' CAR. NOTE THAT CRIB FILL PIECES MARKED ③ MUST HAVE 3" CUT OFF EACH VERTICAL PIECE THAT RESTS ON THE FLOORLINE BLOCKING; IF DESIRED, IN CARS HAVING NAILABLE SIDEWALLS, 1" X 6" OR 2" X 6" FILL MATERIAL MAY BE NAILED TO THE SIDEWALLS AT THE HEIGHTS SPECIFIED FOR THE DOORWAY PROTECTION IN LIEU OF USING THE DEPICTED CRIB FILL. NOTE THAT THE TOTAL ACCUMULATED SPACE ACROSS A CAR SHOULD NOT EXCEED THREE INCHES.
5. DOORWAY PROTECTION IS REQUIRED FOR ALL LOAD UNITS WHICH ARE COMPLETELY WITHIN THE DOORWAY AREA OR WHICH EXTEND INTO THE DOORWAY AREA BY ONE-HALF OR MORE OF THE CONTAINER LENGTH. DOORWAY PROTECTION WILL CONSIST OF NAILED FLOORLINE BLOCKING, STRAPPING BOARD, 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, AND 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 SUCH AS SHOWN IN THE LOAD ON PAGE 22 MAY BE USED.
6. A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD IN EITHER END OF A CAR IS 50,000 POUNDS OR MORE. THE STRUT ASSEMBLY WILL ALWAYS BE REQUIRED IF MORE THAN SEVEN LOAD UNITS ARE POSITIONED IN ONE END OF THE CAR. SEE THE "STRUT ASSEMBLY FOR 1-PIECE BULKHEADS" DETAIL ON PAGE 56.
7. THE DEPICTED LOAD CAN BE REDUCED TO SUIT THE QUANTITY TO BE SHIPPED. A 3-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF 6 CONTAINERS OR A 2-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF 4 CONTAINERS OR A 1-TIER LOAD CAN BE REDUCED BY A MULTIPLE OF 2 CONTAINERS BY OMITTING ONE OR MORE LOAD UNITS FROM THE CENTER PORTION OF THE LOAD, OR, THE ENTIRE TOP TIER CAN BE OMITTED. FOR OTHER METHODS OF REDUCING A LOAD, AND FOR TYPICAL LCL PROCEDURES, REFER TO PAGES 36 THRU 48 AND GENERAL NOTE "FF" ON PAGE 4 FOR GUIDANCE.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	352	235
2" X 6"	20	20
NAILS	NO. REQD	POUNDS
10d (3")	240	3-3/4
16d (3-1/2")	12	1/4
STEEL STRAPPING, 1-1/4" - 78.00' REQD - - 11.00 LBS		
SEAL FOR 1-1/4" STRAPPING - - 4 REQD - - - - - NIL		
WIRE, NO. 14 GAGE - - - - - 48' REQD - - - - - 1 LB		
STAPLE, 15/16" X 1-1/4" - - - 6 REQD - - - - - NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHIPPING STORAGE		
CNU-335/E CNTR	78	87,068 LBS *
DUNNAGE		525 LBS

TOTAL WEIGHT - - - - - 87,593 LBS (APPROX)

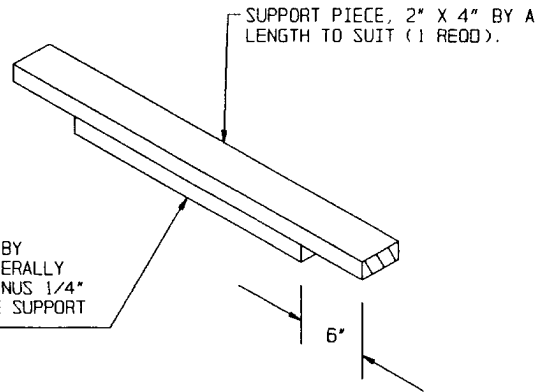
* BSU-50/B RETARDERS IN CNU-336/E CONTAINERS WILL WEIGH 49,706 LBS.

78-UNIT LOAD IN A 50'-6" LONG BY 9'-6" WIDE BOXCAR EQUIPPED WITH LOAD DIVIDERS



END VIEW

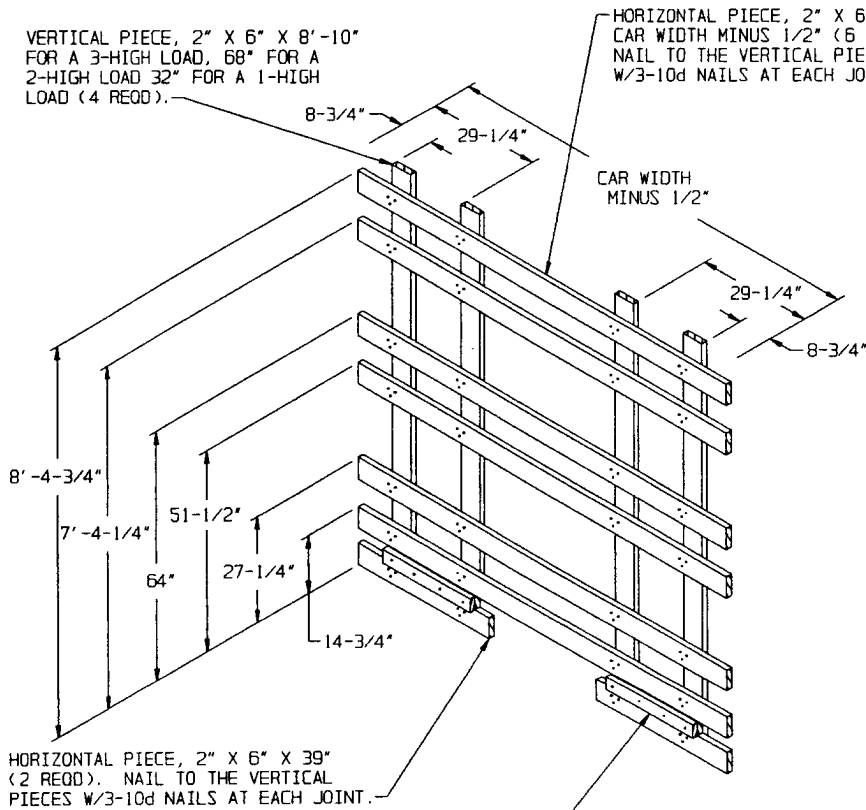
SPACER PIECE, 2" X 4" BY CUT TO FIT BETWEEN LATERALLY ADJACENT CONTAINERS MINUS 1/4" (1 REOD). NAIL TO THE SUPPORT PIECE W/4-10d NAILS.



TOP-OF-LOAD ANTI-SWAY BRACE B

VERTICAL PIECE, 2" X 6" X 8'-10" FOR A 3-HIGH LOAD, 68" FOR A 2-HIGH LOAD 32" FOR A 1-HIGH LOAD (4 REOD).

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

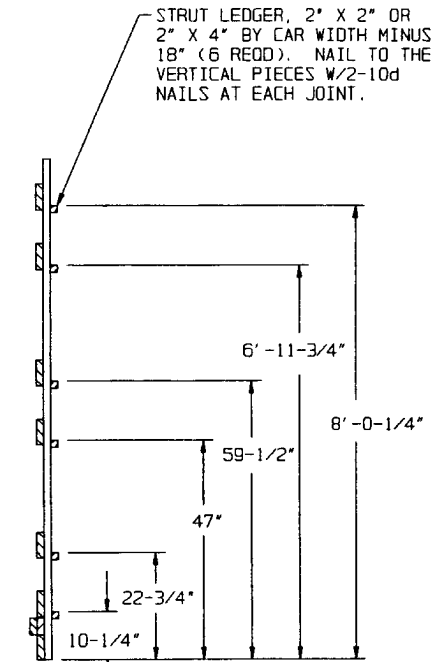


HORIZONTAL PIECE, 2" X 6" X 39" (2 REOD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

GATE HOLD-DOWN, 2" X 4" X 26" (DOUBLED) (2 REOD). NAIL THE FIRST PIECE TO THE VERTICAL PIECES W/3-10d NAILS AT EACH END. NAIL THE SECOND PIECE TO THE FIRST W/4-10d NAILS.

CENTER GATE E

STRUT LEDGER, 2" X 2" OR 2" X 4" BY CAR WIDTH MINUS 18" (6 REOD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.

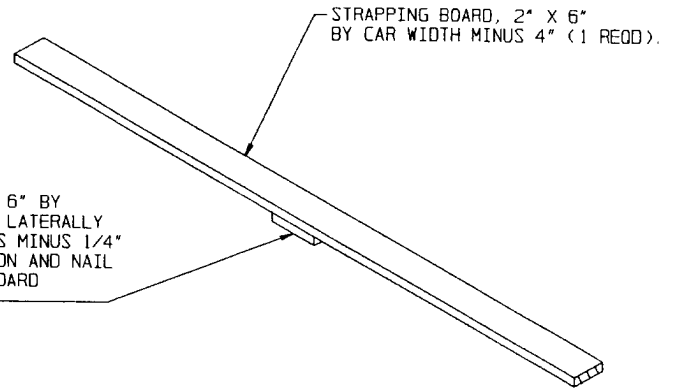


END VIEW

DETAILS



END VIEW

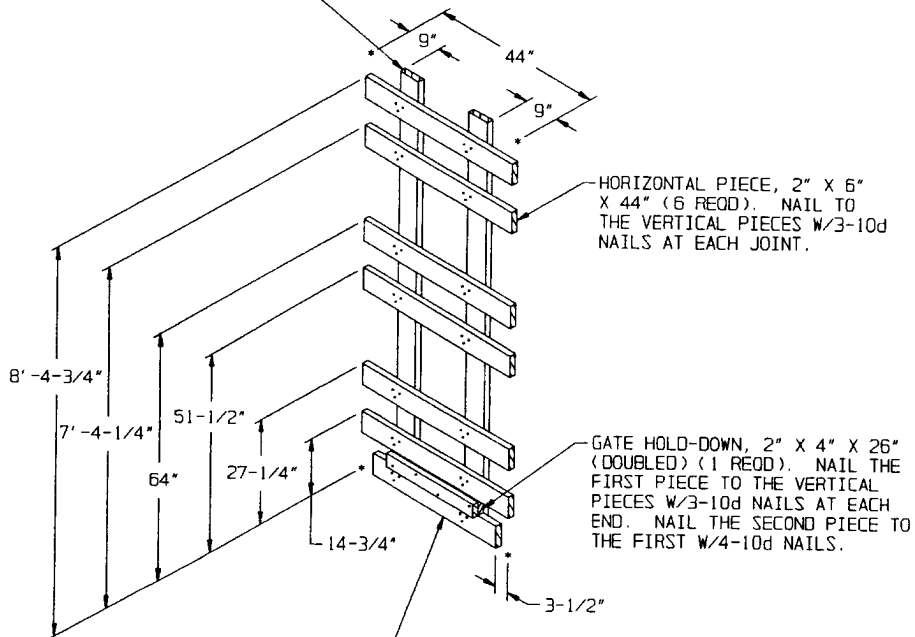


SPACER PIECE, 2" X 6" BY CUT-TO-FIT BETWEEN LATERALLY ADJACENT CONTAINERS MINUS 1/4" (1 REOD). CENTER ON AND NAIL TO THE STRAPPING BOARD W/3-10d NAILS.

STRAPPING BOARD, 2" X 6" BY CAR WIDTH MINUS 4" (1 REOD).

STRAPPING BOARD B

VERTICAL PIECE, 2" X 6" X 8'-10" FOR A 3-HIGH LOAD, 68" FOR A 2-HIGH LOAD 32" FOR A 1-HIGH LOAD (2 REOD).



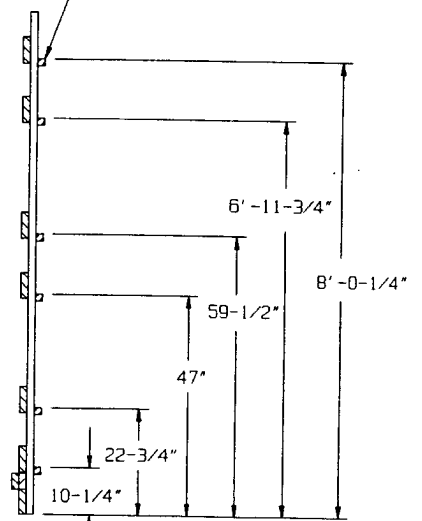
HORIZONTAL PIECE, 2" X 6" X 44" (6 REOD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

GATE HOLD-DOWN, 2" X 4" X 26" (DOUBLED) (1 REOD). NAIL THE FIRST PIECE TO THE VERTICAL PIECES W/3-10d NAILS AT EACH END. NAIL THE SECOND PIECE TO THE FIRST W/4-10d NAILS.

HORIZONTAL PIECE, 2" X 6" X 37" (1 REOD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT.

CENTER GATE E

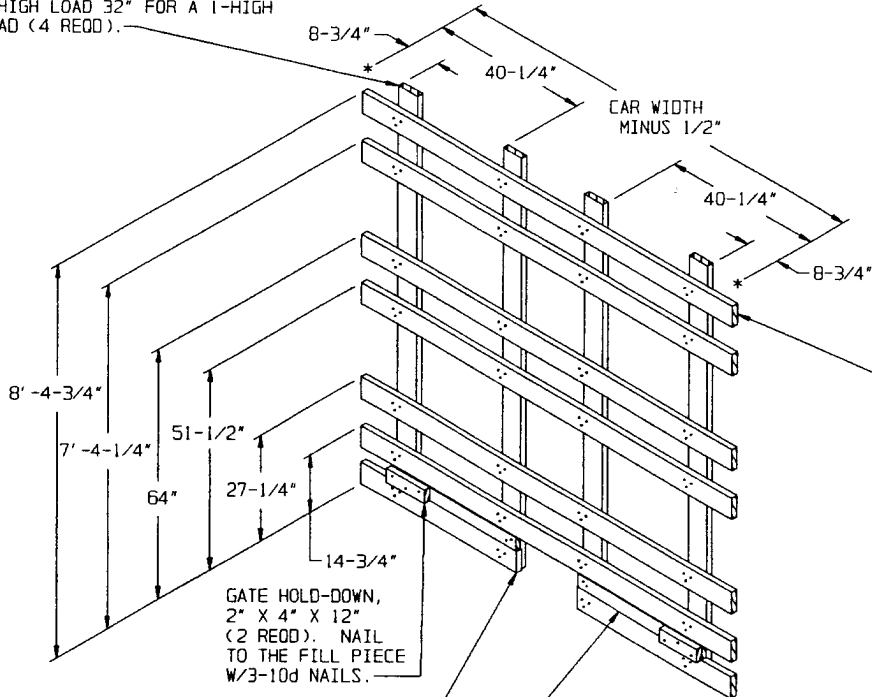
STRUT LEDGER, 2" X 2" OR 2" X 4" X 26" (6 REOD). NAIL TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.



END VIEW

DETAILS

VERTICAL PIECE, 2" X 6" X 8'-10"
 FOR A 3-HIGH LOAD, 68" FOR A
 2-HIGH LOAD 32" FOR A 1-HIGH
 LOAD (4 REOD).

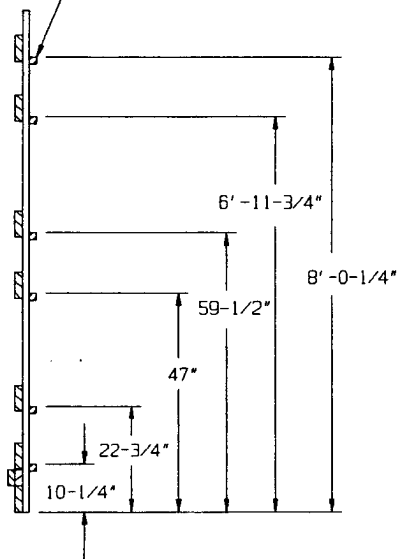


HORIZONTAL PIECE, 2" X 6" X 46"
 (2 REOD). NAIL TO THE VERTICAL
 PIECES W/3-10d NAILS AT EACH JOINT.

FILL PIECE, 2" X 4" X 37"
 (2 REOD). NAIL TO THE
 VERTICAL PIECES W/2-10d
 NAILS AT EACH JOINT.

CENTER GATE G

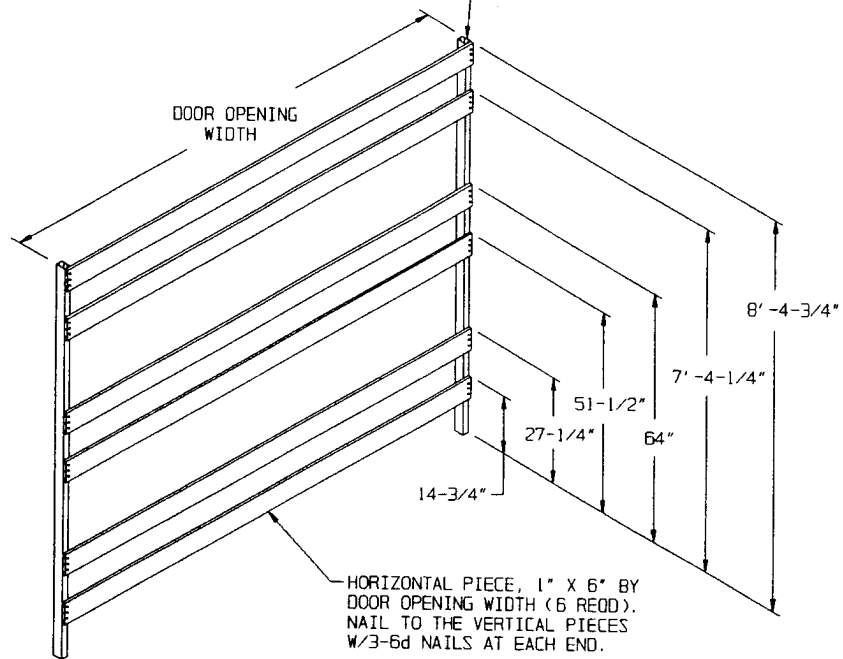
STRUT LEDGER, 2" X 2" OR
 2" X 4" BY CAR WIDTH MINUS
 18" (6 REOD). NAIL TO THE
 VERTICAL PIECES W/2-10d
 NAILS AT EACH JOINT.



END VIEW

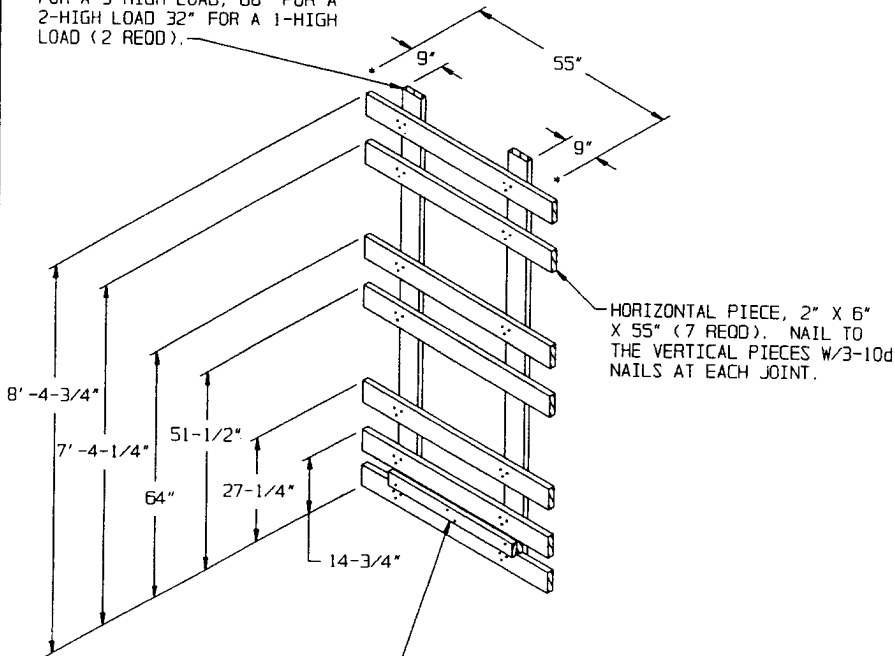
DETAILS

VERTICAL PIECE, 2" X 3" X 8'-4-3/4"
(2 REOD). NAIL TO A DOOR POST W/12d NAILS.



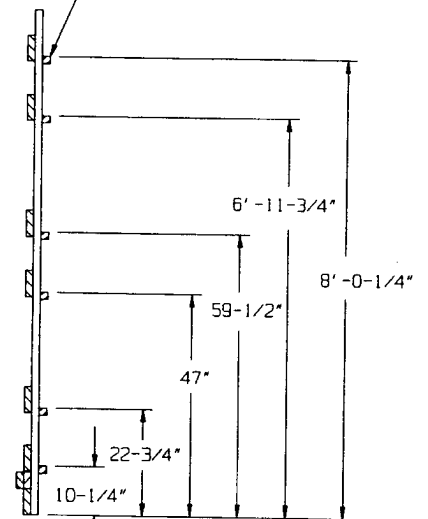
DOORWAY PROTECTION C

VERTICAL PIECE, 2" X 6" X 8'-10"
FOR A 3-HIGH LOAD, 68" FOR A
2-HIGH LOAD 32" FOR A 1-HIGH
LOAD (2 REOD).



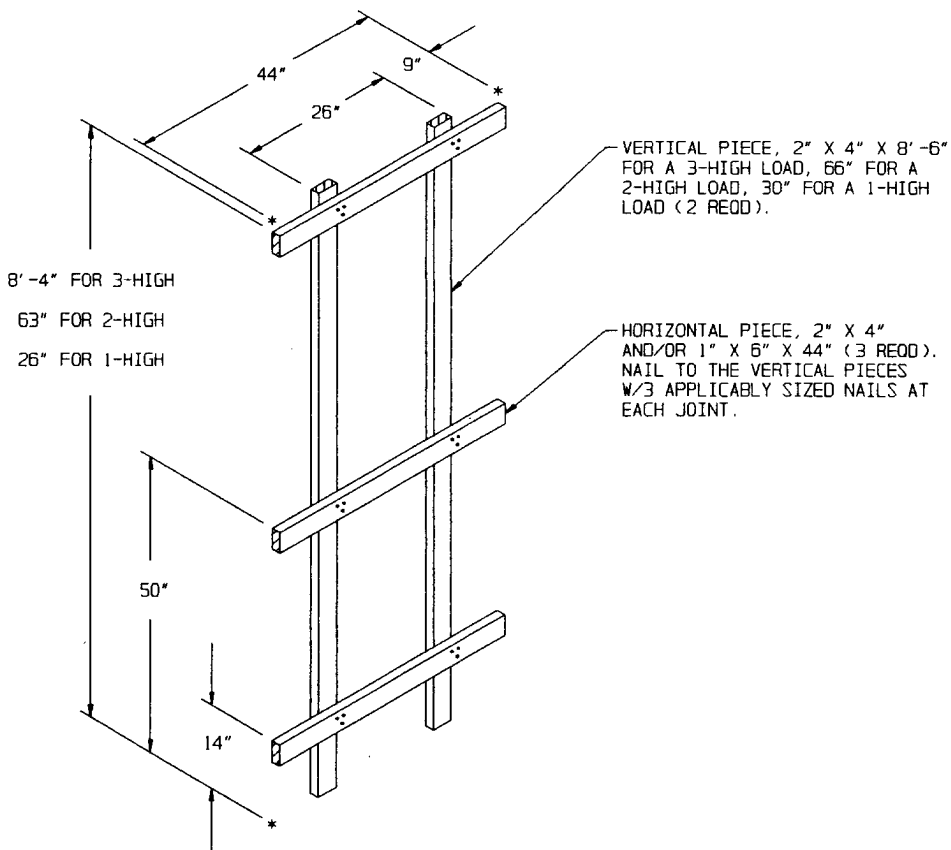
CENTER GATE H

STRUT LEDGER, 2" X 2" OR
2" X 4" X 37" (6 REOD).
NAIL TO THE VERTICAL PIECES
W/2-10d NAILS AT EACH END.



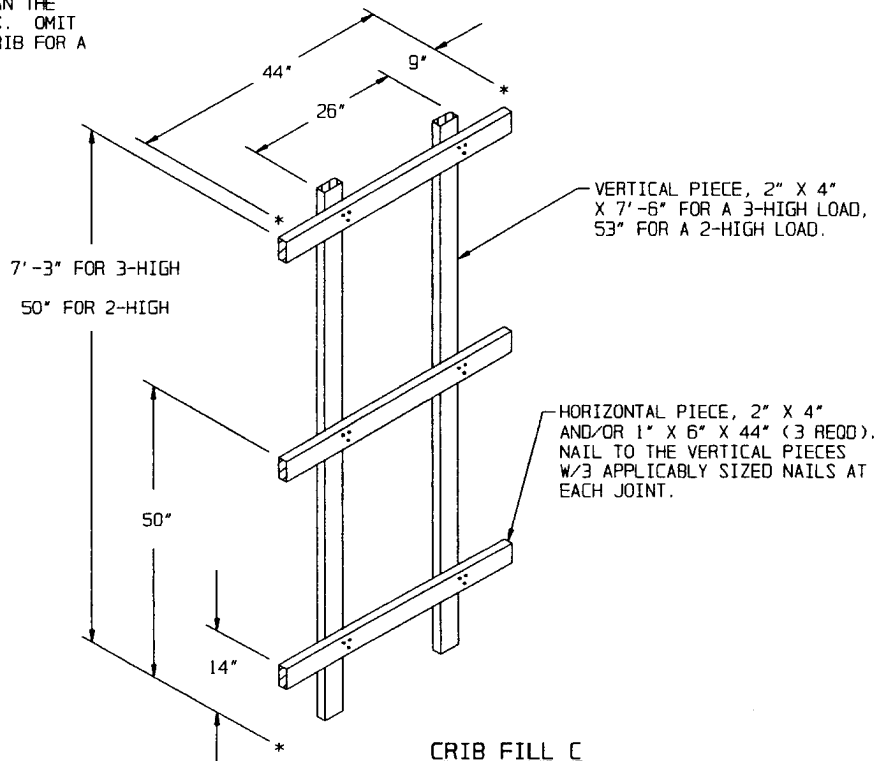
END VIEW

GATE HOLD-DOWN, 2" X 4" X 37"
(DOUBLED) (1 REOD). NAIL THE
FIRST PIECE TO THE VERTICAL
PIECES W/3-10d NAILS AT EACH
END. NAIL THE SECOND PIECE TO
THE FIRST W/4-10d NAILS.



CRIB FILL B

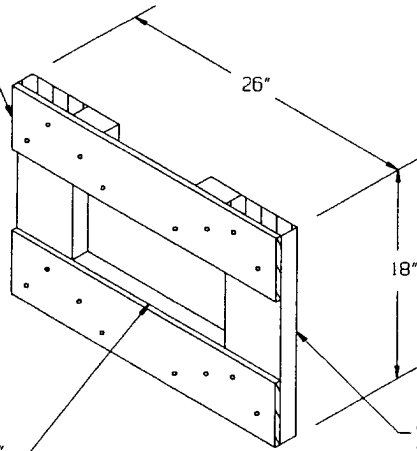
CRIB FILL ASSEMBLIES "B" AND "C" SHOULD BE PRE-FABRICATED. CONSTRUCT TO BE 1/2" TO 3/4" LESS IN WIDTH THAN THE DISTANCE BETWEEN LATERALLY ADJACENT CONTAINERS. OMIT THE MID-HEIGHT HORIZONTAL PIECES WHEN USING CRIB FOR A 1 OR 2-HIGH LOAD.



CRIB FILL C

OMIT THE MID-HEIGHT HORIZONTAL PIECES WHEN USING CRIB FOR A 2-HIGH LOAD. CRIB FILL "C" IS NOT REQUIRED FOR A 1-HIGH LOAD; USE CRIB FILL "B" THROUGHOUT THE LENGTH OF THE LOAD.

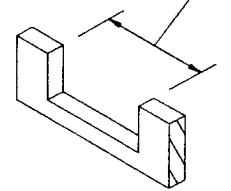
LATERAL PIECE, 5-1/2" X 26" X 1/2"
THICK PLYWOOD (2 REQD). NAIL TO
THE VERTICAL PIECES W/2-6d NAILS
AT EACH END AND TO INTERMEDIATE
FILLER PIECE W/4-6d NAILS.



INTERMEDIATE FILLER PIECE,
2" X 6" X 15" (2 REQD).
NOTCH TOP PIECE SO AS TO
ALLOW VIEWING OF HUMIDITY
INDICATOR AND PRESSURE
RELIEF VALVE SEE "DETAIL A".

VERTICAL PIECE,
2" X 6" X 18"
(2 REQD).

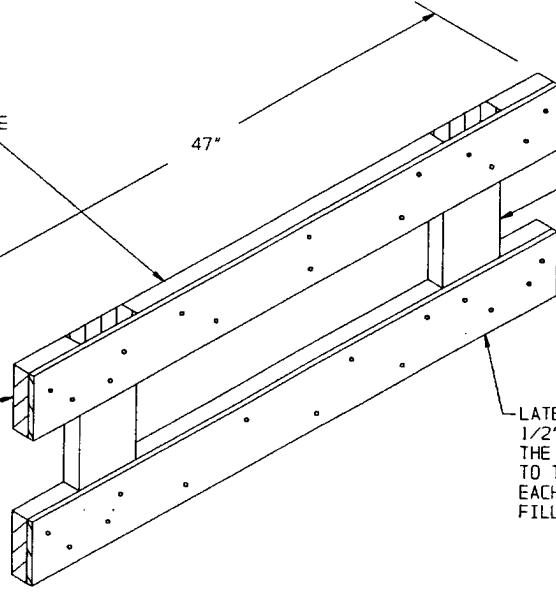
NOTCH AS REQD TO PROVIDE
VISUAL ACCESS TO THE HUMIDITY
INDICATOR AND PRESSURE RELIEF
VALVE ON THE SIDE OF THE
SHIPPING AND STORAGE CONTAINER.



DETAIL A

SIDE FILL ASSEMBLY A

INTERMEDIATE FILLER PIECE
2" X 6" X 26" (2 REQD).



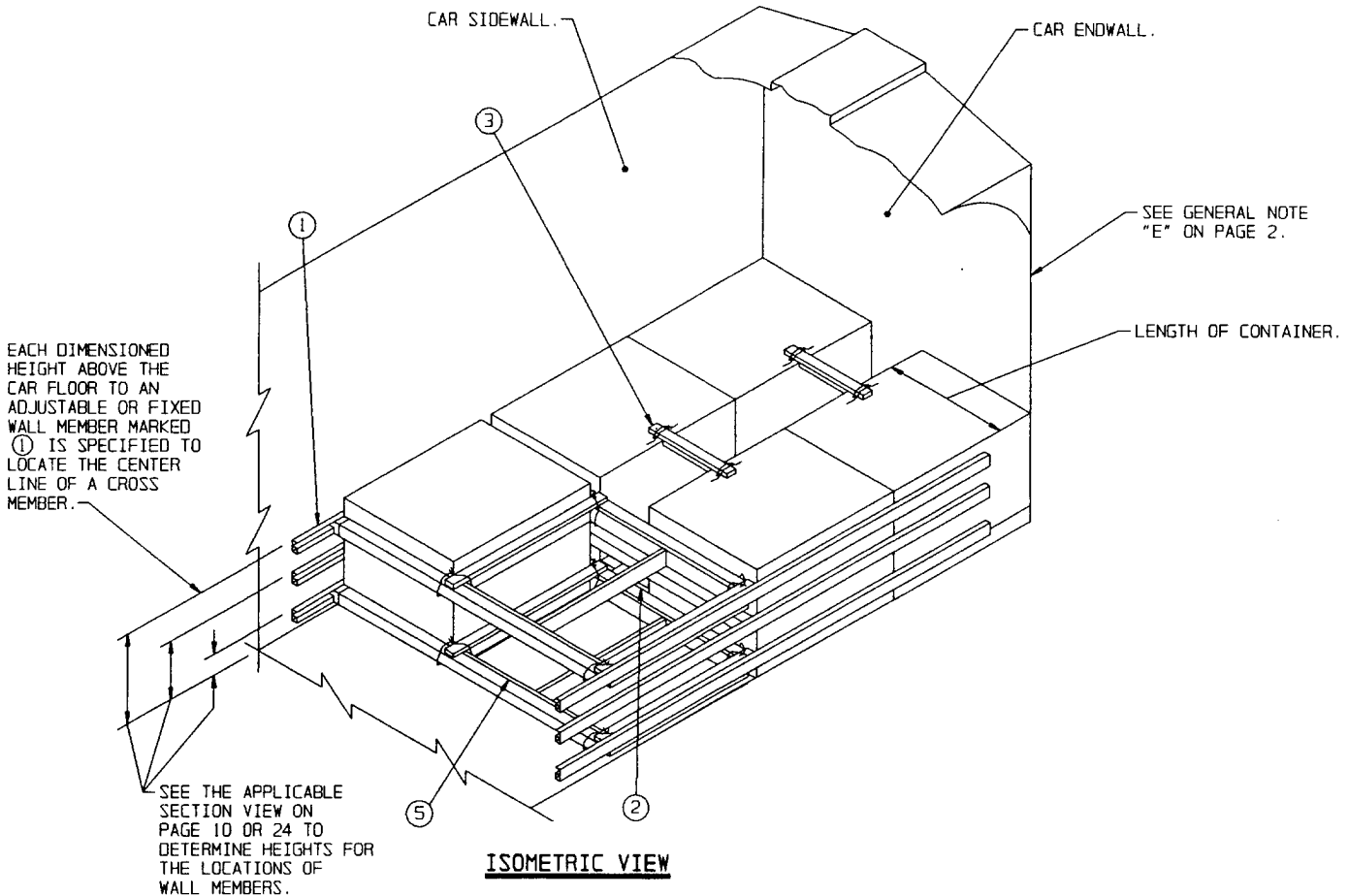
END FILLER PIECE,
2" X 6" X 5" (4 REQD).

VERTICAL PIECE,
2" X 6" X 18" (2 REQD).

LATERAL PIECE, 5-1/2" WIDE BY 47" LONG BY
1/2" THICK PLYWOOD (2 REQD). NAIL TO
THE END FILLER PIECES W/2-6d NAILS AND
TO THE VERTICAL PIECES W/2-6d NAILS AT
EACH JOINT. NAIL TO THE INTERMEDIATE
FILLER PIECES W/6-6d NAILS.

SIDE FILL ASSEMBLY B

DETAILS



SPECIAL NOTES:

1. A 9'-0" WIDE (INSIDE CLEARANCE) WOOD-LINED BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "E" ON PAGE 2.
2. THE DEPICTED PROCEDURES ARE APPLICABLE FOR ALL OF THE CONTAINERS COVERED ON PAGE 5 OF THIS DOCUMENT.
3. FIVE CONTAINERS ARE SHOWN AS A TYPICAL LOAD QUANTITY. THE NUMBER OF CONTAINERS CAN BE ADJUSTED TO SUIT THE QUANTITY TO BE SHIPPED.
4. TOP-OF-LOAD ANTI-SWAY BRACES, SHOWN AS PIECES MARKED ③, MUST BE INSTALLED IN EACH END OF THE CAR AND WIRE TIED TO A CONTAINER WITH NO. 14 GAGE WIRE. THREE BRACES ARE REQUIRED IN EACH END OF A LOAD REGARDLESS OF THE CAR LENGTH. SEE NOTE * BELOW.
5. THE SPACER ASSEMBLIES, SHOWN AS PIECES MARKED ⑤, MAY ALSO BE USED IN AN UPPER LAYER OF A LOAD FOR THE OMISSION OF A PALLET UNIT. IF THE ASSEMBLIES ARE USED NEXT TO THE CAR ENDWALL EITHER A FIRST LAYER OR IN AN UPPER LAYER, AND THE ENDWALL IS WOOD-LINED, CUT THE ADJACENT ENDS OFF THE SUPPORT PIECES FLUSH WITH THE LATERAL PIECE. EACH ASSEMBLY CAN THEN BE SUPPORTED BY NAILING THE LATERAL PIECE TO THE CAR ENDWALL W/6-10d NAILS. IF THE ENDWALL IS NON-NAILABLE, CROSS MEMBERS MUST BE INSTALLED AT THE END OF THE LOAD TO SUPPORT THE SPACER ASSEMBLIES.

KEY NUMBERS

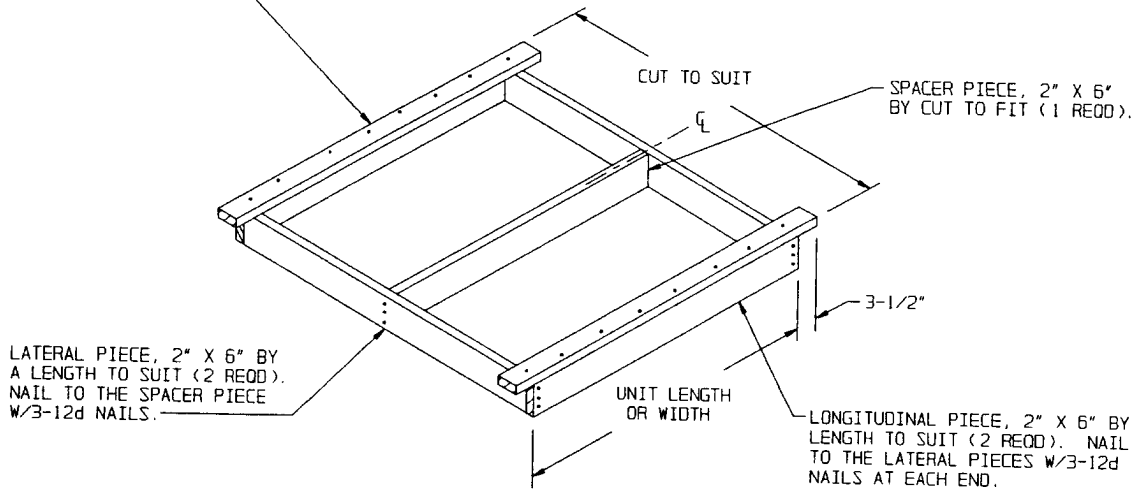
- ① WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE PROPER ALIGNMENT OF CROSS MEMBERS MARKED ④.
- ② ANTI-SWAY BRACE (2 REQD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 14. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- ③ TOP-OF-LOAD ANTI-SWAY BRACE (2 REQD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE B" DETAIL ON PAGE 28. WIRE TIE TO THE CONTAINER LATCH BRACKETS AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53.
- ④ CROSS MEMBER (5 REQD). SEE GENERAL NOTE "V" ON PAGE 3.
- ⑤ SPACER ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 35 AND SPECIAL NOTES AT LEFT. WIRE TIE TO CROSS MEMBER W/2 WRAPS OF NO. 14 GAGE WIRE AT EACH CORNER.

NOTE * :

ALTHOUGH SPECIAL NOTE 4 SPECIFIES THAT THREE TOP-OF-LOAD ANTI-SWAY BRACES ARE REQUIRED IN EACH END OF A LOAD, THIS MAY NOT ALWAYS APPLY SUCH AS SHOWN IN THE ISOMETRIC VIEW ABOVE. THE THREE BRACE REQUIREMENT WILL ONLY APPLY TO A LOAD OF SIX OR MORE CONTAINERS.

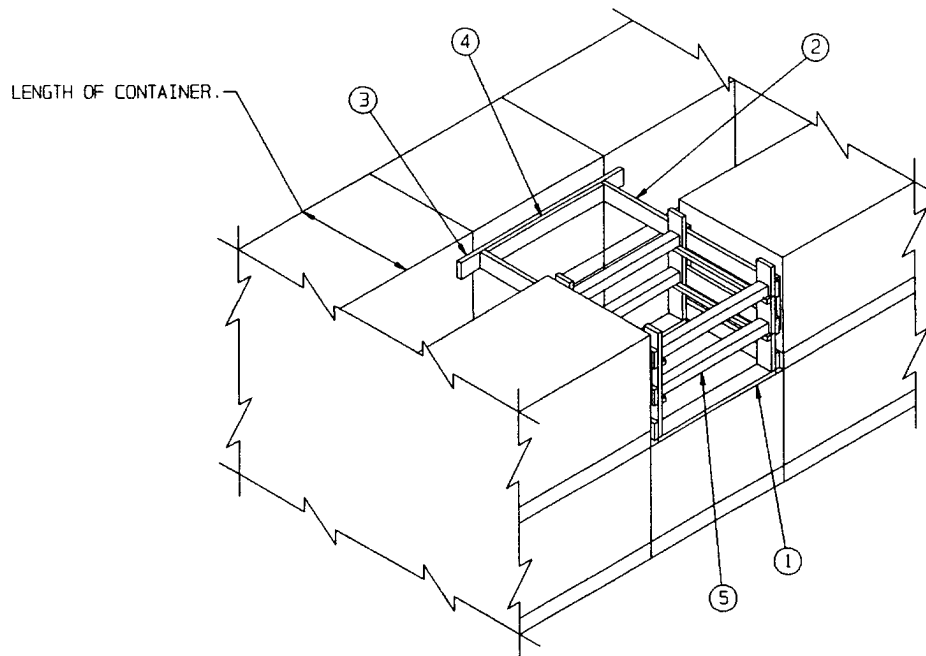
TYPICAL LCL (5-UNIT LOAD) IN A BOXCAR EQUIPPED WITH MECHANICAL BRACING DEVICES HAVING ADJUSTABLE OR FIXED WALL MEMBERS

SUPPORT PIECE, 2" X 4" BY
 LENGTH TO SUIT (2 REQD).
 NAIL TO THE LATERAL PIECES
 W/1-10d NAIL AT EACH END
 AND TO A LONGITUDINAL PIECE
 W/6-10d NAILS.



SPACER ASSEMBLY

TYPICAL LCL (5-UNIT LOAD) IN A BOXCAR EQUIPPED WITH
 MECHANICAL BRACING DEVICES HAVING ADJUSTABLE OR FIXED WALL MEMBERS



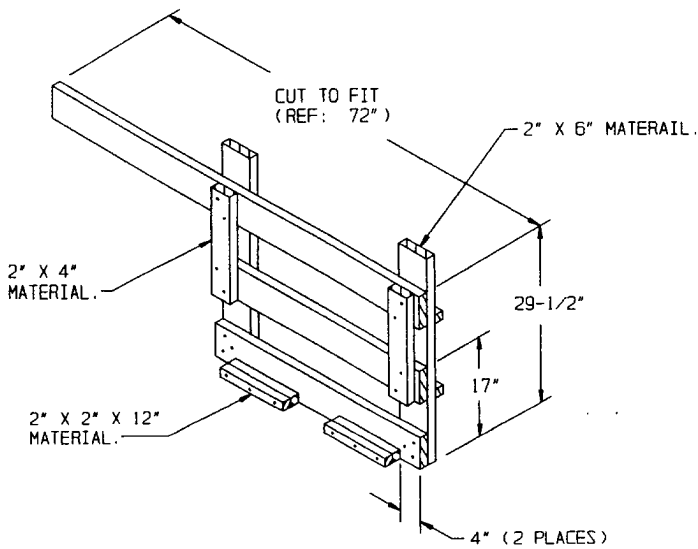
ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

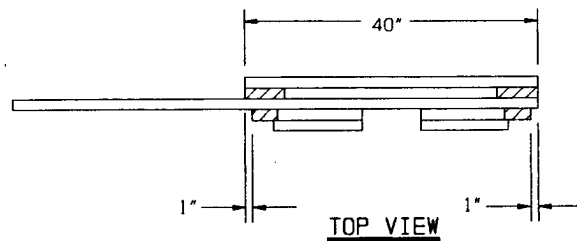
1. A PARTIAL VIEW OF A 9'-4" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE DEPICTED PROCEDURES ARE APPLICABLE TO CNU-335A/E OR CNU-336A/E CONTAINERS.
3. THE UNIT OMITTED FROM THE TOP LAYER OF A 2-LAYER LOAD IS SHOWN AS TYPICAL. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OMISSION OF A TOP-LAYER CONTAINER FROM A 3-LAYER LOAD.
4. THE OMITTED-UNIT PROCEDURE SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.

- ① SUPPORT PIECE, 2" X 6" X 50-1/2" (2 REOD). POSITION 4" FROM EDGE OF CONTAINER, SO AS TO BE UNDER THE HORIZONTAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED ②.
- ② LOAD BEARING GATE (2 REOD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "LOAD BEARING GATE A" DETAIL BELOW. NAIL TO THE FILLER PIECE, PIECE MARKED ④, W/3-10d NAILS. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED ①, W/2-10d NAILS AT EACH JOINT. CAUTION: USE CARE NOT TO TOENAIL INTO A CONTAINER.
- ③ ANTI-SWAY BEARING PIECE, 2" X 6" X 64" (1 REOD).
- ④ FILLER PIECE, 2" X 6" X 48-1/2" (1 REOD). NAIL TO THE ANTI-SWAY BEARING PIECE, PIECE MARKED ③, W/5-10d NAILS.
- ⑤ STRUT, 4" X 4" BY CUT TO FIT (REF: 44-1/2") (AS REOD). TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END.

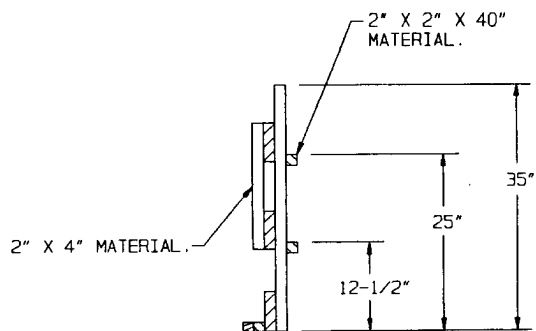


LOAD BEARING GATE A

ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED. A LEFT HAND GATE IS SHOWN. SEE SPECIAL NOTE 2 ABOVE FOR NAILING GUIDANCE.

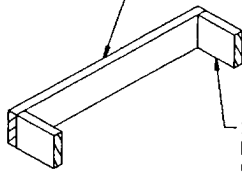


TOP VIEW



END VIEW

BEARING PIECE, 2" X 6" BY (REF: 36")
(1 REQD). NAIL TO THE SUPPORT BLOCKS
W/2-12d NAILS AT EACH END.



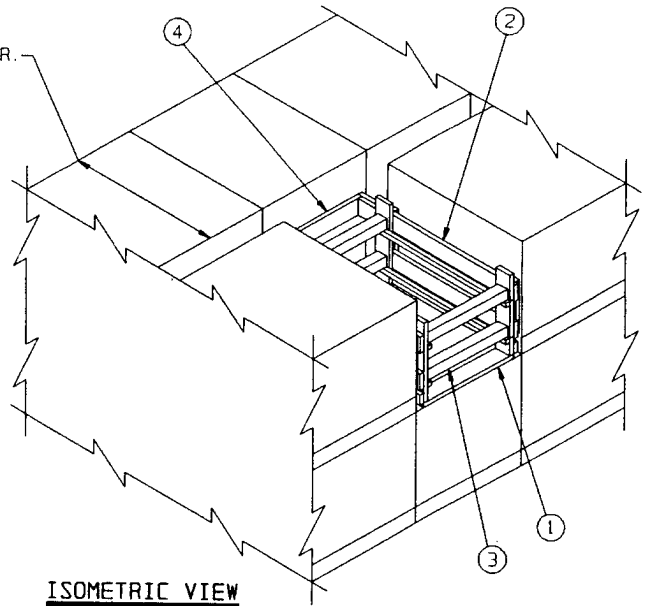
SUPPORT BLOCK, 2" X 6"
BY A LENGTH TO SUIT
(REF: 7") (2 REQD).

LOAD BEARING ASSEMBLY

SPECIAL NOTES:

1. A PARTIAL VIEW OF A 9'-4" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. WIDER CARS CAN BE USED.
2. THE DEPICTED PROCEDURES ARE APPLICABLE TO CNU-335A/E OR CNU-336A/E CONTAINERS.
3. A UNIT OMITTED FROM THE TOP LAYER OF A 2-LAYER LOAD IS SHOWN AS TYPICAL. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OMISSION OF A TOP-LAYER CONTAINER FROM A 3-LAYER LOAD.
4. THE OMITTED-UNIT PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.
5. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
6. THE REFERENCE DIMENSION GIVEN FOR THE CUT-TO-FIT PIECES IS BASED ON AN INSIDE CAR WIDTH OF 9'-4". THE DIMENSION WILL HAVE TO BE INCREASED WHEN LOADING WIDER CARS.
7. THE NAILING OF THE VARIOUS PARTS OF THE GATES WILL BE AS FOLLOWS: NAIL THE 2" X 6" HORIZONTAL PIECE(S) TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE DOUBLED 2" X 3" GATE HOLD DOWN PIECES TO A HORIZONTAL PIECE W/3-10d NAILS EACH LAYER. NAIL THE 2" X 2" STRUT LEDGERS TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT. NAIL THE BEARING PIECES TO THE HORIZONTAL PIECES W/2-10d NAILS AT EACH END.

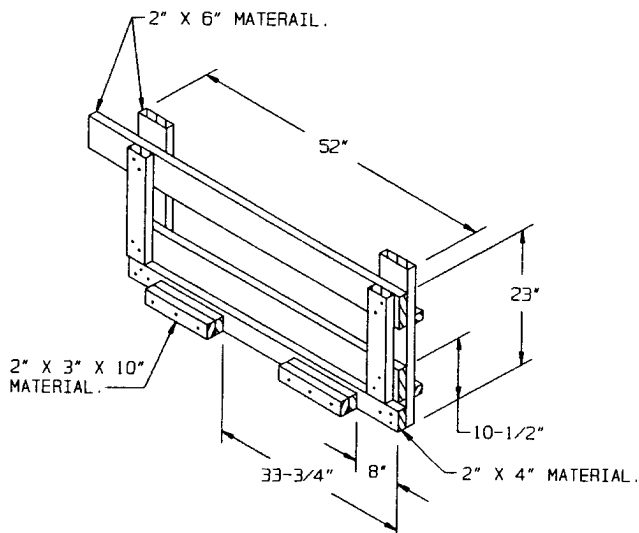
WIDTH OF CONTAINER.



ISOMETRIC VIEW

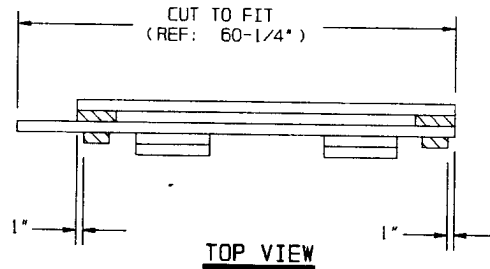
KEY NUMBERS

- ① SUPPORT PIECE, 2" X 6" BY 40" (2 REQD). POSITION SO AS TO BE UNDER THE HORIZONTAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED ②.
- ② LOAD BEARING GATE (2 REQD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "LOAD BEARING GATE B" DETAIL BELOW. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED ①, W/2-10d NAILS AT EACH JOINT. CAUTION: USE CARE NOT TO TOENAIL INTO A CONTAINER.
- ③ STRUT, 4" X 4" BY CUT TO FIT (4 REQD). TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END.
- ④ LOAD BEARING ASSEMBLY (1 REQD). SEE THE DETAIL BELOW. NAIL THE SUPPORT BLOCKS OF THE ASSEMBLY TO THE TOP HORIZONTAL PIECES OF THE LOAD BEARING GATES, PIECES MARKED ②, W/3-10d NAILS AT EACH JOINT.

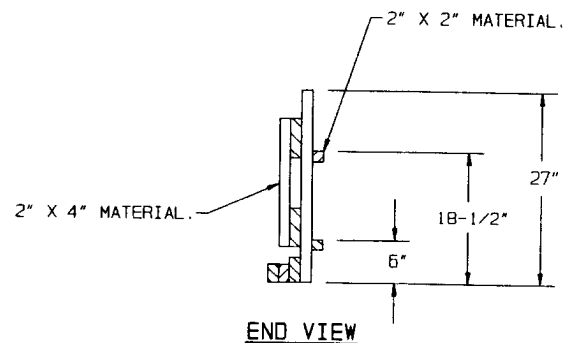


LOAD BEARING GATE B

ONE RIGHT HAND AND ONE LEFT HAND GATE REQUIRED. A RIGHT HAND GATE IS SHOWN. SEE SPECIAL NOTE 7 ABOVE FOR NAILING GUIDANCE.

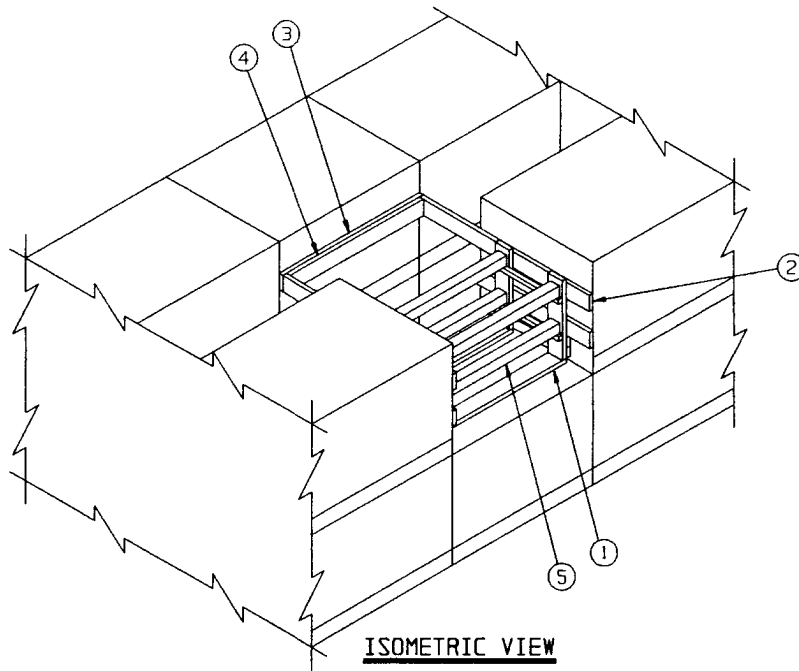


TOP VIEW



END VIEW

TYPICAL LCL-ONE UNIT OMITTED FROM THE TOP LAYER OF A LENGTHWISE CONTAINER LOAD



ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

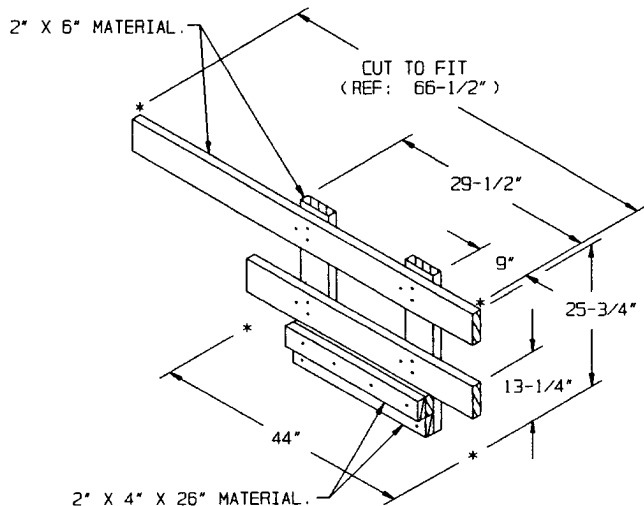
1. A PARTIAL VIEW OF A 9'-4" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. WIDER OR NARROWER CARS CAN BE USED.
2. THE DEPICTED PROCEDURES ARE APPLICABLE TO CNU-335/E AND CNU-336/E CONTAINERS.
3. A UNIT OMITTED FROM THE TOP LAYER OF A 2-LAYER LOAD IS SHOWN AS TYPICAL. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OMISSION OF A TOP-LAYER CONTAINER FROM A 3-LAYER LOAD.
4. THE OMITTED-UNIT PROCEDURES SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.
5. ONLY THE BLOCKING AND BRACING FOR THE OMITTED CONTAINER IS SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.

- ① SUPPORT PIECE, 2" X 6" BY UNIT WIDTH (2 REOD). POSITION BENEATH THE 2" X 6" VERTICAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED ②.
- ② LOAD BEARING GATE (2 REOD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "LOAD BEARING GATE C" DETAIL BELOW. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED ①, W/2-10d NAILS AT EACH JOINT. CAUTION: USE CARE NOT TO TOENAIL INTO A CONTAINER.
- ③ BEARING PIECE, 2" X 6" BY CONTAINER WIDTH (1 REOD).
- ④ FILLER PIECE, 2" X 6" BY CUT TO FIT (1 REOD). NAIL TO THE BEARING PIECE, PIECE MARKED ③, W/5-10d NAILS.
- ⑤ STRUT, 4" X 4" BY CUT TO FIT (REF: 49") (4 REOD). TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END.

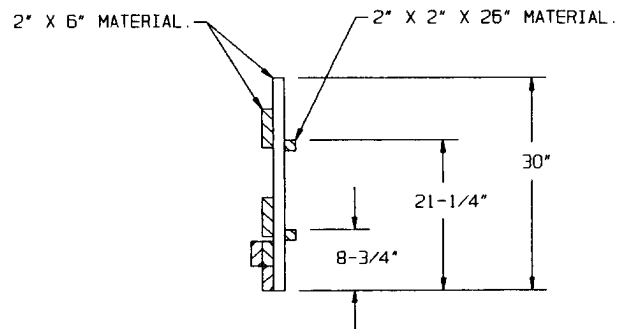
(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

6. THE REFERENCE DIMENSION GIVEN FOR THE CUT-TO-FIT PIECE IS BASED ON AN INSIDE CAR WIDTH OF 9'-4". THIS DIMENSION WILL HAVE TO BE INCREASED WHEN LOADING WIDER CARS.
7. THE NAILING OF THE VARIOUS PARTS OF THE GATES WILL BE AS FOLLOWS: NAIL THE 2" X 4", OR 2" X 6" HORIZONTAL PIECE(S) TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE DOUBLED 2" X 4" GATE HOLD DOWN PIECES TO A HORIZONTAL PIECE W/6-10d NAILS AT EACH LAYER. NAIL THE 2" X 2" STRUT LEDGERS TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.



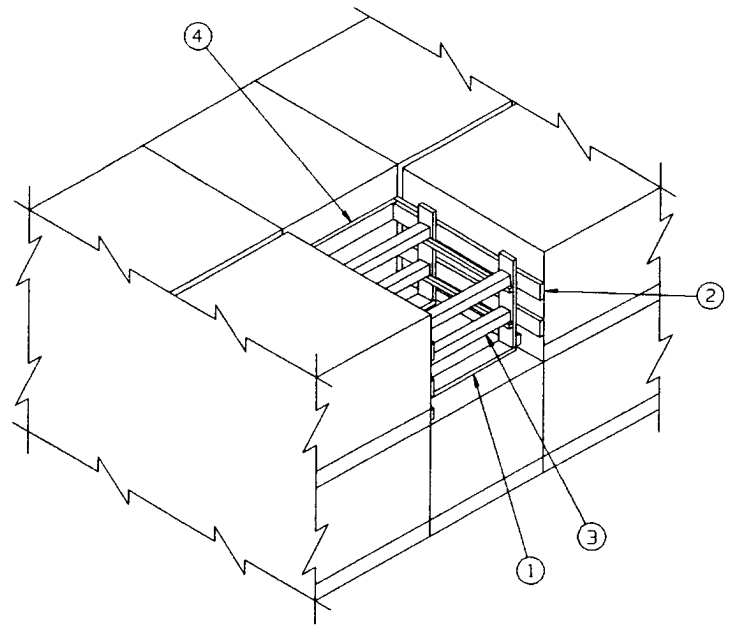
LOAD BEARING GATE C



END VIEW

SPECIAL NOTES:

1. A PARTIAL VIEW OF A 9'-4" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. WIDER CARS CAN BE USED.
2. THE DEPICTED PROCEDURES ARE APPLICABLE TO CNU-335/E AND CNU-336/E CONTAINERS.
3. A UNIT OMITTED FROM THE TOP LAYER OF A 2-LAYER LOAD IS SHOWN AS TYPICAL. THE PROCEDURES ARE ALSO APPLICABLE FOR THE OMISSION OF A TOP-LAYER CONTAINER FROM A 3-LAYER LOAD.
4. THE OMITTED-UNIT PROCEDURE SHOULD BE APPLIED NEAR THE CENTER OF THE CAR LENGTH, BUT NOT IN THE DOORWAY AREA. ALSO, THERE SHOULD BE AT LEAST ONE LOAD UNIT BETWEEN THE OMITTED UNIT AND A CENTER GATE.
5. ONLY THE BLOCKING AND BRACING FOR THE OMITTED UNIT IS SHOWN; REFER TO THE APPLICABLE LOAD PAGE FOR THE BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
6. THE REFERENCE DIMENSIONS GIVEN FOR THE CUT-TO-FIT PIECES ARE BASED ON AN INSIDE CAR WIDTH OF 9'-2". THESE DIMENSIONS WILL HAVE TO BE ADJUSTED WHEN LOADING CARS OF OTHER WIDTHS.
7. THE NAILING OF THE VARIOUS PARTS OF THE GATES WILL BE AS FOLLOWS: NAIL THE 2" X 4" OR 2" X 6" HORIZONTAL PIECE(S) TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. NAIL THE DOUBLED 2" X 4" GATE HOLD DOWN PIECES TO A 2" X 6" HORIZONTAL PIECE W/3-10d NAILS EACH LAYER. NAIL THE 2" X 2" STRUT LEGGERS TO THE VERTICAL PIECES W/2-10d NAILS AT EACH JOINT.



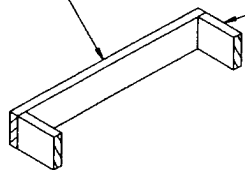
ISOMETRIC VIEW

KEY NUMBERS

- ① SUPPORT PIECE, 2" X 6" X 44" (2 REOD). POSITION SO AS TO BE UNDER THE VERTICAL PIECES OF THE LOAD BEARING GATES, PIECES MARKED ②.
- ② LOAD BEARING GATE (2 REOD, 1 RIGHT HAND AND 1 LEFT HAND). SEE THE "LOAD BEARING GATE D" DETAIL BELOW. TOENAIL TO THE SUPPORT PIECE, PIECE MARKED ①, W/2-10d NAILS AT EACH JOINT. CAUTION: USE CARE NOT TO NAIL INTO A CONTAINER.
- ③ STRUT, 4" X 4" BY CUT TO FIT (REF: 38") (4 REOD). TOENAIL TO PIECES MARKED ② W/2-16d NAILS AT EACH END.
- ④ LOAD BEARING ASSEMBLY (1 REOD). SEE THE DETAIL BELOW. NAIL THE SUPPORT BLOCKS OF THE ASSEMBLY TO THE TOP HORIZONTAL PIECES OF THE LOAD BEARING GATE, PIECE MARKED ②, W/3-10d NAILS AT EACH JOINT.

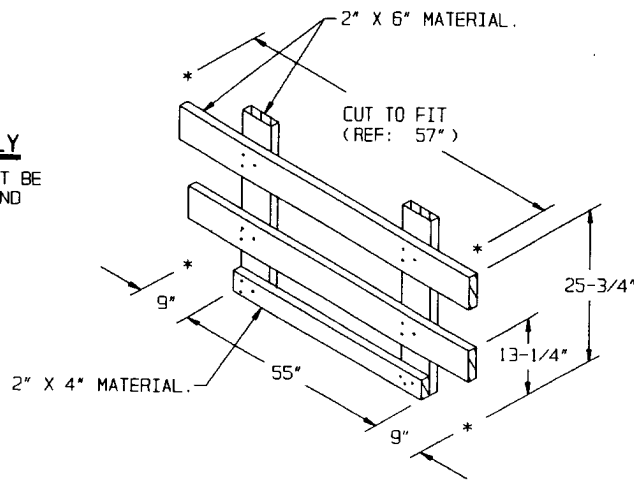
BEARING PIECE, 2" X 4" X 41"
(1 REOD). NAIL TO THE SUPPORT
BLOCKS W/12-12d NAILS AT EACH
END.

SUPPORT BLOCK, 2" X 6"
BY A LENGTH TO SUIT
(REF: 9") (2 REOD).

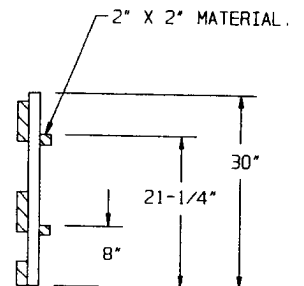


LOAD BEARING ASSEMBLY

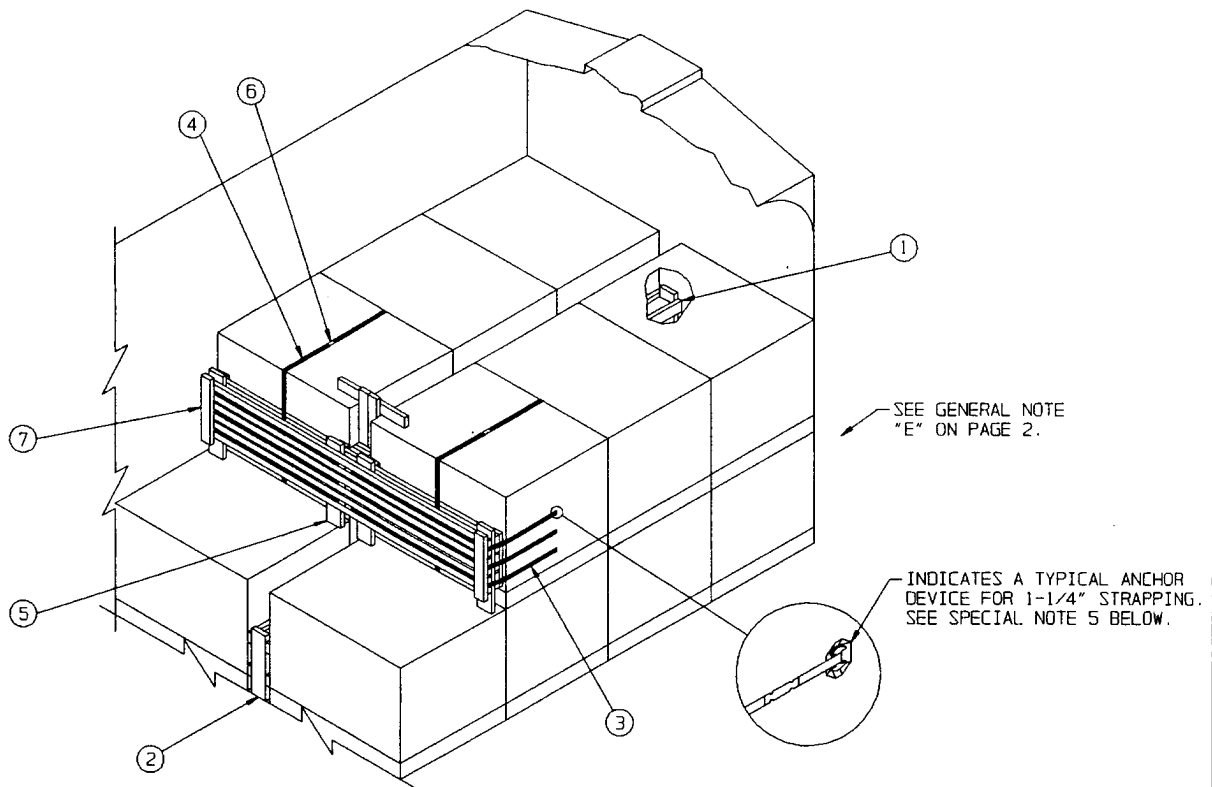
NOTE THAT THIS ASSEMBLY MUST BE
INSTALLED AFTER THE GATES AND
STRUTS ARE IN PLACE.



LOAD BEARING GATE C



END VIEW



ISOMETRIC VIEW

SPECIAL NOTES:

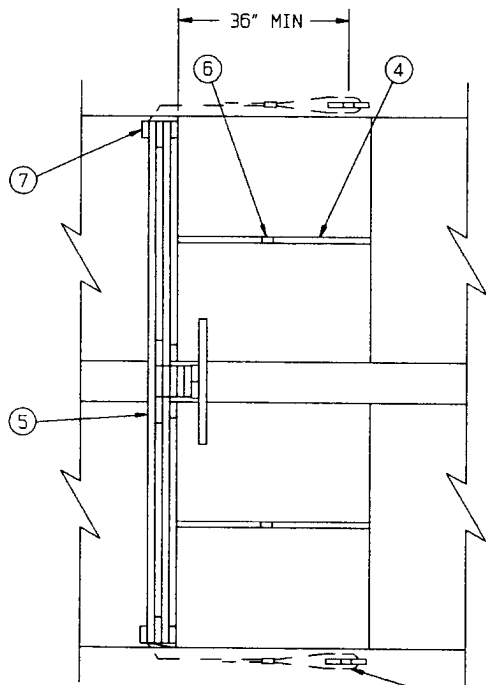
1. A 9'-4" WIDE ALL-METAL BOXCAR EQUIPPED WITH STRAP ANCHOR DEVICES AND HAVING AN AAR MECHANICAL DESIGNATION CLASS OF XL IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED.
2. THE CNU-335A/E CONTAINER IS SHOWN, HOWEVER, THE PROCEDURES SHOWN IN THE TYPICAL LCL LOAD ARE ADAPTABLE FOR BOTH OF THE CONTAINERS SHOWN ON PAGE 5. NOTE THAT THE CONTAINERS MAY BE POSITIONED EITHER LENGTHWISE OR CROSSWISE IN THE CAR.
3. ONLY THE BLOCKING AND BRACING FOR THE BULKHEAD GATE METHOD OF PARTIAL-LAYER BRACING IS SHOWN. REFER TO THE APPLICABLE LOAD PAGE FOR BLOCKING AND BRACING REQUIREMENTS FOR THE BALANCE OF THE LOAD.
4. A BULKHEAD GATE USED IN CONJUNCTION WITH THREE BULKHEAD STRAPS WILL RETAIN UP TO 7,500 POUNDS OF LADING (3 PALLET UNITS). A BULKHEAD GATE WITH TWO STRAPS WILL RETAIN NOT MORE THAN 5,000 POUNDS (2 PALLET UNITS). IF ONLY TWO STRAPS ARE USED, THEY MUST BE APPLIED OVER THE UPPER AND LOWER STRAPPING BOARDS.
5. THE ANCHOR DEVICES TO BE USED FOR THE ATTACHMENT OF THE BULKHEAD STRAPS MUST BE LOCATED AT LEAST THIRTY-SIX INCHES TOWARD THE CAR ENDWALL FROM THE OPPOSITE-THE-LOAD SIDE OF THE BULKHEAD GATE. IF THE ANCHOR DEVICES IN THE CAR BEING LOADED ARE NOT LOCATED NEAR ENOUGH TO THE END OF THE CAR SO THAT THE 36" REQUIREMENT CAN BE SATISFIED, IT WILL BE NECESSARY TO INSTALL GATES AND STRUTS AT THE END OF THE CAR. THESE GATES WILL BE 1-HIGH GATES AND WILL BE INSTALLED SIMILAR TO THE 1-HIGH CENTER RETAINED ON PAGE 18 FOR AN EVEN QUANTITY OF UNITS, OR THE OMITTED UNIT PROCEDURES AS SHOWN ON PAGE 37 FOR A SINGLE CONTAINER.

(CONTINUED ON PAGE 41)

KEY NUMBERS

- ① CRIB FILL (2 REOD). SEE THE "CRIB FILL A" DETAIL AND "NOTE" ON PAGE 17. SEE SPECIAL NOTES 2 AND 3 AT LEFT.
- ② CRIB FILL (2 REOD). SEE THE 1-HIGH "CRIB FILL A" DETAIL ON PAGE 17.
- ③ BULKHEAD STRAP, 1-1/4" X .031" OR .035" BY A LENGTH TO SUIT STEEL STRAPPING (3 REOD). INSTALL FROM 2 EQUAL LENGTH PIECES. ATTACH TO AN ANCHOR WITH 1 SEAL. SEE THE "STRAP APPLICATION PLAN VIEW" ON PAGE 39 FOR INSTALLATION GUIDANCE. SEE SPECIAL NOTES 4 AND 5 AT LEFT.
- ④ BUNDLING STRAP, 1-1/4" X .035" X 15'-6" LONG (REF) STEEL STRAPPING (2 REOD). ENCIRCLE THE PALLET UNIT, THE HORIZONTAL PIECES OF THE BULKHEAD GATE, PIECE MARKED ⑤. TENSION AND SEAL AFTER TENSIONING THE BULKHEAD STRAPS, PIECES MARKED ③.
- ⑤ BULKHEAD GATE (1 REOD). SEE THE DETAIL ON PAGE 41. SEE SPECIAL NOTE 2 AT LEFT.
- ⑥ SEAL FOR 1-1/4" STRAPPING (14 REOD, 4 PER BULKHEAD STRAP, PIECE MARKED ③), AND 1 PER BUNDLING STRAP, PIECE MARKED ④). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "M" ON PAGE 2.
- ⑦ STRAP RETAINER, 2" X 4" BY A LENGTH TO SUIT (2 REOD). NAIL TO THE BULKHEAD GATE W/2-12d NAILS ABOVE AND BELOW EACH BULKHEAD STRAP.

6. THE STRAPPING BOARDS ON A BULKHEAD GATE ARE TO BE ALIGNED AS NEARLY AS POSSIBLE WITH THE ANCHOR DEVICES IN THE CAR TO WHICH THE BULKHEAD STRAPS ARE ATTACHED. TOLERANCES ARE SPECIFIED ON THE END VIEW OF THE BULKHEAD GATE BELOW FOR THE LOCATION OF THE HORIZONTAL PIECES IN RELATION TO THE LOCATION OF THE STRAPPING BOARDS. THE STRAPPING BOARDS/HORIZONTAL PIECES SHOULD BE LOCATED WITHIN THESE TOLERANCES.



INDICATES A STRAP ANCHOR DEVICE.

STRAP APPLICATION PLAN VIEW

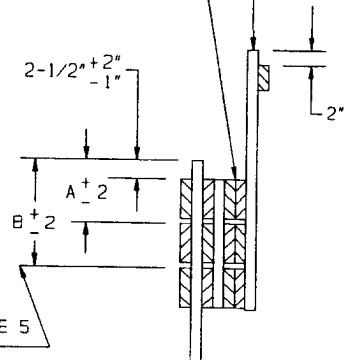
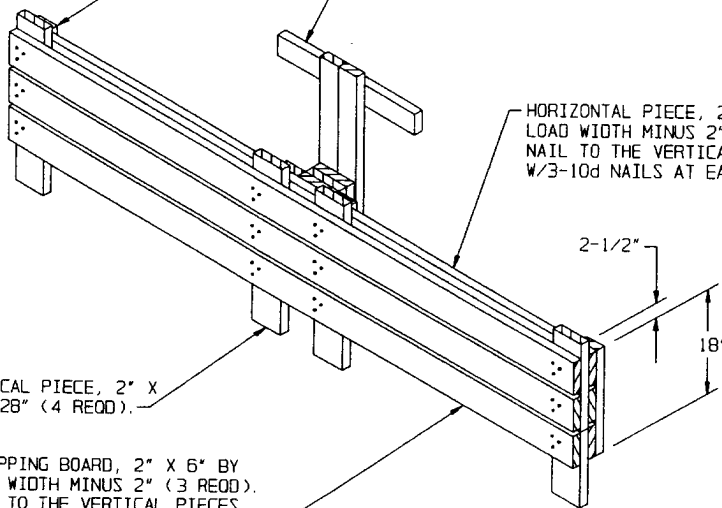
BEARING PIECE, 2" X 4" X 18"
(4 REOD FOR CNU-335A/E AND
CNU-336A/E CONTAINER ONLY).
NAIL TO THE HORIZONTAL PIECES
W/2-10d NAILS AT EACH JOINT.

SUPPORT PIECE, 2" X 4" BY LATERAL
VOID PLUS 18" (1 REOD). NAIL TO
THE RISER PIECES W/3-10d NAILS
AT EACH JOINT.

RISER PIECE, 2" X 4" X 36"
(2 REOD). NAIL TO THE
SPACER PIECES W/3-10d NAILS
AT EACH JOINT.

SPACER PIECE, 2" X 6" BY CUT TO FIT
(TRIPLED) (3 REOD). NAIL THE FIRST
PIECE TO A HORIZONTAL PIECE W/3-10d
NAILS. NAIL EACH ADDITIONAL PIECE
IN A LIKE MANNER.

HORIZONTAL PIECE, 2" X 6" BY
LOAD WIDTH MINUS 2" (3 REOD).
NAIL TO THE VERTICAL PIECES
W/3-10d NAILS AT EACH JOINT.



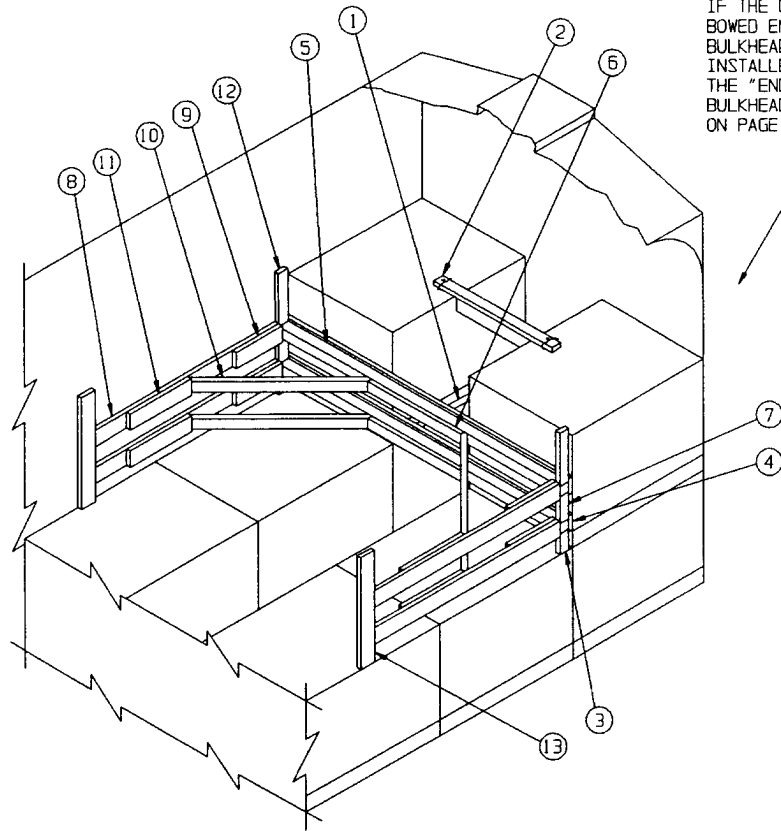
SEE SPECIAL NOTE 5
ON PAGE 24.

END VIEW

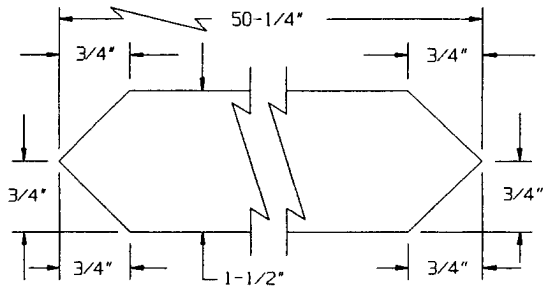
VERTICAL PIECE, 2" X
6" X 28" (4 REOD).

STRAPPING BOARD, 2" X 6" BY
LOAD WIDTH MINUS 2" (3 REOD).
NAIL TO THE VERTICAL PIECES
W/3-10d NAILS AT EACH JOINT.
SEE SPECIAL NOTE 6 ABOVE.

BULKHEAD GATE



IF THE CAR HAS A BOWED ENDWALL, A BULKHEAD MUST BE INSTALLED. SEE THE "END-OF-CAR BULKHEAD" DETAIL ON PAGE 47.



DIAGONAL BRACE

ISOMETRIC VIEW

KEY NUMBERS

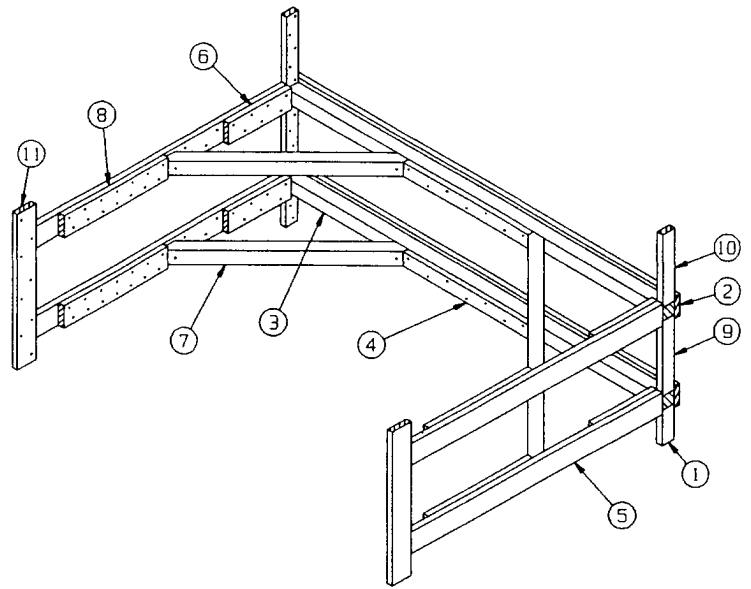
SPECIAL NOTES:

1. A 9'-2" WIDE CONVENTIONAL WOOD-LINED BOXCAR IS SHOWN. WOOD-LINED CARS OF OTHER WIDTHS CAN BE USED.
2. THE CMU-335A/E CONTAINER IS SHOWN IN THE TYPICAL LCL LOAD. THE DEPICTED PROCEDURES ARE ALSO ADAPTABLE FOR THE OTHER CONTAINERS COVERED BY THIS DOCUMENT.
3. PARTIAL-LAYER BRACING MAY BE APPLIED FOR ANY OF THE CONVENTIONAL CARLOADS DEPICTED HEREIN. A CROSSWISE CONTAINER LOAD IS SHOWN AS TYPICAL. THE BLOCKING AND BRACING WILL VARY FOR LENGTHWISE CONTAINER LOADS. NOTE THAT PIECES MARKED ④ SHOULD BE LOCATED SO AS TO BEAR AGAINST THE CONTAINERS IN THE SAME LOCATION AS THE HORIZONTAL PIECES OF A CENTER GATE.
4. THE K-BRACE METHOD OF PARTIAL-LAYER (TIER) BRACING SHOWN MAY BE USED IN WOOD-LINED CARS FOR THE SECUREMENT OF A PARTIAL TOP TIER, BE IT A SECOND TIER, THIRD TIER, OR FIRST. THE TYPE "A" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 8,000 POUNDS. IF IT IS NECESSARY TO BLOCK A HEAVIER LOAD, REFER TO THE DETAIL ON PAGE 43 FOR DESIGN SPECIFICATIONS FOR THE BRACE.
5. 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 SPECIFIED K-BRACE DUNNAGE. PIECES MARKED ③, ④, ⑤, ⑦, ⑨, AND ⑫ MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑩ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑧ MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 60°), TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED ⑧ TO THE FIRST W/16-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑩ IS DOUBLED.
6. THE CENTER CLEAT, SHOWN AS PIECE MARKED ⑥, WILL BE 28" LONG FOR AN 8'-6" WIDE CAR, 36" LONG FOR A 9'-2" WIDE CAR, AND 38" LONG FOR A 9'-4" WIDE CAR. ADJUST THE LENGTH PROPORTIONATELY FOR CARS OF OTHER WIDTHS.

- ① ANTI-SWAY BRACE (AS RECD). SEE THE "ANTI-SWAY BRACE" DETAIL ON PAGE 14. INSTALL BETWEEN LATERALLY ADJACENT CONTAINERS. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 3 AT LEFT.
- ② TOP-OF-LOAD ANTI-SWAY BRACE (1 RECD). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 15. WIRE TIE TO CONTAINER LATCH BRACKETS WITH NO. 14 GAGE WIRE AS TYPICALLY SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53. NOTE THAT THE QUANTITY IS ONLY FOR THE PARTIAL-TIER UNITS.
- ③ SUPPORT CLEAT, 2" X 4" X 7" (2 RECD). NAIL TO THE CAR SIDEWALL W/2-12d NAILS. POSITION SO THAT PIECES MARKED ④ AND ⑤ ARE AT THE SAME LOCATION AS THE HORIZONTAL PIECES OF A CENTER GATE.
- ④ HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH IN LENGTH (CUT TO FIT) (2 RECD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/1-12d NAIL EVERY 6". SEE SPECIAL NOTE 3 AT LEFT.
- ⑤ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH IN LENGTH (CUT TO FIT) (2 RECD).
- ⑥ CENTER CLEAT, 2" X 4" X 36" (2 RECD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, W/7-16d NAILS. SEE SPECIAL NOTE 6 AT LEFT.
- ⑦ SPACER CLEAT, 2" X 4" X 9" (2 RECD). NAIL TO THE CAR SIDEWALL W/4-12d NAILS.
- ⑧ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 RECD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑨ POCKET CLEAT, 2" X 6" X 12" (2 RECD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/4-16d NAILS.
- ⑩ DIAGONAL BRACE, 2" X 4" X 50-1/4" (4 RECD). SEE THE DETAIL ABOVE FOR BEVEL CUTS REQUIRED. TOENAIL TO THE CROSS CAR BRACE, PIECE MARKED ⑤, AND TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/2-16d NAILS AT EACH END.
- ⑪ BACK-UP CLEAT, 2" X 6" X 24" (4 RECD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑧, W/8-16d NAILS.
- ⑫ HOLD-DOWN CLEAT, 2" X 4" X 18" (2 RECD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑬ VERTICAL BACK-UP CLEAT, 2" X 6" BY UNIT HEIGHT (2 RECD). NAIL TO THE CAR SIDEWALL W/8-12d NAILS.

SPECIAL NOTES:

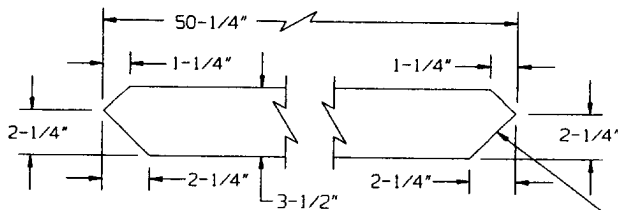
1. THE TYPE "B" K-BRACE SHOWN IS ADEQUATE FOR RETAINING A PARTIAL TIER OF NOT MORE THAN 14,000 POUNDS. IF THE PARTIAL TIER TO BE BRACED WEIGHS 8,000 POUNDS OR LESS, THE TYPE "A" K-BRACE DEPICTED ON PAGE 42 MAY BE USED.
2. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL-LAYER BRACING" 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 SPECIFIED K-BRACE DUNNAGE. PIECES MARKED ①, ②, ③, ⑥, ⑨, ⑩, AND ⑪, MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDEWALL. IT IS ALRIGHT FOR THE ENDS OF THE DIAGONAL BRACES MARKED ⑦ TO BEAR IN FRONT OF A DOOR OPENING, HOWEVER, THE ADJACENT PIECE MARKED ⑤ MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING (REF: 54") TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE. LAMINATE THE SECOND PIECE OF THE DOUBLED PIECE MARKED ⑤ TO THE FIRST W/16-16d NAILS. CLINCH THOSE NAILS WHICH PROTRUDE THRU THE HORIZONTAL WALL CLEAT WITHIN THE DOOR OPENING. NOTE THAT THE DIAGONAL BRACE WILL BE 49-1/8" LONG IN LIEU OF 50-1/4" WHEN PIECE MARKED ⑤ IS DOUBLED.
3. 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.
4. REFER TO PAGE 42 FOR A TYPICAL INSTALLATION OF A K-BRACE.



ISOMETRIC VIEW

KEY NUMBERS

- ① SUPPORT CLEAT, 2" X 4" X 7" (2 REOD). NAIL TO THE CAR SIDEWALL W/2-12d NAILS. POSITION SO THAT PIECES MARKED ② AND ③ ARE AT THE SAME LOCATION AS THE HORIZONTAL PIECES OF A CENTER GATE.
- ② LOAD BEARING PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REOD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/1-12d NAIL EVERY 6". SEE GENERAL NOTE "M" ON PAGE 2.
- ③ CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (2 REOD).
- ④ CENTER CLEAT, 2" X 4" X 36" (2 REOD). NAIL TO THE CROSS CAR BRACE, PIECE MARKED ③, W/7-16d NAILS. SEE SPECIAL NOTE 3 AT LEFT.
- ⑤ HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REOD). NAIL TO THE CAR SIDEWALL W/16-12d NAILS.
- ⑥ POCKET CLEAT, 2" X 6" X 18" (4 REOD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/7-16d NAILS.
- ⑦ DIAGONAL BRACE, 4" X 4" X 50-1/4" (4 REOD). 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/1-60d NAIL AT EACH END.
- ⑧ BACK-UP CLEAT, 2" X 6" X 30" (4 REOD). NAIL TO THE HORIZONTAL WALL CLEAT, PIECE MARKED ⑤, W/14-16d NAILS.
- ⑨ SPACER CLEAT, 2" X 4" X 9" (2 REOD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑩ HOLD-DOWN CLEAT, 2" X 6" X 18" (2 REOD). NAIL TO THE CAR SIDEWALL W/5-12d NAILS.
- ⑪ VERTICAL BACK-UP CLEAT, 2" X 6" X 39" (2 REOD). NAIL TO THE CAR SIDEWALL W/8-12d NAILS.

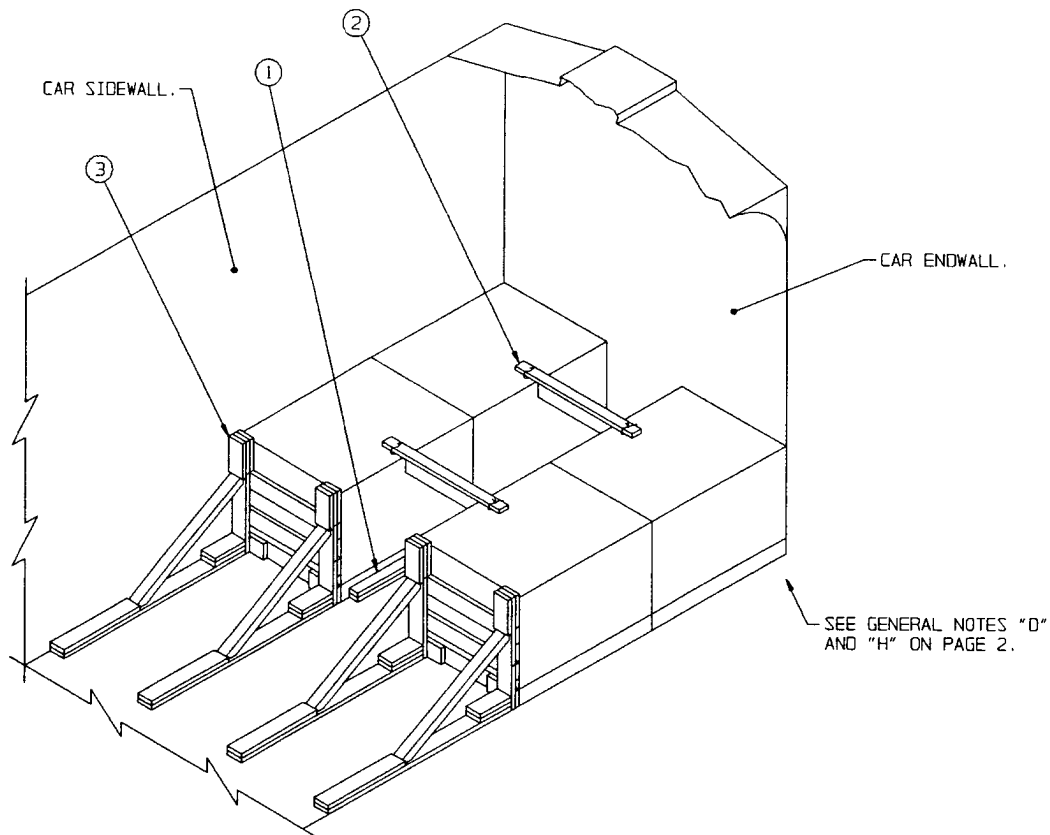


DIAGONAL BRACE

SEE SPECIAL NOTE 2 ABOVE.

THIS BEARING SURFACE MUST BE POSITIONED SO AS TO BE IN CONTACT WITH A CROSS CAR BRACE, PIECE MARKED ③, OR A HORIZONTAL WALL CLEAT, PIECE MARKED ⑤.

TYPE "B" K-BRACE



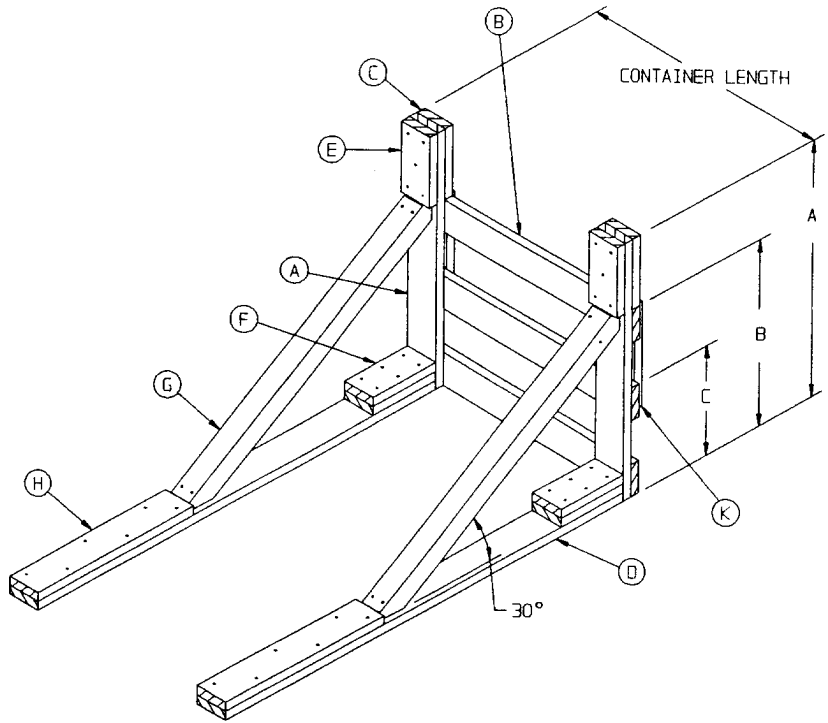
ISOMETRIC VIEW

SPECIAL NOTES:

1. A 9'-2" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS AND CARS HAVING METAL LININGS CAN BE USED.
2. THE CNU-335A/E CONTAINER IS SHOWN IN THE ISOMETRIC VIEW ABOVE. THE DEPICTED PROCEDURES ARE ALSO ADAPTABLE TO THE OTHER CONTAINERS COVERED BY THIS DOCUMENT.
3. THE LOAD SHOWN DEPICTING THE KNEE BRACE METHOD OF PARTIAL-LAYER BRACING IS TYPICAL. THE QUANTITY MAY BE ADJUSTED TO SUIT, PROVIDED THE LIMITATIONS OF THE KNEE BRACE AS SET FORTH IN SPECIAL NOTE 4 ARE NOT EXCEEDED.
4. A KNEE BRACE ASSEMBLY WILL BE USED FOR EACH ROW OF PALLET UNITS. ONE KNEE BRACE ASSEMBLY IS ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF NOT MORE THAN 8,500 POUNDS.
5. WHEN SHIPPING THE CNU-335A/E OR CNU-336A/E CONTAINERS, REFER TO "CENTER GATE B" DETAILED ON PAGE 15 FOR PLACEMENT OF BEARING PIECE, PIECE MARKED (K), AND FOR MATERIAL AND PLACEMENT OF HOLD-DOWN CLEATS MARKED (J).
6. WHEN SHIPPING THE CNU-335/E OR CNU-336/E CONTAINERS, REFER TO "CENTER GATE F" ON PAGE 29 FOR PLACEMENT OF VERTICAL PIECES MARKED (A), AND FOR MATERIAL AND PLACEMENT OF HOLD-DOWN CLEATS MARKED (J); OMIT PIECE MARKED (K).

KEY NUMBERS

- (1) SIDE BLOCKING, 2" X 4" X 45", OR A LENGTH TO SUIT (DOUBLED) (4 REED). NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- (2) TOP-OF-LOAD ANTI-SWAY BRACE (2 REED). SEE THE "TOP-OF-LOAD ANTI-SWAY BRACE A" DETAIL ON PAGE 15. WIRE TIE TO THE CONTAINER LATCH BRACKETS AS SHOWN BY THE "TIE WIRE APPLICATION" DETAIL ON PAGE 53.
- (3) KNEE BRACE ASSEMBLY (2 REED). SEE THE DETAIL ON PAGE 45 FOR CONSTRUCTION SPECIFICATIONS AND NAILING REQUIREMENTS.

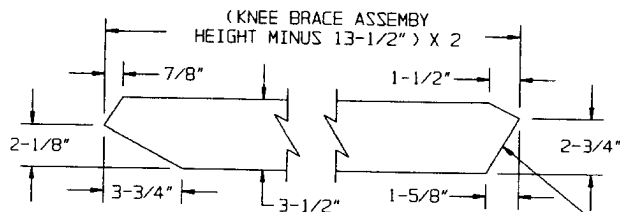


KNEE BRACE ASSEMBLY

KEY LETTERS

- (A) VERTICAL PIECE, 2" X 6" BY DIMENSION A (2 REOD). SEE SPECIAL NOTE 5 ON PAGE 44.
- (B) HORIZONTAL PIECE, 2" X 6" BY CONTAINER LENGTH (3 REOD). NAIL TO THE VERTICAL PIECES W/3-10d NAILS AT EACH JOINT. SEE THE CHART AT LEFT FOR PLACEMENT GUIDANCE. SEE GENERAL NOTE "K" ON PAGE 2.
- (C) SUPPORT BLOCK, 2" X 6" X 11" (2 REOD). NAIL TO THE VERTICAL PIECE W/5-10d NAILS.
- (D) FLOOR CLEAT, 2" X 6" BY LENGTH TO SUIT (.87 OR 7/8 TIMES LENGTH OF PIECE MARKED (E), PLUS 30") (2 REOD). ALIGN WITH A VERTICAL PIECE AND NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "P" ON PAGE 3.
- (E) HOLD-DOWN CLEAT, 2" X 6" X 12" (2 REOD). NAIL TO A VERTICAL PIECE W/5-10d NAILS.
- (F) POCKET CLEAT, 2" X 6" X 12" (DOUBLED) (2 REOD). NAIL THE FIRST PIECE TO THE FLOOR CLEAT, PIECE MARKED (D), W/4-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. TOENAIL THE SECOND PIECE TO THE VERTICAL PIECE, PIECE MARKED (A), W/2-16d NAILS.
- (G) BRACE, 4" X 4" BY CUT TO FIT (KNEE BRACE ASSEMBLY HEIGHT MINUS 13-1/2", TIMES 2) (2 REOD). SEE THE DETAIL AT LEFT FOR BEVEL CUTS REQUIRED. TOENAIL TO THE VERTICAL PIECE AND TO THE FLOOR CLEAT, PIECES (A) AND (D), W/2-16d NAILS AT EACH JOINT.
- (H) BACK UP CLEAT, 2" X 6" X 30" (2 REOD). NAIL TO THE FLOOR CLEAT, PIECE MARKED (D), W/6-40d NAILS.
- (J) HOLD-DOWN CLEAT (NOT SHOWN). SEE SPECIAL NOTES 5 AND 6 ON PAGE 44.
- (K) BEARING PIECE 2" X 4" X 18" (2 REOD FOR CNU-335 A/E AND CNU-336 A/E CONTAINERS ONLY). NAIL TO THE HORIZONTAL PIECES W/2-10d NAILS AT EACH END. SEE SPECIAL NOTE 5 ON PAGE 44.

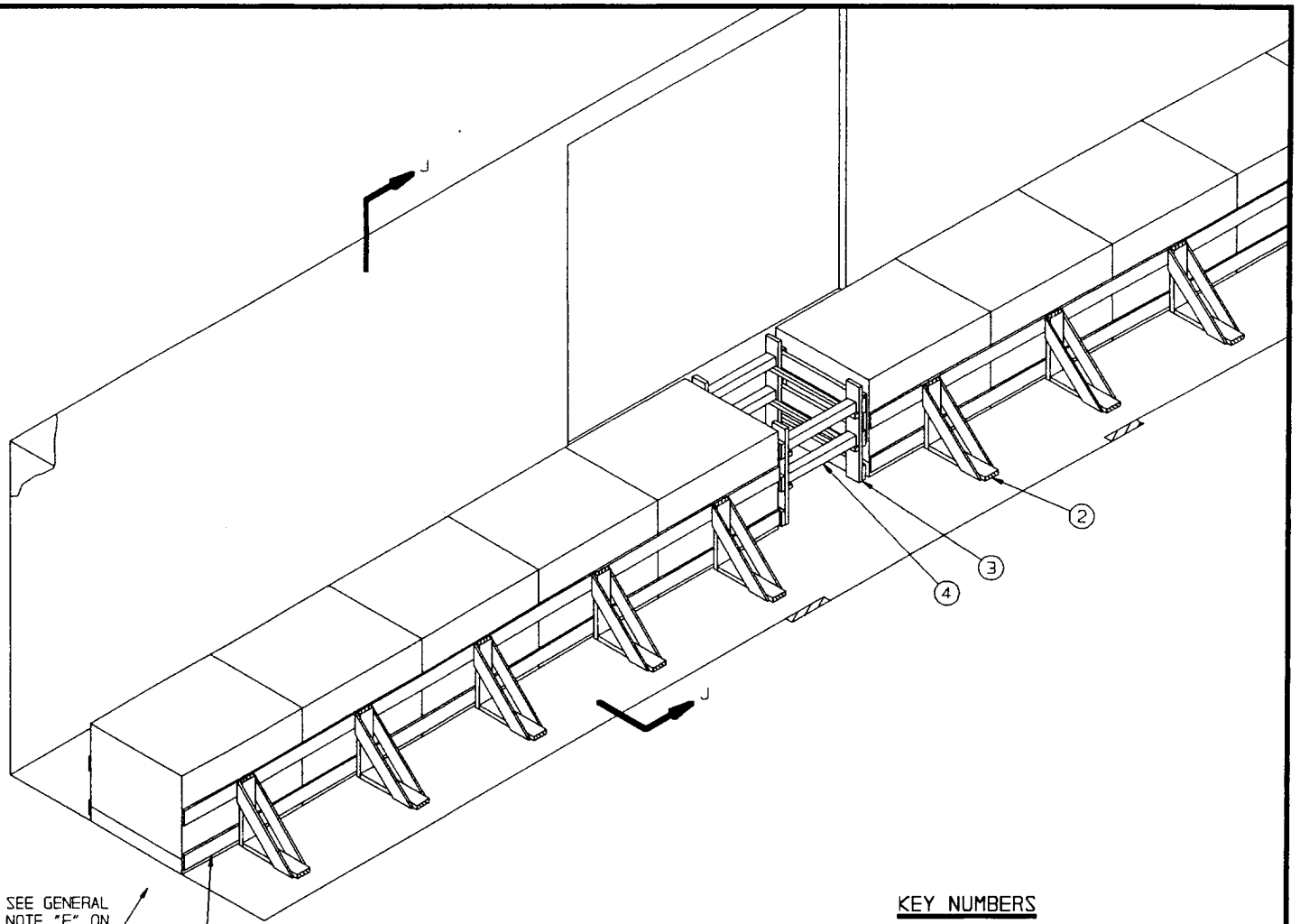
CONTAINER	DIMENSIONAL CHART		
	DIM A	DIM B	DIM C
CNU-336A/E CNU-336A/E	42"	31"	18-1/2"
CNU-335/E CNU-336/E	38"	27"	14-3/4"



BRACE

4" X 4" MATERIAL

THE BRACE MUST BE INSTALLED SO THAT THIS BEARING SURFACE WILL BE IN CONTACT WITH THE VERTICAL PIECE MARKED (A).

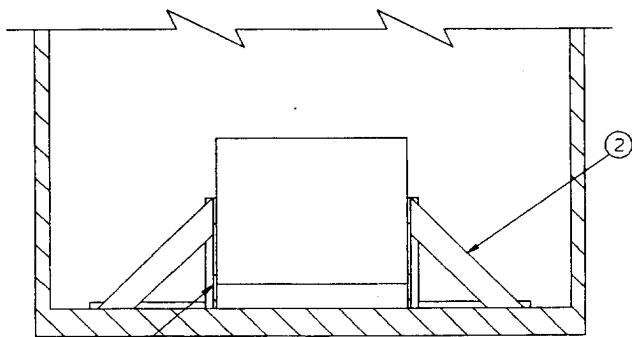


SEE GENERAL NOTE "E" ON PAGE 2.

①
ISOMETRIC VIEW

KEY NUMBERS

- ① HORIZONTAL PIECE, 1" X 6" BY A LENGTH TO SUIT (8 REQD). NAIL TO THE VERTICAL PIECES OF THE LCL BRACES W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST THE LADING. SEE THE "LCL BRACE" DETAIL ON PAGE 48 FOR HEIGHT LOCATION GUIDANCE. SEE GENERAL NOTES "K" AND "L" ON PAGE 2.
- ② LCL BRACE (22 REQD). SEE THE DETAIL ON PAGE 48 AND SPECIAL NOTE 4 ON PAGE 47. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "P" ON PAGE 3.
- ③ CENTER GATE (2 REQD). SEE THE "CENTER GATE B" DETAIL ON PAGE 15 OR THE "CENTER GATE D" DETAIL ON PAGE 19 FOR CROSSWISE OR LENGTHWISE UNITS, RESPECTIVELY SEE SPECIAL NOTE 2 ON PAGE 47.
- ④ STRUT, 4" X 4" BY CUT TO FIT (4 REQD). TOENAIL TO PIECES MARKED ③ W/2-16d NAILS AT EACH END. SEE GENERAL NOTE "R" AND "S" ON PAGE 3.



①
SECTION J-J

TYPICAL LCL LOAD USING 1-WIDE LOADING METHOD

SPECIAL NOTES:

1. A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL TYPE BOXCAR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED, AND SHORTER BUT NOT LONGER CARS WILL BE USED.
2. THE PROCEDURES SHOWN IN THE TYPICAL 1-WIDE LOAD ON PAGE 46 ARE APPLICABLE FOR CNU-335A/E OR CNU-336A/E CONTAINERS. WHEN TRANSPORTING CNU-335/E OR CNU-336/E CONTAINERS, A 1-HIGH "CENTER GATE F" DETAILED ON PAGE 29, OR A 1-HIGH "CENTER GATE H" DETAILED ON PAGE 31 WILL BE USED IN LIEU OF PIECE MARKED ③ IN THE LOAD VIEW.
3. A 1-WIDE CROSSWISE LOAD IS SHOWN AS TYPICAL. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE FOR 1-WIDE LENGTHWISE LOADS. NOTE THAT THE QUANTITY OF LCL BRACES, PIECES MARKED ②, IS NOT CORRECT FOR LENGTHWISE LOADS.
4. ONE LCL BRACE WILL BE USED AT EACH SIDE OF EACH CONTAINER. THE BRACES WILL BE CENTERED ON LENGTH OR WIDTH OF THE CONTAINER, AS APPLICABLE, WITH MINOR ADJUSTMENTS AS NECESSARY TO ALIGN A BRACE WITH THE LOWER PORTION OF THE DIAGONAL CLEATS ON THE CNU-335 A/E OR CNU-336 A/E CONTAINERS.
5. THE BILL OF MATERIAL AND LOAD AS SHOWN ARE BASED ON THE DEPICTED UNIT AND THEREFORE ARE ONLY TYPICAL.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	298	149
2" X 2"	13	5
2" X 6"	118	118
4" X 4"	10	14
NAILS	NO. REOD	POUNDS
6d (2")	132	3/4
8d (2-1/2")	264	2-3/4
10d (3")	92	1-1/2
16d (3-1/2")	214	4-3/4

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-335A/E CNTR	11	11,418 LBS *
DUNNAGE		582 LBS

TOTAL WEIGHT ----- 12,000 LBS (APPROX)

* CNU-336A/E CONTAINERS WILL WEIGH 6,149 LBS

TYPICAL LCL LOAD USING 1-WIDE LOADING METHOD

FOR CNU-335A/E OR CNU-336A/E POSITION CONTAINER WITH THE HUMIDITY INDICATOR AND PRESSURE RELIEF VALUE TOWARD THE CAR SIDEWALL OR ENDWALL.

HORIZONTAL PIECE, 1" X 6" BY CONTAINER LENGTH (2 REOD). NAIL TO THE VERTICAL PIECES OF THE LCL BRACES W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST LADING.

HORIZONTAL PIECE, 1" X 6" BY CONTAINER WIDTH (2 REOD). NAIL TO THE VERTICAL PIECES OF THE LCL BRACES W/3-6d NAILS AT EACH JOINT PRIOR TO PLACEMENT AGAINST LADING.

SEE GENERAL NOTE "E" ON PAGE 2.

LCL BRACE (4 REOD). SEE THE DETAIL BELOW. NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE GENERAL NOTE "K" ON PAGE 2 AND GENERAL NOTE "P" ON PAGE 3.

ISOMETRIC VIEW

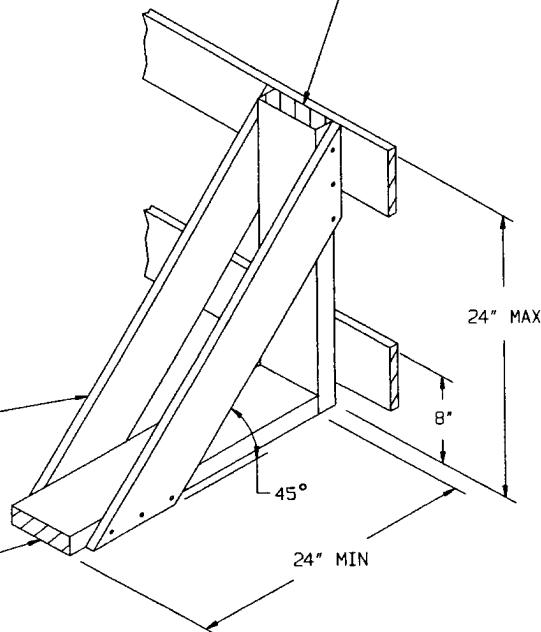
SPECIAL NOTES:

1. AN 8'-6" WIDE WOOD-LINED CONVENTIONAL TYPE BOXCAR HAVING A WOOD OR NAILABLE METAL FLOOR IS SHOWN. CARS OF OTHER WIDTHS CAN BE USED. SEE GENERAL NOTE "P" ON PAGE 3.
2. THE CNU-335A/E CONTAINER IS SHOWN IN THE TYPICAL LCL LOAD ABOVE. THE DEPICTED PROCEDURES ARE ALSO ADAPTABLE FOR THE OTHER CONTAINERS COVERED BY THIS DOCUMENT.
3. THE LOAD SHOWN DEPICTING THE LCL BRACE METHOD OF PARTIAL-LAYER BRACING IS TYPICAL. A LENGTHWISE UNIT IS SHOWN. HOWEVER, THE PROCEDURES ARE ALSO APPLICABLE FOR CROSSWISE UNITS AND FOR OTHER QUANTITIES AS LONG AS THE CAPACITY OF THE BRACES IS NOT EXCEEDED. SEE SPECIAL NOTE 4.
4. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL RETAIN 2,000 POUNDS OF LADING. EACH LCL BRACE AS APPLIED FOR LATERAL BRACING WILL SUPPORT 8,000 POUNDS OF LADING. A MINIMUM OF TWO BRACES MUST BE USED FOR LONGITUDINAL BRACING.

VERTICAL PIECE, 2" X 6" X 24" (MAXIMUM) (1 REOD). NAIL TO THE BACK-UP CLEAT W/2-16d NAILS.

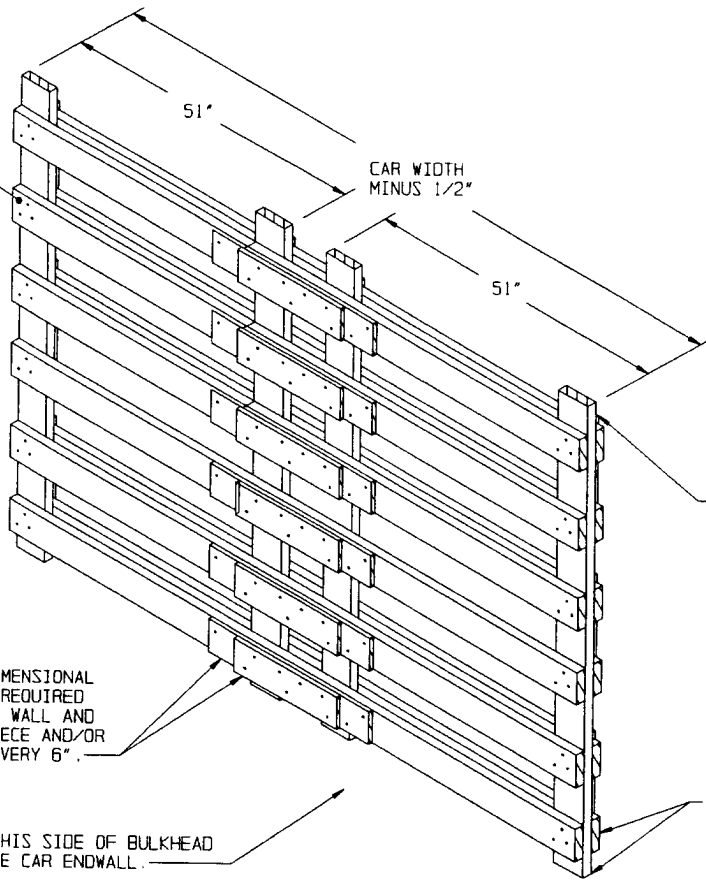
ANGLE BRACE, 1" X 6" BY CUT TO FIT (2 REOD). NAIL TO THE VERTICAL PIECE AND TO THE BACK-UP CLEAT W/3-8d NAILS AT EACH END.

BACK-UP CLEAT, 2" X 6" MATERIAL (1 REOD).



LCL BRACE

FILLER PIECE, 2" X 6" BY CAR WIDTH MINUS 1/2" IN LENGTH (ONE REQUIRED FOR EACH HORIZONTAL PIECE ON THE CENTER GATE). ALIGN WITH THE HORIZONTAL PIECES AND NAIL TO THE VERTICAL PIECES OF THE CENTER GATE W/3-10d NAILS AT EACH JOINT.



CAR WIDTH MINUS 1/2"

BEARING PIECE, 2" X 4" X 18" (AS APPLICABLE).

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

POSITION THIS SIDE OF BULKHEAD AGAINST THE CAR ENDWALL.

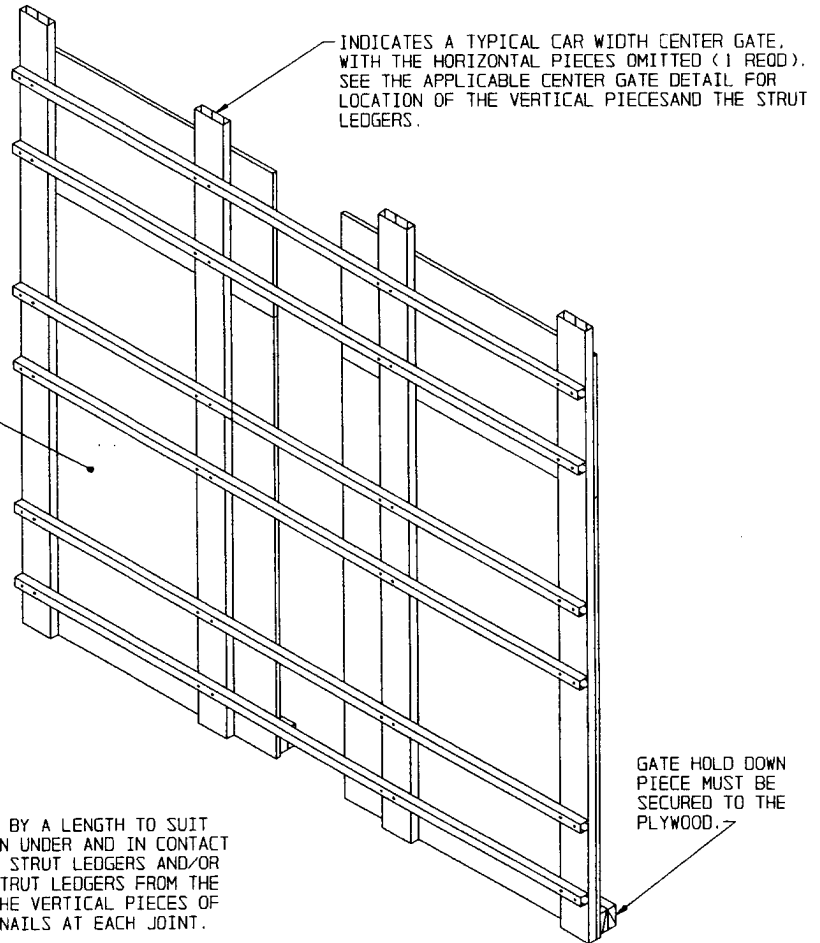
THESE 2" X 6" HORIZONTAL PIECES AND 2" X 6" VERTICAL PIECES ARE PART OF THE MODIFIED CENTER GATE. SEE "NOTE *" BELOW.

END-OF-CAR BULKHEAD

NOTE * :

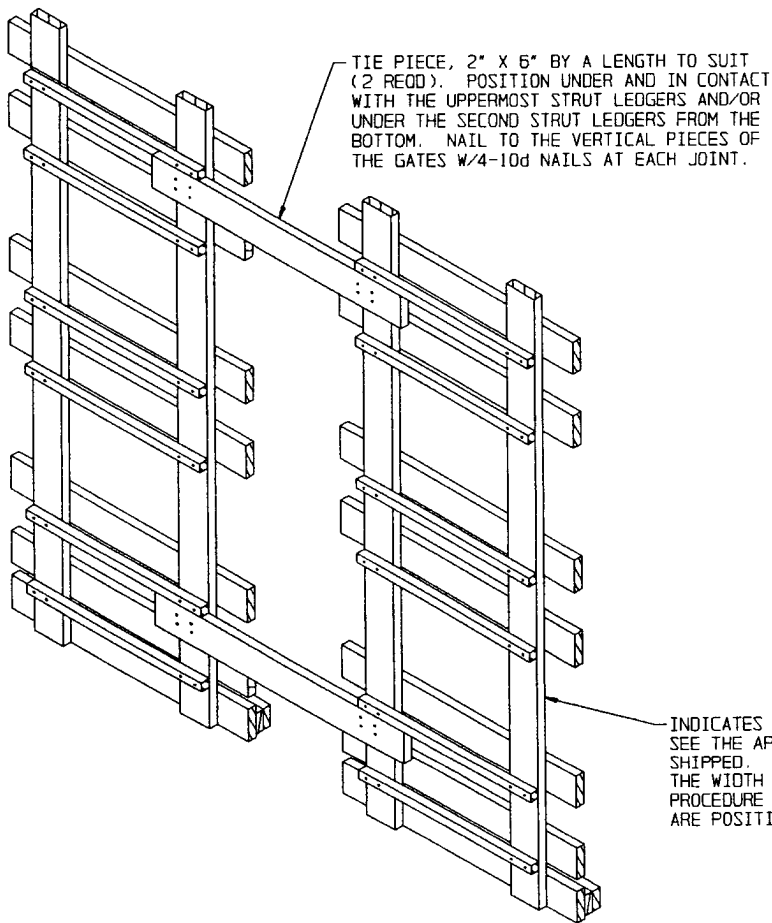
IF A BOXCAR TO BE LOADED HAS BOWED ENDWALLS WHICH ARE BOWED OUTWARD MORE THAN TWO INCHES EITHER FROM SIDE TO SIDE OR FROM FLOOR TO ROOF, AN END-OF-CAR BULKHEAD MUST BE INSTALLED TO PROVIDE A "SQUARED OFF" SURFACE FOR THE LOAD AT THE END OF THE CAR. THE BULKHEAD IS APPLICABLE FOR USE AT THE END OF A LOAD IN A CONVENTIONAL BOXCAR OR IN A CAR EQUIPPED WITH LOAD DIVIDER BULKHEADS, OR AT THE END OF A CAR EQUIPPED WITH MECHANICAL BRACING DEVICES, IF DESIRED, IN LIEU OF USING CROSS MEMBERS. THE BULKHEAD MAY BE FABRICATED FROM A CENTER GATE FOR THE UNIT THAT IS TO BE LOADED AND FOR THE UNIT POSITIONING (LENGTHWISE OR CROSSWISE). NOTE THAT THE GATE MUST BE MODIFIED BY OMITTING THE 2" X 2" STRUT LEDGERS AND THE GATE HOLD DOWN PIECES. A MODIFIED CENTER GATE "C", AS DETAILED ON PAGE 18 IS SHOWN AS TYPICAL.

PLYWOOD, 1/2" THICK BY THE CONTAINER WIDTH OR LENGTH BY THE LOAD HEIGHT (2 REOD). NAIL TO THE VERTICAL PIECES W/1-6d NAIL EVERY 6".
 NOTE: PLYWOOD MAY BE ALLOWED TO EXTEND BEYOND THE CONTAINER WIDTH, IF DESIRED.



INDICATES A TYPICAL CAR WIDTH CENTER GATE, WITH THE HORIZONTAL PIECES OMITTED (1 REOD). SEE THE APPLICABLE CENTER GATE DETAIL FOR LOCATION OF THE VERTICAL PIECES AND THE STRUT LEDGERS.

GATE HOLD DOWN PIECE MUST BE SECURED TO THE PLYWOOD.



TIE PIECE, 2" X 6" BY A LENGTH TO SUIT (2 REOD). POSITION UNDER AND IN CONTACT WITH THE UPPERMOST STRUT LEDGERS AND/OR UNDER THE SECOND STRUT LEDGERS FROM THE BOTTOM. NAIL TO THE VERTICAL PIECES OF THE GATES W/4-10d NAILS AT EACH JOINT.

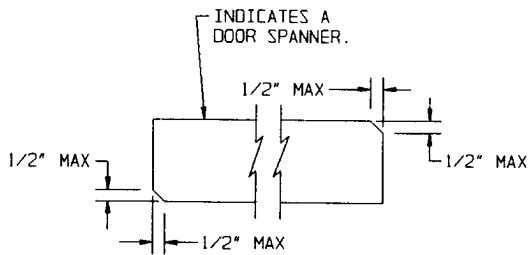
PLYWOOD CENTER GATE ALTERNATIVE

CENTER GATE "A" IS SHOWN AS TYPICAL. PLYWOOD MAY BE USED IN LIEU OF THE HORIZONTAL PIECES ON ANY CENTER GATE DEPICTED HEREIN, INCLUDING THOSE WHICH ARE FOR THE BRACING OF A SINGLE ROW.

INDICATES A TYPICAL CENTER GATE FOR A SINGLE ROW (2 REOD). SEE THE APPLICABLE CENTER GATE DETAIL FOR THE UNIT BEING SHIPPED. A GATE FOR CONTAINERS WHICH ARE POSITIONED WITH THE WIDTH PARALLEL TO THE CAR SIDEWALL IS SHOWN. THE PROCEDURE IS ALSO APPLICABLE TO GATES FOR CONTAINERS WHICH ARE POSITIONED WITH THE LENGTH PARALLEL TO THE CAR SIDEWALL.

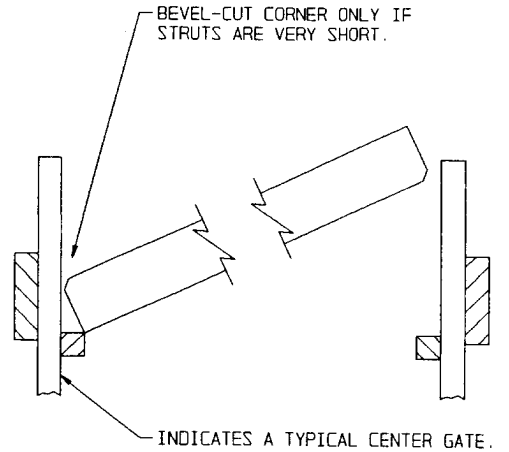
TIE PIECE APPLICATION

THIS PROCEDURE IS APPLICABLE FOR USE WITH ANY TWO CENTER GATES FOR SINGLE ROWS OF CONTAINERS. NOTE THAT THE TIE PIECES SHOULD BE APPLIED AFTER THE GATES AND STRUTS HAVE BEEN INSTALLED.



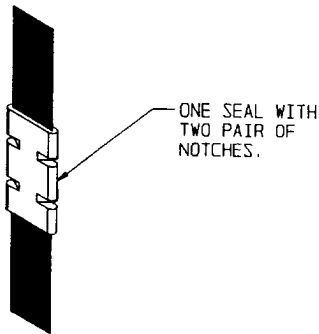
BEVEL-CUT

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



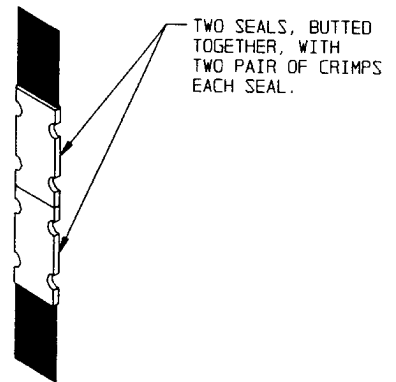
STRUT INSTALLATION

SEE GENERAL NOTE "S" ON PAGE 3 FOR ADDITIONAL STRUT INSTALLATION GUIDANCE.



STRAP JOINT A

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



STRAP JOINT B

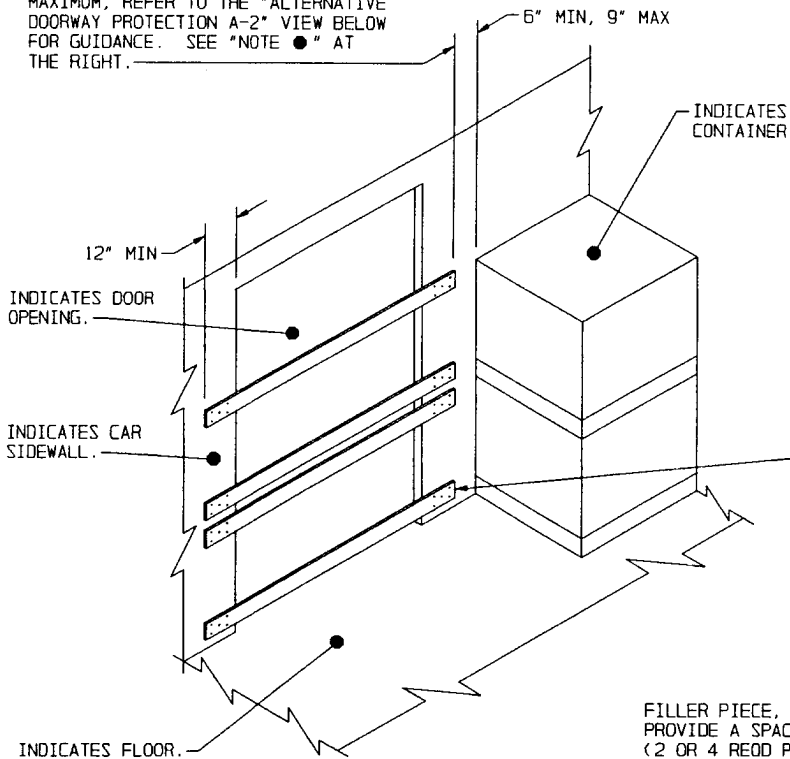
METHOD OF SECURING A STRAP JOINT WHEN USING A CRIMP-TYPE SEALER.

END-OVER-END LAP JOINT DETAILS

IF THE SPACE WILL BE MORE THAN 9" MAXIMUM, REFER TO THE "ALTERNATIVE DOORWAY PROTECTION A-2" VIEW BELOW FOR GUIDANCE. SEE "NOTE ●" AT THE RIGHT.

NOTE ●:

THE TOLERANCE DIMENSION (6" MIN, 9" MAX) IS ALLOWED TO PROVIDE FOR CLEARANCE DURING THE NORMAL LONGITUDINAL SHIFTING OF A LOAD IN TRANSIT, AND IS APPLICABLE WHEN ANTI-SWAY BRACING OR CRIB FILL IS USED FOR A LOAD AND ALSO WHEN THE EXCESS SPACE ACROSS THE CAR IS SMALL ENOUGH THAT ANTI-SWAY BRACING OR CRIB FILL IS NOT REQUIRED. IF AN EXCESS LATERAL SPACE IS FILLED BY NAILING LUMBER TO THE CAR SIDEWALL, AS IS PERMITTED BY SPECIAL NOTE 4 ON PAGE 9, THE DOOR SPANNERS WILL BE POSITIONED TO BUTT AGAINST THE FILL MATERIAL AND THE TOLERANCE DIMENSION WILL NOT APPLY. ALSO, THE FILLER PIECES SHOWN IN THE ALTERNATIVE DOORWAY PROTECTION A-2 VIEW WILL NOT BE USED. NOTE THAT THE THICKNESS OF THE DOOR SPANNER PIECES MUST EQUAL THE THICKNESS OF THE LUMBER FILL MATERIAL THAT IS NAILED TO THE CAR SIDEWALL.



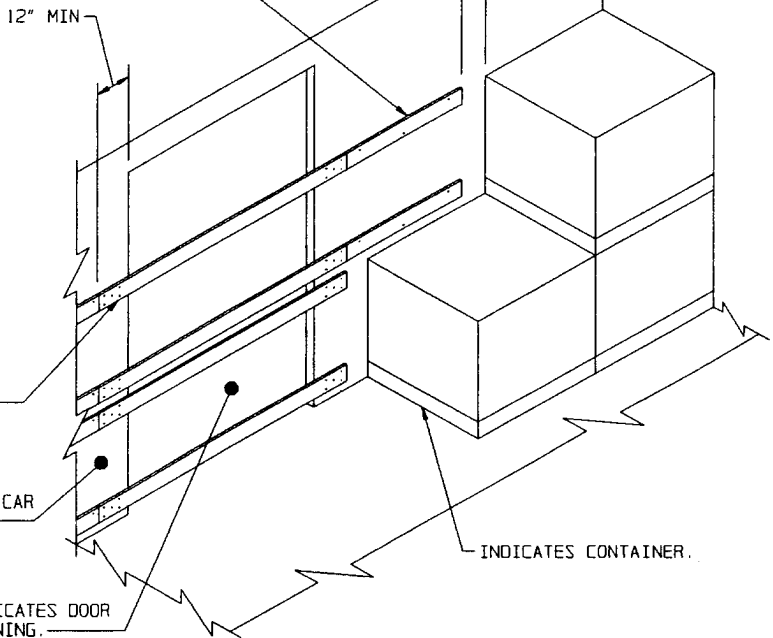
DOOR SPANNER, 1" X 6" BY DOOR OPENING WIDTH PLUS 24" (MIN) (2 REED PER LAYER). POSITION SO AS TO MATCH THE HEIGHTS SPECIFIED FOR THE HORIZONTAL PIECES OF THE DOORWAY PROTECTION DETAIL. NAIL TO THE CAR SIDEWALL W/5-6d NAILS AT EACH END. SEE "NOTE ●" ABOVE.

FILLER PIECE, 1" X 6" BY A LENGTH TO PROVIDE A SPACE OF BETWEEN 6" AND 9" (2 OR 4 REED PER LAYER). NAIL TO THE CAR SIDEWALL W/1-6d NAIL EVERY 8" (MINIMUM OF 2 NAILS). SEE "NOTE ●" ABOVE.

ALTERNATIVE DOORWAY PROTECTION A-1

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE ONLY FOR THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR. THE METHOD CAN ALSO BE USED IN CARS EQUIPPED WITH PLUG DOORS; HOWEVER, "ALTERNATIVE DOORWAY PROTECTION C" DETAILED ON PAGE 54 MUST BE USED ON THE LOADING SIDE.

6" MIN, 9" MAX SEE "NOTE ●" ABOVE.

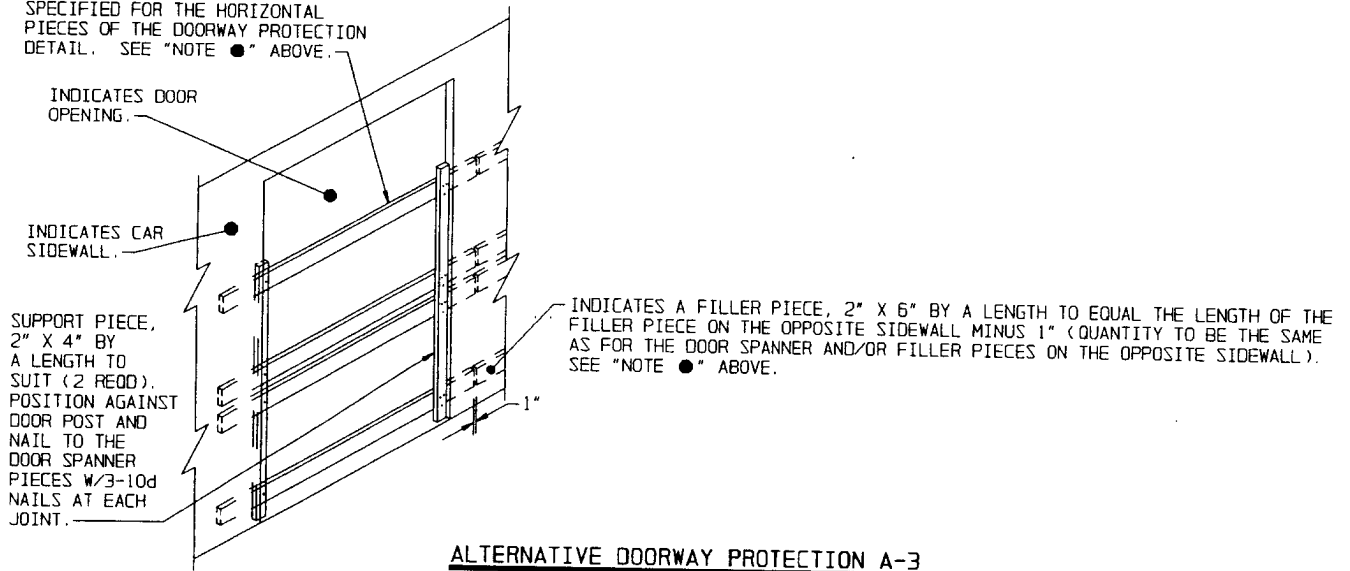


DOOR SPANNER, 1" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REED PER LAYER). POSITION SO AS TO MATCH THE HEIGHTS SPECIFIED FOR THE HORIZONTAL PIECES OF THE APPLICABLE DOORWAY PROTECTION DETAIL. NAIL TO THE CAR SIDEWALL W/5-6d NAILS AT EACH END. SEE "NOTE ●" ABOVE.

ALTERNATIVE DOORWAY PROTECTION A-2

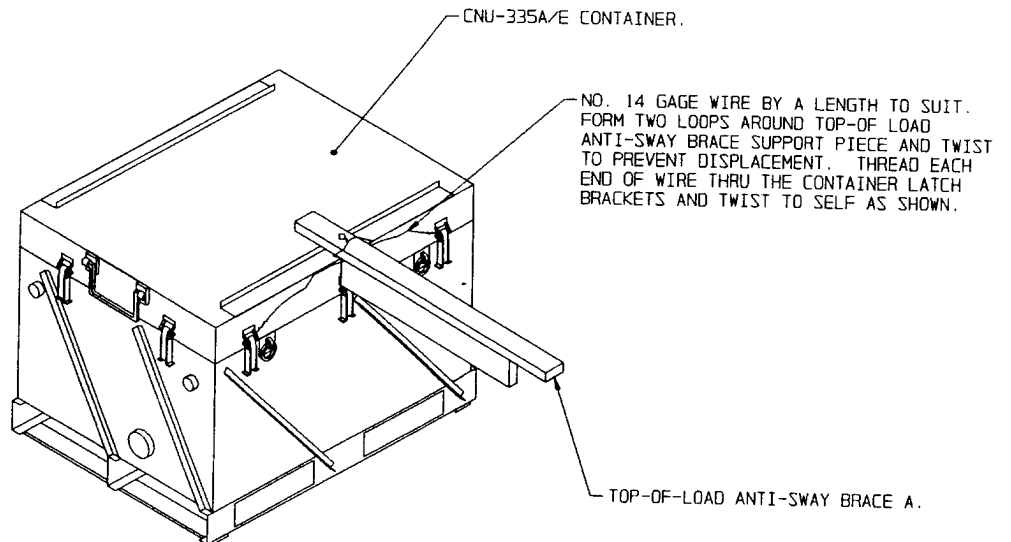
THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE ONLY FOR THE SIDE OPPOSITE THE LOADING SIDE OF THE CAR. SEE THE NOTE UNDER "A-1" PROCEDURES.

DOOR SPANNER, 2" (MIN) X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REOD PER LAYER). POSITION SO AS TO MATCH THE HEIGHTS SPECIFIED FOR THE HORIZONTAL PIECES OF THE DOORWAY PROTECTION DETAIL. SEE "NOTE ●" ABOVE.



ALTERNATIVE DOORWAY PROTECTION A-3

THIS VIEW DEPICTS THE DOOR OPENING OF A CAR AS IT APPEARS WHEN LOOKING AT IT FROM OUTSIDE OF THE CAR. THE METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS HAVING NAILABLE SIDEWALLS AND EQUIPPED WITH CONVENTIONAL SLIDING DOORS, AND IS APPLICABLE FOR THE LOADING SIDE OF THE CAR. NOTE THAT THE ADJACENT CONTAINERS MUST BE POSITIONED APPROXIMATELY 1-3/4" (REF) FROM THE CAR SIDEWALL (1/4" MORE THAN THE THICKNESS OF THE DOOR SPANNER PIECES) TO FACILITATE THE INSTALLATION OF THESE DOOR SPANNER PIECES. THE VIEW SHOWN ABOVE IS FOR A TWO-LAYER LOAD.

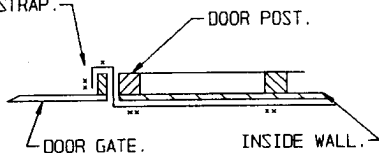


TIE WIRE APPLICATION

HORIZONTAL PIECE, 1" X 6" BY DOOR OPENING WIDTH (2 REOD PER LAYER). NAIL TO THE VERTICAL PIECES W/3-6d NAILS AT EACH END. SEE THE APPLICABLE DOORWAY PROTECTION DETAIL FOR HEIGHT LOCATIONS.

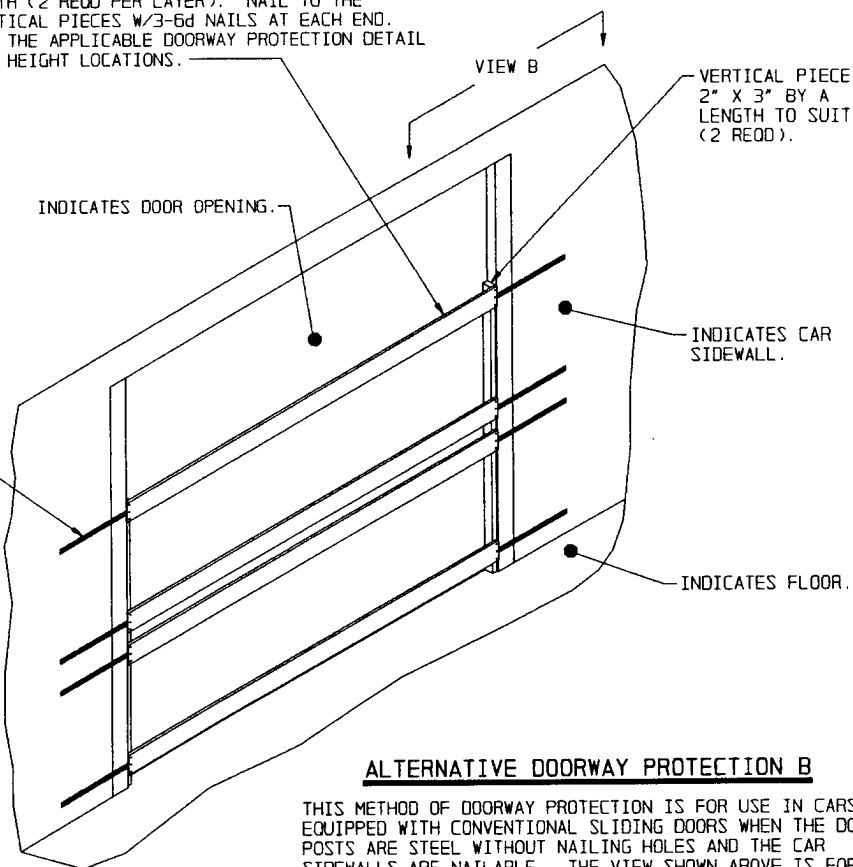
DOORWAY PROTECTION-GATE STRAP, 1-1/4" X .035" X 3'-0" (REF) NAIL-ON TYPE STEEL STRAPPING (4 REOD PER LAYER OF LOAD). NAIL TO GATE AND CAR SIDEWALL AS SHOWN BY THE "VIEW B" SKETCH BELOW. NOTE THAT TYPE I STRAPPING MAY BE PUNCHED FOR NAILING IF TYPE 3 STRAPPING IS NOT AVAILABLE.

INDICATES LOCATION OF 7 (MIN) 4d NAILS PER STRAP.



VIEW B

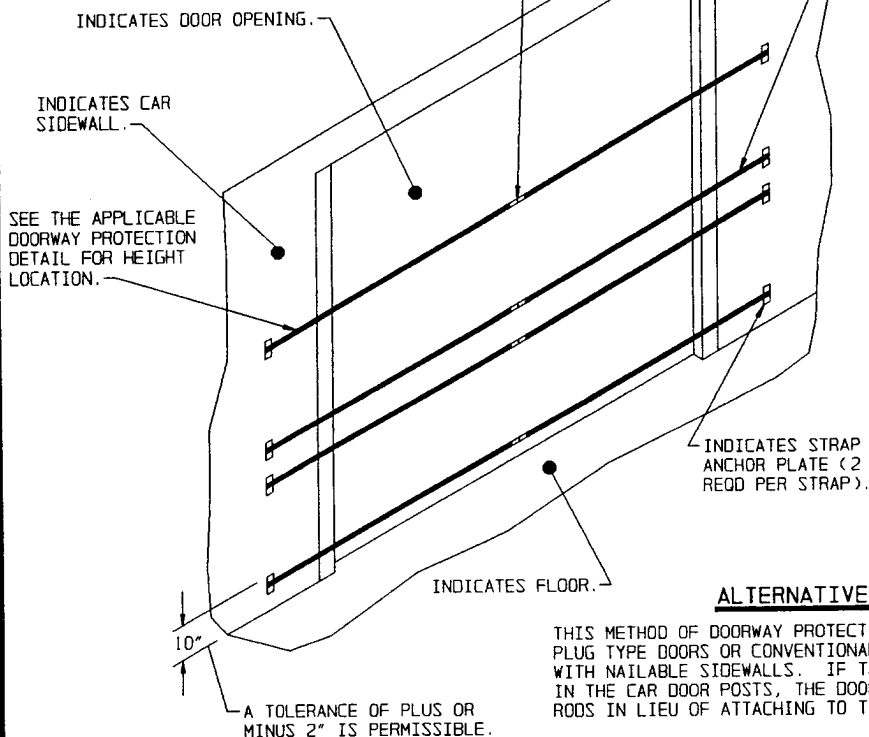
THIS VIEW DEPICTS THE LOCATION OF THE NAILS FOR SECURING THE DOORWAY PROTECTION GATE STRAP. NOTE THAT THE STRAPS MUST BE APPLIED TO THE CAR SIDEWALL PRIOR TO POSITIONING THE ADJACENT UNITS.



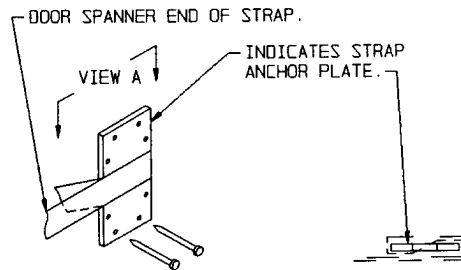
ALTERNATIVE DOORWAY PROTECTION B

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS WHEN THE DOOR POSTS ARE STEEL WITHOUT NAILING HOLES AND THE CAR SIDEWALLS ARE AVAILABLE. THE VIEW SHOWN ABOVE IS FOR A TWO-LAYER LOAD.

SEAL FOR 1-1/4" STRAP (2 REOD PER STRAP). DOUBLE CRIMP EACH SEAL.



DOORWAY PROTECTION STRAP, 1-1/4" X .035" OR .031" STEEL STRAPPING BY DOOR OPENING WIDTH PLUS 8'-0" IN LENGTH (2 REOD PER LAYER). INSTALL FROM TWO PIECES. THREAD ONE END THRU A STRAP ANCHOR PLATE AS SHOWN BY THE "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAILS BELOW. NAIL STRAP ANCHOR PLATE TO CAR SIDEWALL W/4 SIGNODE MICRO-LOCK NAILS.



ISOMETRIC VIEW

VIEW A

APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE

THESE VIEWS DEPICT THE PROPER THREADING OF A DOORWAY PROTECTION STRAP THRU AN ANCHOR PLATE.

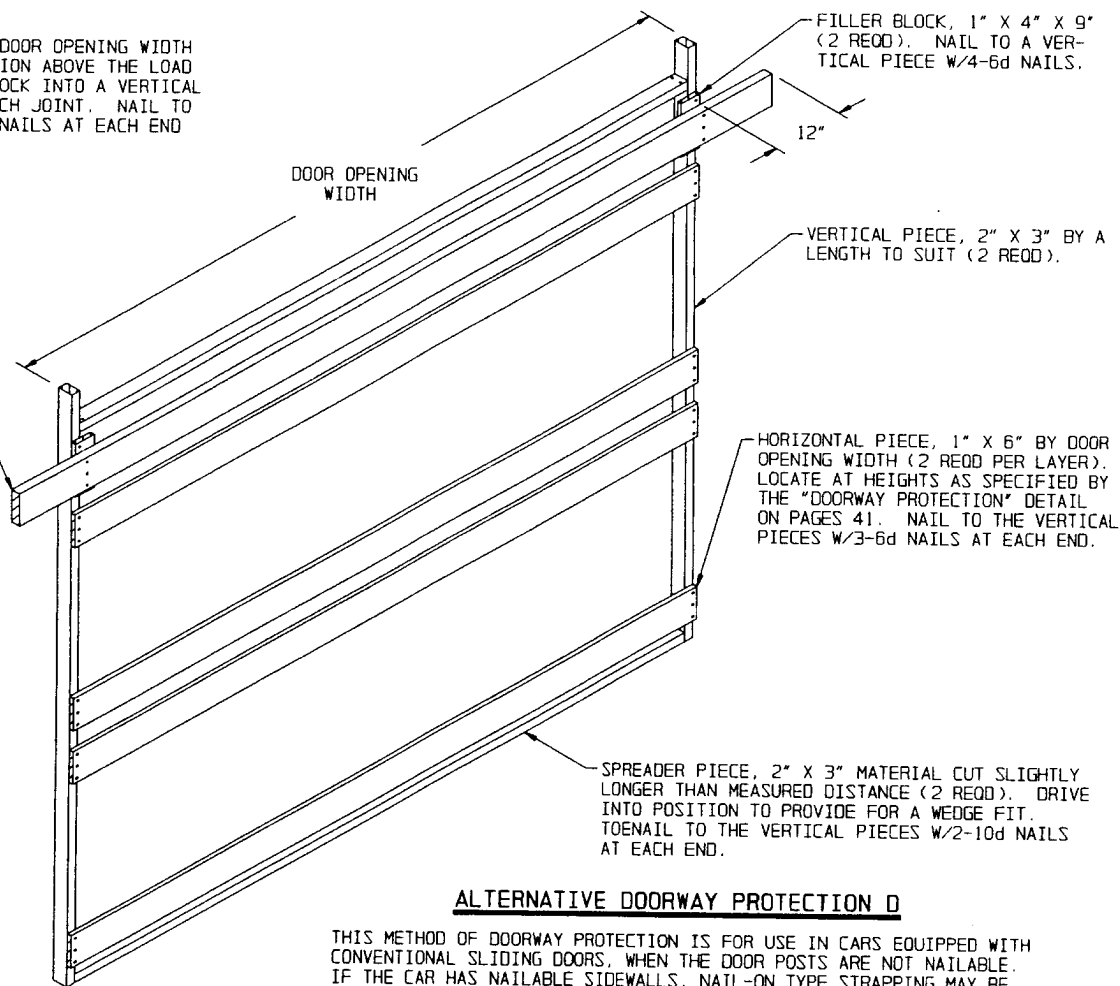
ALTERNATIVE DOORWAY PROTECTION C

THIS METHOD OF DOORWAY PROTECTION MAY BE USED 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.

10"
A TOLERANCE OF PLUS OR MINUS 2" IS PERMISSIBLE.

DOORWAY PROTECTION

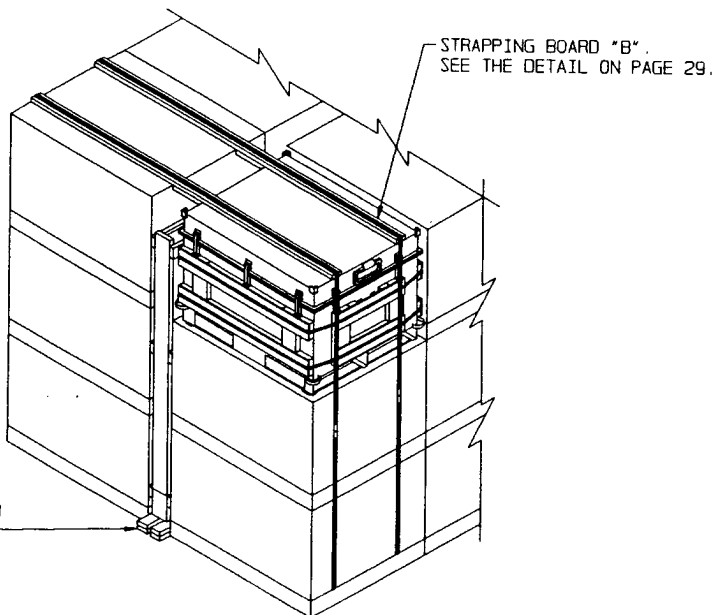
DOOR SPANNER, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (1 REOD). POSITION ABOVE THE LOAD AND NAIL THRU A FILLER BLOCK INTO A VERTICAL PIECE W/3-12d NAILS AT EACH JOINT. NAIL TO THE CAR SIDEWALL W/2-12d NAILS AT EACH END (OPTIONAL).



ALTERNATIVE DOORWAY PROTECTION D

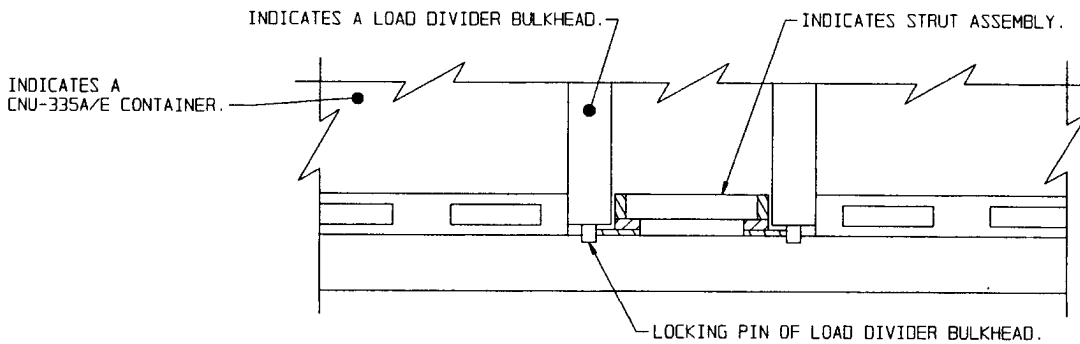
THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS, WHEN THE DOOR POSTS ARE NOT NAILABLE. IF THE CAR HAS NAILABLE SIDEWALLS, NAIL-ON TYPE STRAPPING MAY BE USED TO SECURE THE GATE IN LIEU OF USING THE SPREADER PIECES. SEE THE "ALTERNATIVE DOORWAY PROTECTION B" DETAIL ON PAGE 54 FOR GUIDANCE.

FLOORLINE BLOCKING, 2" X 4" X 52" (DOUBLED) (2 REOD). NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. IF A WIDER CAR IS PROVIDED FOR THE DEPICTED LOAD, USE DOUBLED 2" X 6" MATERIAL FOR ONE OR FOR BOTH SIDE BLOCKING PIECES, TO PROVIDE SUPPORT FOR THE DEPICTED CRIB FILL.



ALTERNATIVE DOORWAY PROTECTION E

DOORWAY PROTECTION

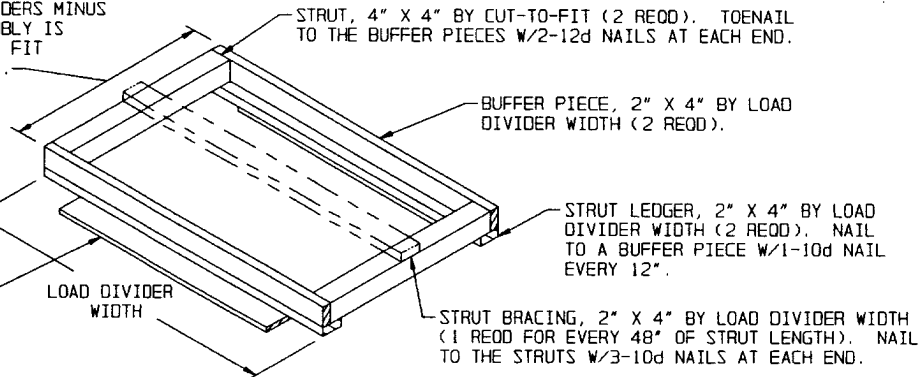


INSTALLATION OF STRUT ASSEMBLY

THIS SIDE ELEVATION 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.

HOLD DOWN, 1" X 8" BY CUT-TO-FIT BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER (2 REOD). NAIL TO THE STRUT LEDGER W/1-6d NAIL EVERY 12".

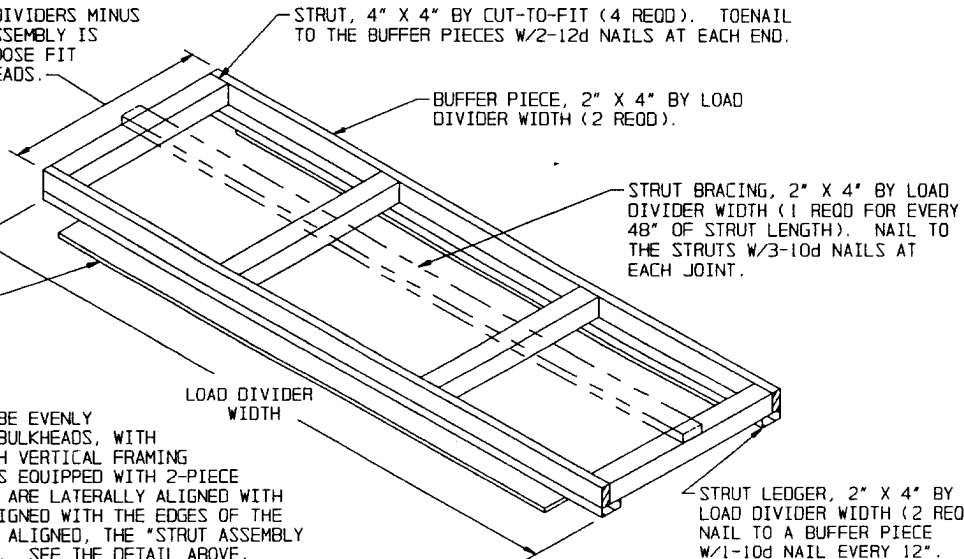


STRUT ASSEMBLY FOR 2-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD. NOTE: TWO ASSEMBLIES AS SHOWN ARE REQUIRED FOR A 2-PIECE BULKHEAD IF NOT LATERALLY ALIGNED. SEE "NOTE ▲" BELOW.

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.

HOLD DOWN, 1" X 8" BY CUT-TO-FIT BETWEEN LOCKING PINS AT EACH SIDE OF THE LOAD DIVIDER (2 REOD). NAIL TO THE STRUT LEDGER W/1-6d NAIL EVERY 12".

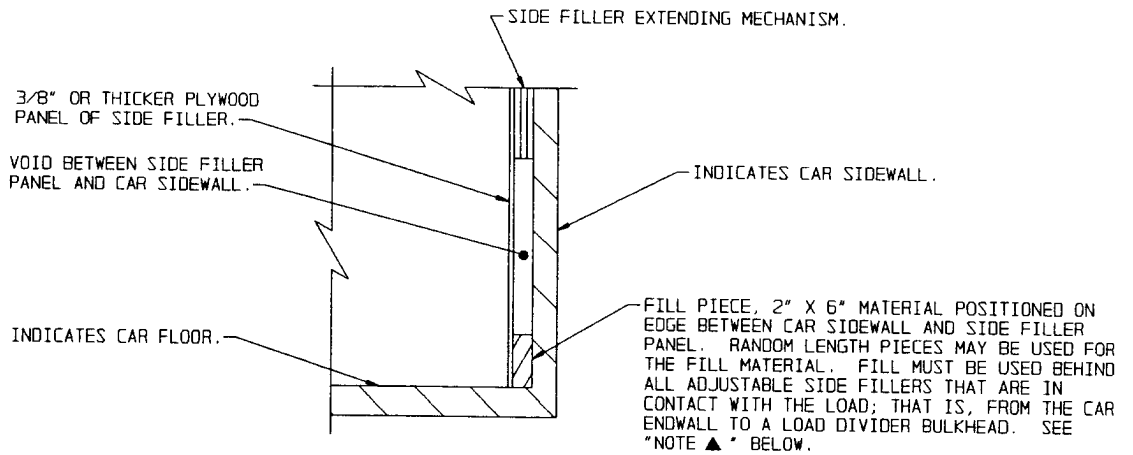


NOTE ▲:

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. IF THE CAR IS EQUIPPED WITH 2-PIECE DIVIDER BULKHEADS AND THE BULKHEADS ARE LATERALLY ALIGNED WITH EACH OTHER, THE STRUTS SHOULD BE ALIGNED WITH THE EDGES OF THE BULKHEADS; IF THE BULKHEADS ARE NOT ALIGNED, THE "STRUT ASSEMBLY FOR 2-PIECE BULKHEADS" MUST BE USED. SEE THE DETAIL ABOVE.

STRUT ASSEMBLY FOR 1-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS OF HAZARD CLASS AND DIVISION 1.1, 1.2, OR 1.3 EXPLOSIVES. A STRUT ASSEMBLY IS NOT REQUIRED FOR LOADS OF HAZARD CLASS AND DIVISION 1.4 EXPLOSIVES, REGARDLESS OF THE WEIGHT OF THE LOAD.

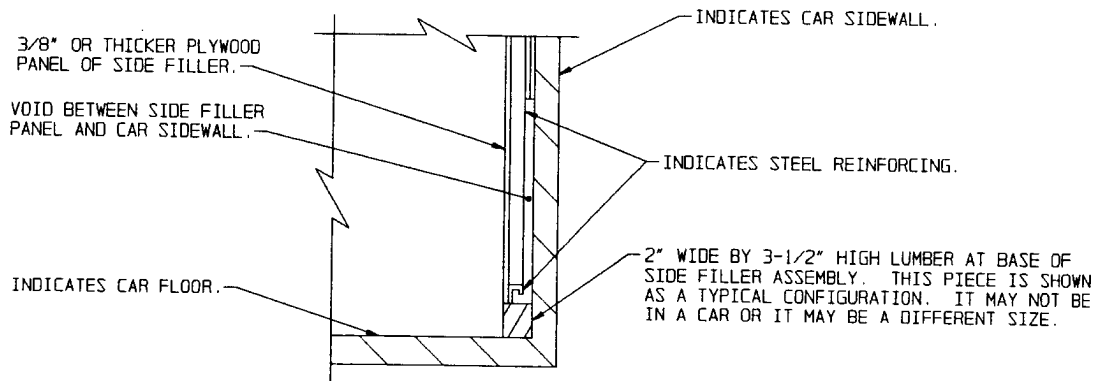


TYPICAL TYPE A

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.

