APPROVED BY
BUREAU OF EXPLOSIVES
A. F. Grassmuck
SUPERVISOR, MILITARY & INTERMODAL SERVICES
DATE 7/18/75

LOADING AND BRACING (CL & LCL) IN BOX CARS⌖ OF 2.75-INCH ROCKET PACKED 25 PER CLEATED PLYWOOD BOX

INDEX

⌖INCLUDES PROCEDURES FOR CONVENTIONAL TYPE BOX CARS; BOX CARS EQUIPPED WITH MECHANICAL BRACING DEVICES OF VARIOUS DESIGN AND MANUFACTURE; AND CUSHIONED BOX CARS EQUIPPED WITH LOAD DIVIDER BULKHEADS.

DO NOT SCALE

REVISIONS			

DRAFTSMAN GRG | PROJ ENG M.W.D
CHECKER | LOG ENGRG OFFICE
APPROVED
Robert V. Smith
U. S. ARMY ARMAMENT COMMAND
APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL COMMAND
A. S. Ehringer
USAMC AMMO CENTER

U.S. ARMY MATERIEL COMMAND
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GENERAL NOTES

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

B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE 2.75-INCH ROCKET WHEN PACKAGED TWENTY-FIVE (25) ROCKETS PER SMALL OR LARGE CLEATED PLYWOOD BOX. SUBSEQUENT REFERENCE TO CONTAINER MEANS THE CLEATED PLYWOOD BOX WITH CONTENTS.

C. FOR DETAILS OF THE SMALL CLEATED PLYWOOD BOX SEE DRAWING NO. 9235841.

BOX DIMENSIONS --- 61" LONG X 20-3/16" WIDE X 24-15/16" HIGH.
GROSS WEIGHT ----- 760 POUNDS (APPROX).
CUBE ------------- 17.9 CUBIC FEET.

D. FOR DETAILS OF THE LARGE CLEATED PLYWOOD BOX SEE DRAWING NO. 9235840.

BOX DIMENSIONS --- 71" LONG X 20-3/16" WIDE X 24-15/16" HIGH.
GROSS WEIGHT ----- 978 POUNDS (APPROX).
CUBE ------------- 20.9 CUBIC FEET.

E. THE LOADING PATTERNS SPECIFIED FOR THE LOADS SHOWN HEREIN DEPICT THE OUTLOADING OF CONTAINERS IN A TWO-CONTAINER UNITIZED CONFIGURATION TO THE MAXIMUM EXTENT POSSIBLE. HOWEVER, IT IS TO BE NOTED THAT UNITIZING OF CONTAINERS IS ONLY REQUIRED WHEN A BOXCAR SHIPMENT OF THE DESIGNATED ITEMS IS DESTINED FOR OVERSEAS MOVEMENT BY A BREAK-BULK SHIP. UNITIZATION PROVIDES FOR STACK STABILITY WHEN STOWED ABOARD SHIP. IN SOME LOADS, TO EFFICIENTLY UTILIZE CAR SPACE, IT WILL BE NECESSARY TO ALSO LOAD A QUANTITY OF INDIVIDUAL CONTAINERS (NOT UNITIZED). UNITIZATION AND HANDLING PROCEDURES ARE SPECIFIED ON PAGE 3. IF THE CAPACITY OF THE MATERIALS HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD A CAR PERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT IN THE CAR. NOTICE: IN SOME INSTANCES CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED CONTAINERS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED.

F. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE BASED ON CONVENTIONAL BOXCARS, OR ARE BASED ON BOXCARS EQUIPPED WITH MECHANICAL BRACING DEVICES HAVING ADJUSTABLE AND/OR FIXED WALL MEMBERS. PROCEDURES ARE ALSO INCLUDED FOR SHIPMENTS IN CUSHIONED BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS. THE LOAD VIEWS DEPICT BOXCARS HAVING VARIOUS WIDTH THROUGH DOOR OPENINGS WITH DOORS OF THE CONVENTIONAL SLIDING TYPE. HOWEVER, THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO CARS WHICH ARE EQUIPPED WITH STAGGERED DOORS AND/OR PLUG TYPE DOORS. SEE GENERAL NOTES "G", "H" AND "J" BELOW FOR ADDITIONAL REQUIREMENTS APPLICABLE TO THE SPECIFIC TYPE OF CAR TO BE LOADED.

G. THE LOADS AS SHOWN ON PAGES 4 THRU 13 ARE FOR CONVENTIONAL TYPE BOXCARS HAVING NAILABLE FLOORS. ALL METAL CARS WITH NAILABLE FLOORS CAN BE USED, EXCEPT FOR SHIPMENT OF A PARTIAL LAYER REQUIRING THE USE OF A K-BRACE AS TYPICALLY SHOWN IN THE LOAD VIEW ON PAGE 4.

H. THE LOADS AS SHOWN ON PAGES 24 THROUGH 29 ARE FOR BOXCARS EQUIPPED WITH MECHANICAL BRACING DEVICES, AND 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 HEREIN. CAUTION: BOXCARS EQUIPPED WITH MEMBERS WHICH DO NOT MEET THE LOCATION REQUIREMENTS MUST NOT BE USED.

1. A CROSS MEMBER, WHEN USED AS SPECIFIED BY ANY ONE OF THE DEPICTED OUTLOADING METHODS, WILL NOT BE RELIED UPON TO RETAIN MORE THAN 4,000 POUNDS OF LADING ON EITHER SIDE OF THE MEMBER. 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 PERMITS. 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).

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

LUMBER ---------- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.

NAILS ---------- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED, FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.

WIRE ---------- : FED SPEC QQ-W-461.

STRAPPING, STEEL ------ : TYPE I OR IV, FINISH A OR B; FED SPEC QQ-S-781.

STRAP SEAL, STAPLE ---- : COMMERCIAL GRADE.

(GENERAL NOTES CONTINUED)

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.

3. IF A CAR HAS A "BOWED END", RATHER THAN SQUARING OFF THE END BY INSTALLING DUNNAGE, ADDITIONAL CROSS MEMBERS CAN BE INSTALLED NEAR THE END OF THE CAR TO PROVIDE A "SQUARED" END. THESE CROSS MEMBERS MUST BE INSTALLED IN THE SAME QUANTITY AND AT THE SAME HEIGHTS AS THE CROSS MEMBERS USED THROUGHOUT THE LOAD AS LOAD BLOCKING MEMBERS.

J. THE LOADS AS SHOWN ON PAGES 32 THROUGH 40, ARE FOR CUSHIONED BOXCARS WHICH ARE EQUIPPED WITH LOAD DIVIDER BULKHEADS AND WITH OR WITHOUT ADJUSTABLE SIDE FILLERS. CAUTION: 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. ALSO, ONLY CUSHIONED CARS THAT HAVE SLIDING CENTER SILL TYPE CUSHIONING DEVICES OR END-OF-CAR TYPE DEVICES WHICH HAVE AT LEAST FIFTEEN INCHES (15") OF TRAVEL ARE ACCEPTABLE.

1. 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 40 FOR GUIDANCE. IF THE BACKS OF THE SIDE FILLER PANELS ARE REINFORCED WITH VERTICAL AND HORIZONTAL STEEL MEMBERS AS SHOWN IN THE "TYPICAL TYPE B" VIEW ON PAGE 40, THE "FILL PIECE" MATERIAL IS NOT REQUIRED. NOTE: DUNNAGE MATERIALS MUST NOT BE NAILED TO SIDE FILLERS.

2. 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.

3. CAUTION: THE WEIGHT OF THE LOAD TO BE RETAINED BY ONE LOAD DIVIDER BULKHEAD MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT WHICH IS STENCILED ON THE SIDE OF THE CAR.

K. NOTICE: A SHIPMENT WILL BE POSITIONED IN THE CAR IN COMPLIANCE WITH THE WEIGHT DISTRIBUTION REQUIREMENTS OF THE AAR. THE TOTAL WEIGHT OF A LOAD IN A CAR MUST NOT EXCEED THE LOAD LIMIT WHICH IS STENCILED ON THE SIDE OF THE CAR. ALSO, THE LOAD WEIGHT ON THE TRUCK UNDER ONE END OF THE CAR MUST NOT EXCEED ONE-HALF OF THE LOAD LIMIT.

L. 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 DESIGNATED ITEMS.

M. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CONTAINERS WHEN THEY ARE EMPTY OR LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE.

N. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN A CAR WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE 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.

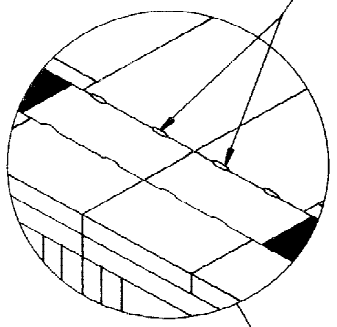
O. DOORWAY PROTECTION REQUIREMENTS WITHIN THE "DOORWAY AREA" OF A CAR ARE INCLUDED IN THE PROCEDURES AND ARE APPLICABLE TO CARS HAVING EITHER CONVENTIONAL SLIDING AND/OR PLUG TYPE DOORS. THE "DOORWAY AREA" WITHIN A CAR IS DEFINED AS THE CARGO SPACE THAT IS ADJACENT TO A CONVENTIONAL TYPE AND/OR PLUG TYPE DOOR. THE LENGTH OF A "DOORWAY AREA" CAN BE AS MUCH AS 24 FEET IN SOME CARS THAT ARE EQUIPPED WITH STAGGERED DOORS. CAUTION: DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN, EXCEPT TO A NAILING STRIP FOR SECURING SUCH ITEMS AS THE DOORWAY SPANNER PIECE OF A K-BRACE ASSEMBLY, IF A DOOR IS SO EQUIPPED. 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 THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER.

P. IF THE CAR BEING USED FOR A SHIPMENT IS EQUIPPED WITH A NAILABLE METAL FLOOR AND THE NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDE WALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED FOR THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF THE NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED IN LIEU OF THOSE SPECIFIED IN THE KEY NUMBERS.

Q. 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 OR 1-5/8" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE OR 1-5/8" THICK BY 5-5/8" WIDE. IF THOSE MEMBERS SPECIFICALLY IDENTIFIED AS "STRUTS" WITHIN THE KEY NUMBERS OF A DEPICTED LOAD ARE SPECIFIED TO BE DOUBLED 2" THICK MATERIAL AND LAMINATED, IT IS PERMISSIBLE TO USE 4" X 4" MATERIAL IN LIEU OF TWO LAMINATED PIECES OF 2" X 6" MATERIAL.

(CONTINUED ON PAGE 3)

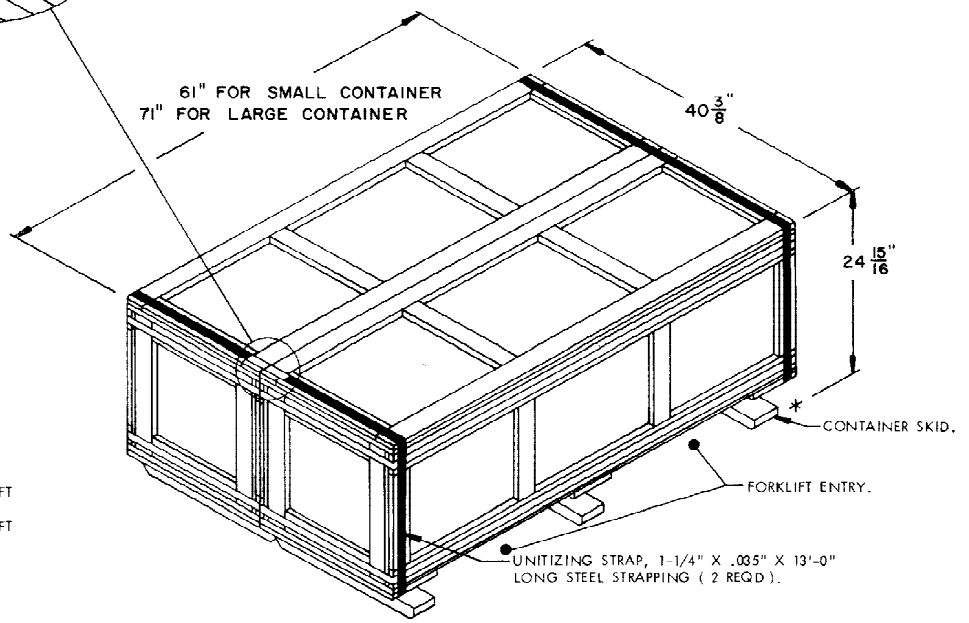
SEAL FOR 1-1/4" STEEL STRAPPING (2 REQD PER UNITIZING STRAP). DOUBLE CRIMP EACH SEAL AS SHOWN. SEE GENERAL NOTE "S" BELOW.



SPECIAL NOTES:

1. IT IS RECOMMENDED THAT CONTAINERS BE UNITIZED PRIOR TO PLACEMENT IN THE CAR. NOTICE: IN SOME INSTANCES CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED CONTAINERS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STEEL STRAPPING MUST BE REPLACED.

2. WHEN TWO CONTAINERS ARE UNITIZED AS SHOWN, THE 2-CONTAINER UNIT MAY BE "MARKED" TO REFLECT THE TOTAL WEIGHT AND CUBE OF THE COMBINED UNIT. HOWEVER, INDIVIDUAL CONTAINERS MUST BE "MARKED" PROPERLY WITH INDIVIDUAL WEIGHT AND CUBE DATA WHEN THE CONTAINERS ARE NOT UNITIZED. IT IS TO BE NOTED THAT OLD 2-CONTAINER MARKINGS MUST BE OBLITERATED WHEN CONTAINERS ARE SEPARATED INTO SINGLE-CONTAINER UNITS.



UNIT DATA:

TWO SMALL CONTAINERS
1,520 LBS (APPROX); 35.8 CU FT
TWO LARGE CONTAINERS
1,956 LBS (APPROX); 41.8 CU FT
SEE SPECIAL NOTE 2 ABOVE.

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

1. POSITIONING CONTAINERS FOR UNITIZING.

   A. ALIGN TWO (2) CONTAINERS SIDE BY SIDE AS CLOSELY AS POSSIBLE.

2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTE "S" AT RIGHT.

   A. POSITION EACH UNITIZING STRAP AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING NEAR OUTSIDE OF END SKID AND SO THAT STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS: I.E., VERTICAL ALONG THE SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE UNIT.

   B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO (2) DOUBLE CRIMPED STRAP SEALS AS SHOWN. THE LAP JOINT WILL BE MADE ACROSS THE TOP OF THE UNIT. DURING STRAP TENSIONING, CARE SHOULD BE EXERCISED TO ENSURE THAT CONTAINERS ARE NOT DAMAGED, BUT SO THAT THE STRAPPING CRUSHES SLIGHTLY INTO THE OUTSIDE EDGES OF THE CONTAINERS. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.

3. CONTAINER OR CONTAINER UNIT HANDLING.

   NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN EQUIPMENT SUCH AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.
   (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

   A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CONTAINERS.

   B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CONTAINERS SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER OR A CONTAINER UNIT, TO PREVENT DAMAGE TO A CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD.

UNITIZING DETAIL

SEE GENERAL NOTE "E" ON PAGE 2 AND SPECIAL NOTES ABOVE.

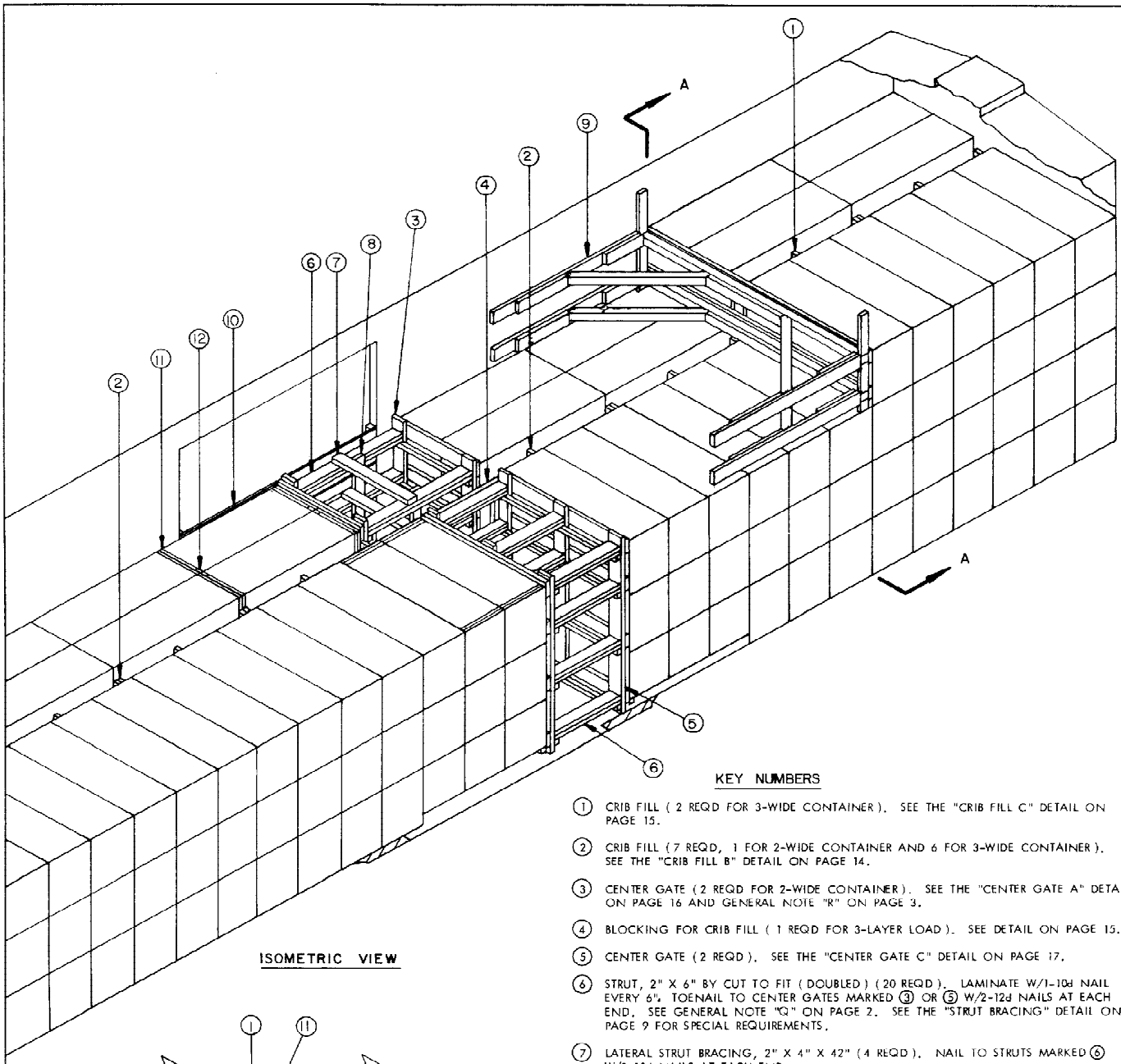
(GENERAL NOTES CONTINUED FROM PAGE 2)

R. 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.

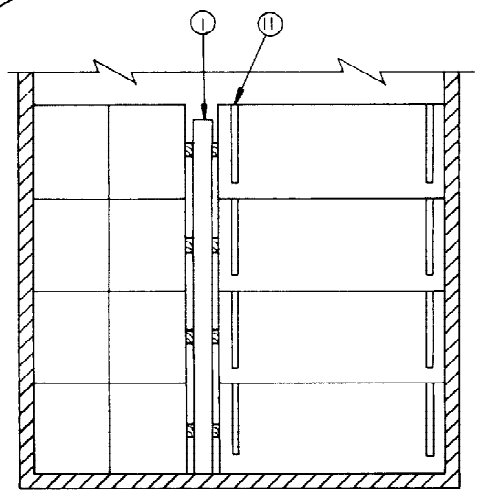
S. WHEN ANY STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL WILL BE USED TO SEAL THE JOINT. CAUTION: EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO THE LADING ITEMS.

T. THROUGHOUT THIS PROCEDURAL DRAWING, PORTIONS OF THE BLOCKING COMPONENTS AND OF THE DEPICTED CARS, SUCH AS A CAR SIDE WALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.

U. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO THE DEPICTED OUTLOADING METHODS.



ISOMETRIC VIEW



SECTION A-A

KEY NUMBERS

(1) CRIB FILL (2 REQD FOR 3-WIDE CONTAINER). SEE THE "CRIB FILL C" DETAIL ON PAGE 15.

(2) CRIB FILL (7 REQD, 1 FOR 2-WIDE CONTAINER AND 6 FOR 3-WIDE CONTAINER). SEE THE "CRIB FILL B" DETAIL ON PAGE 14.

(3) CENTER GATE (2 REQD FOR 2-WIDE CONTAINER). SEE THE "CENTER GATE A" DETAIL ON PAGE 16 AND GENERAL NOTE "R" ON PAGE 3.

(4) BLOCKING FOR CRIB FILL (1 REQD FOR 3-LAYER LOAD). SEE DETAIL ON PAGE 15.

(5) CENTER GATE (2 REQD). SEE THE "CENTER GATE C" DETAIL ON PAGE 17.

(6) STRUT, 2" X 6" BY CUT TO FIT (DOUBLED) (20 REQD). LAMINATE W/1-10d NAIL EVERY 6". TOENAIL TO CENTER GATES MARKED (3) OR (5) W/2-12d NAILS AT EACH END. SEE GENERAL NOTE "Q" ON PAGE 2. SEE THE "STRUT BRACING" DETAIL ON PAGE 9 FOR SPECIAL REQUIREMENTS.

(7) LATERAL STRUT BRACING, 2" X 4" X 42" (4 REQD). NAIL TO STRUTS MARKED (6) W/3-10d NAILS AT EACH END.

(8) VERTICAL STRUT BRACING, 2" X 4" X 6'-6" (2 REQD). NAIL TO STRUTS MARKED (6) W/3-10d NAILS AT EACH JOINT.

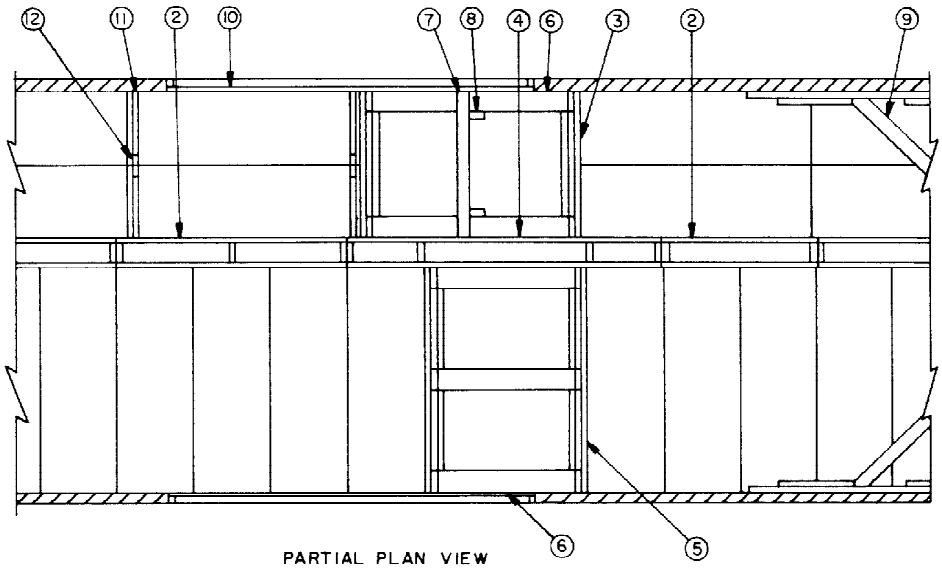
(9) PARTIAL LAYER BRACING (1 REQD). SEE THE "K-BRACE ASSEMBLY" DETAIL AND THE SPECIAL NOTES ON PAGE 13. ALSO, SEE SPECIAL NOTE 2 ON PAGE 5.

(10) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION A" DETAIL ON PAGE 23. SEE SPECIAL NOTE 6 ON PAGE 5.

(11) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (148 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(12) SEAL FOR 1-1/4" STRAPPING (296 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

148-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (CONVENTIONAL) (SMALL CONTAINER)



PARTIAL PLAN VIEW

SPECIAL NOTES:

1. A 148-UNIT LOAD OF SMALL CONTAINERS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR HAVING A LOAD LIMIT OF NOT LESS THAN 121,900 POUNDS, AND EQUIPPED WITH NAILABLE SIDEWALLS AND 8'-0" WIDE CONVENTIONAL SLIDING DOORS. WIDER OR NARROWER CARS CAN BE USED BY ADJUSTING THE WIDTH OF THE CRIB FILL AND BLOCKING FOR CRIB FILL, PIECES MARKED ①, ② AND ④. ALL METAL CARS CAN BE USED FOR FULL-LAYER LOADS BUT NOT FOR SHIPMENTS REQUIRING PARTIAL LAYER BRACING. SEE GENERAL NOTE "K" ON PAGE 2.

2. THE PARTIAL LAYER BRACING, PIECE MARKED ⑨, IS ONLY SHOWN AS A TYPICAL APPLICATION. IF THE DEPICTED 10-CONTAINER PARTIAL LAYER IS OMITTED FROM THE LOAD, A 138-UNIT (3 LAYER) LOAD CAN BE SHIPPED IN A CAR HAVING A LOAD LIMIT OF 107,900 POUNDS OR MORE. HOWEVER, IF THE LOAD LIMIT OF THE CAR BEING LOADED IS AT LEAST 124,300 POUNDS, A 158-UNIT LOAD CAN BE SHIPPED BY LOADING A 10-CONTAINER PARTIAL LAYER IN EACH END OF THE CAR AND APPLYING THE PARTIAL LAYER BRACING PROCEDURES AT BOTH LOCATIONS.

3. IF A HIGH CAPACITY CAR IS OFFERED FOR SHIPMENT, AND THE LOAD LIMIT OF THE CAR IS NOT LESS THAN 143,700 POUNDS, A FULL 4-LAYER LOAD OF 184 CONTAINERS CAN BE SHIPPED BY APPLYING THE PROCEDURES DEPICTED AND OMITTING THE PARTIAL LAYER BRACING, PIECE MARKED ⑨. HOWEVER, CRIB FILL C, BLOCKING FOR CRIB FILL, CENTER GATES B AND D, AND DOORWAY PROTECTION B, FOR A 4-LAYER LOAD, AS DETAILED ON PAGES 14, 16, 17 AND 23, MUST BE PROVIDED IN LIEU OF PIECES MARKED ②, ③, ④, ⑤, AND ⑩. ALSO, FIVE (5) ADDITIONAL STRUTS MARKED ⑥, AND ONE (1) ADDITIONAL LATERAL STRUT BRACING PIECE, MARKED ⑦, MUST BE PROVIDED. VERTICAL STRUT BRACING, PIECES MARKED ⑧, MUST BE 8'-6" LONG.

4. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO THE SHIPMENT OF A 3-LAYER LOAD OF 108 CONTAINERS OR A 4-LAYER LOAD OF 144 CONTAINERS IN A 40'-6" LONG CAR. THE PROCEDURES FOR PARTIAL LAYER BRACING CAN ALSO BE USED FOR VARIOUS QUANTITIES IF THE CAR HAS NAILABLE SIDEWALLS.

5. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS, ONE OR TWO LATERALLY POSITIONED STACKS MAY BE OMITTED AT THE CENTER OF THE CAR, OR THE PARTIAL LAYER MAY BE OMITTED OR REDUCED IN QUANTITY OF CONTAINERS, OR A COMPLETE LAYER MAY BE OMITTED. ALSO, TO SATISFY THE QUANTITY TO BE SHIPPED, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 22, MAY BE USED AND SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER, BUT ONLY WITHIN THE TOP LAYER OF A LOAD. ADDITIONALLY, THE QUANTITY OF CONTAINERS CAN BE ADJUSTED BY USING ONE OR MORE "RISER ASSEMBLIES" AND APPLYING THE PROCEDURES DEPICTED ON PAGES 41 AND 42.

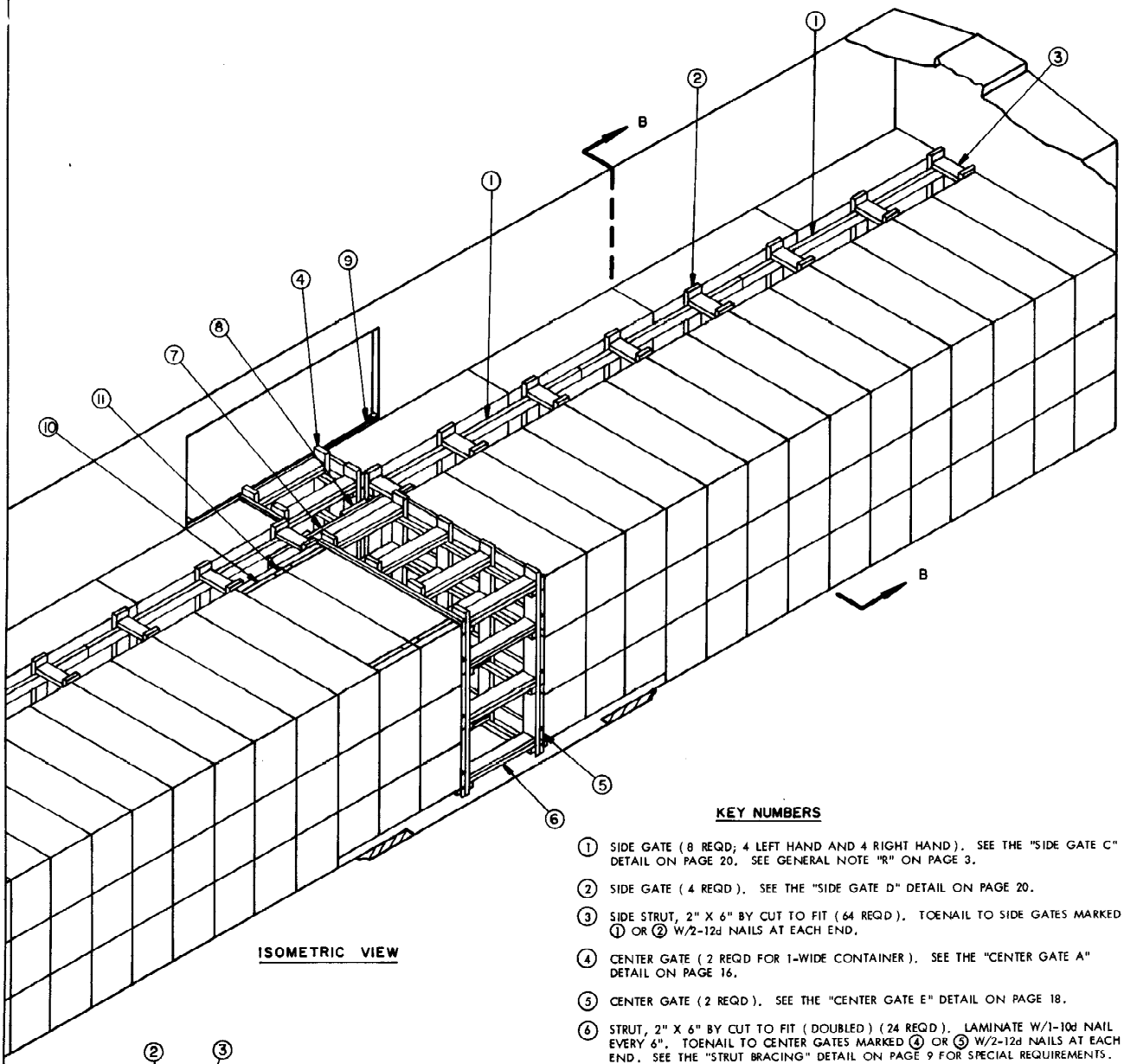
6. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO CARS EQUIPPED WITH WIDER DOORS, STAGGERED DOORS AND/OR PLUG DOORS. HOWEVER, FOR CARS WITH PLUG TYPE DOORS, IN LIEU OF DOORWAY PROTECTION PIECES MARKED ⑩, THE "DOORWAY PROTECTION FOR CARS WITH PLUG DOORS" AS SPECIFIED IN THE PROCEDURES ON PAGE 12 MUST BE USED. SEE GENERAL NOTE "O" ON PAGE 2.

BILL OF MATERIAL

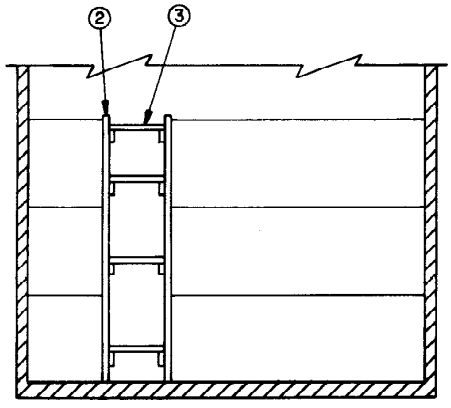
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	64	32
2" X 2"	85	29
2" X 3"	26	13
2" X 4"	254	170
2" X 6"	511	511
4" X 4"	36	48
NAILS	**NO. REQD**	**POUNDS**
6d (2")	48	1/2
10d (3")	814	12-1/2
12d (3-1/4")	216	3-3/4
16d (3-1/2")	68	1-1/2
STEEL STRAPPING, 1-1/4" X .035" ------ 1,924' REQD -- 275 LBS SEAL FOR 1-1/4" STRAPPING ---------- 296 REQD -- 15 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SMALL CONTAINER	148	112,480 LBS
DUNNAGE		2,318 LBS
TOTAL WEIGHT		114,798 LBS



ISOMETRIC VIEW



SECTION B-B

KEY NUMBERS

(1) SIDE GATE (8 REQD; 4 LEFT HAND AND 4 RIGHT HAND). SEE THE "SIDE GATE C" DETAIL ON PAGE 20. SEE GENERAL NOTE "R" ON PAGE 3.

(2) SIDE GATE (4 REQD). SEE THE "SIDE GATE D" DETAIL ON PAGE 20.

(3) SIDE STRUT, 2" X 6" BY CUT TO FIT (64 REQD). TOENAIL TO SIDE GATES MARKED (1) OR (2) W/2-12d NAILS AT EACH END.

(4) CENTER GATE (2 REQD FOR 1-WIDE CONTAINER). SEE THE "CENTER GATE A" DETAIL ON PAGE 16.

(5) CENTER GATE (2 REQD). SEE THE "CENTER GATE E" DETAIL ON PAGE 18.

(6) STRUT, 2" X 6" BY CUT TO FIT (DOUBLED) (24 REQD). LAMINATE W/1-10d NAIL EVERY 6". TOENAIL TO CENTER GATES MARKED (4) OR (5) W/2-12d NAILS AT EACH END. SEE THE "STRUT BRACING" DETAIL ON PAGE 9 FOR SPECIAL REQUIREMENTS. SEE GENERAL NOTE "Q" ON PAGE 2.

(7) TIE PIECE, 2" X 6" BY CUT TO EXTEND 8" ON BOTH SIDES OF EXCESS SPACE BETWEEN LONGITUDINALLY ADJACENT SIDE GATES AT THE CENTER OF THE CAR (4 REQD). NAIL TO THE VERTICALS OF SIDE GATES MARKED (1) W/4-10d NAILS AT EACH END.

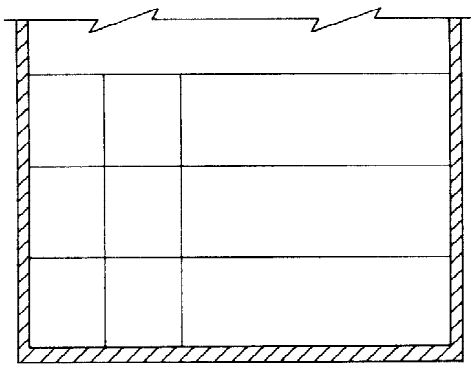
(8) FILLER PIECE, 2" X 6" X 12" (8 REQD). POSITION AGAINST VERTICALS OF SIDE GATES MARKED (1) AND NAIL TO TIE PIECE MARKED (7) W/4-10d NAILS.

(9) DOORWAY PROTECTION (2 REQD). SEE THE "DOORWAY PROTECTION A" DETAIL ON PAGE 23. SEE SPECIAL NOTE 6 ON PAGE 7.

(10) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (84 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(11) SEAL FOR 1-1/4" STRAPPING (168 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

108-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (CONVENTIONAL) (LARGE CONTAINER)



TYPICAL SECTION

FOR CARS 9'-4" OR MORE IN WIDTH
SEE SPECIAL NOTES 2 AND 4 AT RIGHT.

(SPECIAL NOTES CONTINUED)

5. IF THE DELINEATED OUTLOADING METHOD IS TO BE USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS AND THE QUANTITY CANNOT BE SATISFIED BY OMITTING A COMPLETE LAYER, A K-BRACE ASSEMBLY, AS DETAILED ON PAGE 13, MAY BE USED FOR SHIPPING A PARTIAL LAYER OF NINE (9) CONTAINERS IN A 9'-2" WIDE CAR OR ELEVEN (11) CONTAINERS IN A 9'-4" WIDE CAR HAVING NAILABLE SIDEWALLS. A PARTIAL LAYER MAY BE LOADED IN EITHER END OR IN BOTH ENDS OF A CAR. ALSO, TO SATISFY THE QUANTITY TO BE SHIPPED, A "FILLER ASSEMBLY" AS DETAILED ON PAGE 22, MAY BE USED AND SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER WITHIN THE TOP LAYER OF A LOAD. A FILLER ASSEMBLY MUST NOT BE USED ADJACENT TO A CENTER GATE. SEE THE "SPECIAL PLAN VIEWS" ON PAGE 8 AND THE SPECIAL NOTES ON PAGE 13 FOR ADDITIONAL GUIDANCE. ALSO, SEE PAGE 4 FOR A TYPICAL APPLICATION OF A K-BRACE ASSEMBLY. ADDITIONALLY, THE QUANTITY OF CONTAINERS CAN BE ADJUSTED BY USING ONE OR MORE "RISER ASSEMBLIES" AND APPLYING THE PROCEDURES DEPICTED ON PAGES 41 AND 42.

6. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO CARS EQUIPPED WITH WIDER DOORS, STAGGERED DOORS AND/OR PLUG TYPE DOORS. HOWEVER, FOR CARS WITH PLUG TYPE DOORS, IN LIEU OF DOORWAY PROTECTION PIECES MARKED ⑨, THE "DOORWAY PROTECTION FOR CARS WITH PLUG DOORS" AS SPECIFIED IN THE PROCEDURES ON PAGE 12 MUST BE USED. SEE GENERAL NOTE "O" ON PAGE 2.

SPECIAL NOTES:

1. A 108-UNIT LOAD OF LARGE CONTAINERS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR HAVING A LOAD LIMIT OF NOT LESS THAN 108,200 POUNDS, AND EQUIPPED WITH 8'-0" WIDE CONVENTIONAL SLIDING DOORS, ALL METAL CARS, AND NARROWER OR WIDER CARS CAN BE USED. NOTE: IF A CAR IS 9'-4" WIDE OR WIDER, IT IS POSSIBLE, IF DESIRED, TO SHIP 24 ADDITIONAL CONTAINERS. SEE NOTE 2 BELOW.

2. A 132-UNIT (3-LAYER) LOAD CAN BE SHIPPED IN A 50'-6" LONG BY 9'-4" WIDE OR WIDER CAR BY LOADING TWO ROWS OF CONTAINERS LONGITUDINALLY IN THE CAR AS SHOWN IN THE "TYPICAL SECTION" AT THE LEFT. THE WIDTH OF THE CENTER GATES MARKED ④ MUST BE ADJUSTED FOR A 2-WIDE CONTAINER LOAD AS SHOWN IN THE "CENTER GATE A" DETAIL ON PAGE 16. PIECES MARKED ①, ②, ③, ⑦ AND ⑧ WILL NOT BE REQUIRED. FOR A 132-UNIT LOAD, THE LOAD LIMIT OF THE CAR MUST BE NOT LESS THAN 130,000 POUNDS. SEE GENERAL NOTE "K" ON PAGE 2.

3. IF A HIGH CAPACITY 50'-6" LONG CAR IS OFFERED, AND THE LOAD LIMIT OF THE CAR IS NOT LESS THAN 144,300 POUNDS, THE DEPICTED PROCEDURES CAN BE USED FOR A SHIPMENT OF A 4-LAYER LOAD OF 144 CONTAINERS. HOWEVER, FOR A 4-LAYER LOAD, THE FOLLOWING WILL APPLY:

   A. FOR PIECE MARKED ①, SUBSTITUTE "SIDE GATE E" AS DETAILED ON PAGE 21.

   B. FOR PIECE MARKED ②, SUBSTITUTE "SIDE GATE F" AS DETAILED ON PAGE 21.

   C. FOR PIECE MARKED ④, SUBSTITUTE "CENTER GATE B" (FOR 1-WIDE CONTAINER) AS DETAILED ON PAGE 16.

   D. FOR PIECE MARKED ⑤, SUBSTITUTE "CENTER GATE F" AS DETAILED ON PAGE 18.

   E. FOR PIECE MARKED ⑨, SUBSTITUTE "DOORWAY PROTECTION B" AS DETAILED ON PAGE 23.

   F. INCREASE THE QUANTITY OF SIDE STRUTS, PIECE MARKED ③, TO 80 REQUIRED.

   G. INCREASE THE QUANTITY OF STRUTS, PIECE MARKED ⑥, TO 30 REQUIRED.

   SEE GENERAL NOTE "K" ON PAGE 2.

4. THE DEPICTED PROCEDURES ARE ALSO APPLICABLE TO SHIPMENTS IN 40'-6" LONG CARS OF ANY WIDTH. A 78-UNIT (3 LAYER) LOAD CAN BE LOADED IN A 40'-6" LONG BY 9'-2" WIDE OR NARROWER CAR. SIDE GATES MARKED ② AND THE APPLICABLE SIDE STRUTS THEREFOR, MARKED ③, WILL NOT BE REQUIRED. STRUT BRACING AS SPECIFIED ON PAGE 9 MUST BE PROVIDED FOR ALL STRUTS MARKED ⑥ DUE TO THE LENGTH OF THE SPACE BETWEEN CENTER GATES MARKED ④ AND BETWEEN CENTER GATES MARKED ⑤. A 104-UNIT (4 LAYER) LOAD CAN ALSO BE SHIPPED. HOWEVER, IN ADDITION TO THE ABOVE CRITERIA, THE FOLLOWING WILL ALSO APPLY FOR A 4-LAYER LOAD:

   A. FOR PIECE MARKED ①, SUBSTITUTE "SIDE GATE E" AS DETAILED ON PAGE 21.

   B. FOR PIECE MARKED ④, SUBSTITUTE "CENTER GATE B" (FOR 1-WIDE CONTAINER) AS DETAILED ON PAGE 16.

   C. FOR PIECE MARKED ⑤, SUBSTITUTE "CENTER GATE F" AS DETAILED ON PAGE 18.

   D. FOR PIECE MARKED ⑨, SUBSTITUTE "DOORWAY PROTECTION B" AS DETAILED ON PAGE 23.

   E. FIVE (5) LAYERS OF SIDE STRUTS, PIECES MARKED ③, MUST BE PROVIDED FOR ALL SIDE GATES.

   F. FIVE (5) LAYERS OF STRUTS, PIECES MARKED ⑥, MUST BE PROVIDED FOR ALL CENTER GATES.

   IF A 40'-6" LONG BY 9'-4" WIDE OR WIDER CAR IS OFFERED, AND THE CAR HAS A LOAD LIMIT OF AT LEAST 134,000 POUNDS, A 136-UNIT (4 LAYER) LOAD CAN BE SHIPPED USING THE ABOVE CRITERIA, EXCEPT THAT PIECES MARKED ①, ②, ③, ⑦ AND ⑧ WILL NOT BE REQUIRED, AND "CENTER GATE B", PIECE MARKED ④, MUST BE FABRICATED FOR A 2-WIDE CONTAINER LOAD. SEE THE "TYPICAL SECTION" AT LEFT AND THE "SPECIAL PLAN VIEWS" ON PAGE 8. SEE GENERAL NOTE "K" ON PAGE 2.

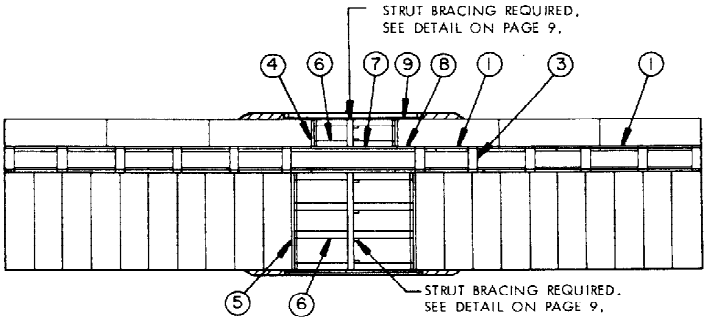
(CONTINUED AT LEFT)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	64	32
2" X 2"	76	26
2" X 3"	26	13
2" X 4"	393	262
2" X 6"	599	599
NAILS	**NO. REQD**	**POUNDS**
6d (2")	48	1/2
10d (3")	888	13-3/4
12d (3-1/4")	352	6
STEEL STRAPPING, 1-1/4" X .035" ------ 1,092' REQD -- 156 LBS		
SEAL FOR 1-1/4" STRAPPING ---------- 168 REQD -- 9 LBS		

LOAD AS SHOWN

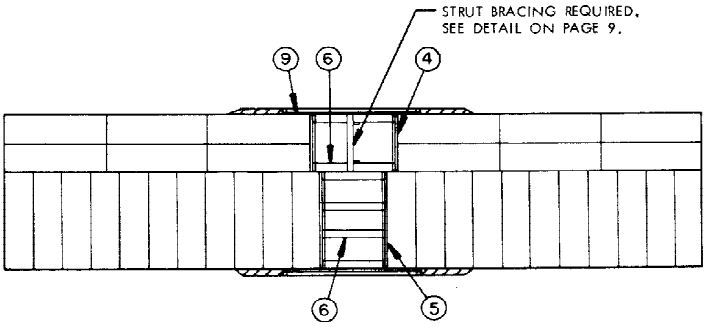
ITEM	QUANTITY	WEIGHT (APPROX)
LARGE CONTAINER	108	105,624 LBS
DUNNAGE		2,515 LBS
TOTAL WEIGHT		108,139 LBS



40'-6" LONG BY 9'-2" WIDE CAR

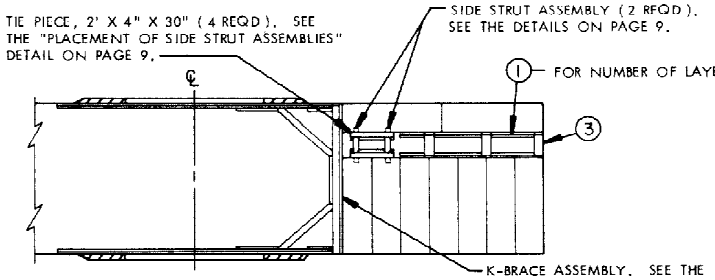
78 - UNIT LOAD (3 LAYERS).
104 - UNIT LOAD (4 LAYERS).

SEE SPECIAL NOTE 4 ON PAGE 7.



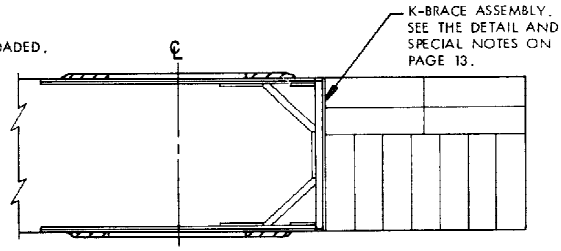
40'-6" LONG BY 9'-4" WIDE OR WIDER CAR

102 - UNIT LOAD (3 LAYERS)
136 - UNIT LOAD (4 LAYERS)
SEE SPECIAL NOTE 4 ON PAGE 7.



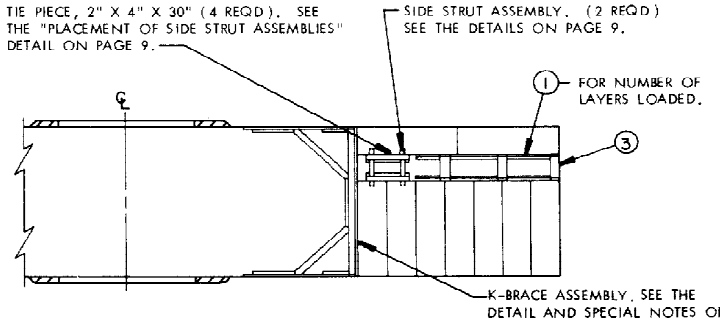
40'-6" LONG BY 9'-2" WIDE CAR

BRACING FOR 9-CONTAINER PARTIAL LAYER. SEE SPECIAL NOTE 5 ON PAGE 7.



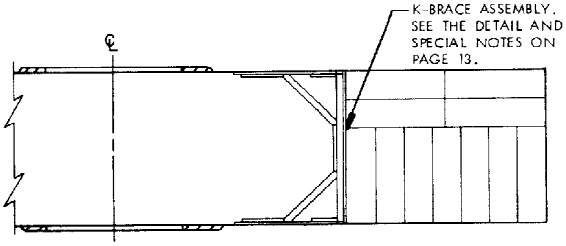
40'-6" LONG BY 9'-4" WIDE OR WIDER CAR

BRACING FOR 11-CONTAINER PARTIAL LAYER. SEE SPECIAL NOTE 5 ON PAGE 7.



50'-6" LONG BY 9'-2" WIDE CAR

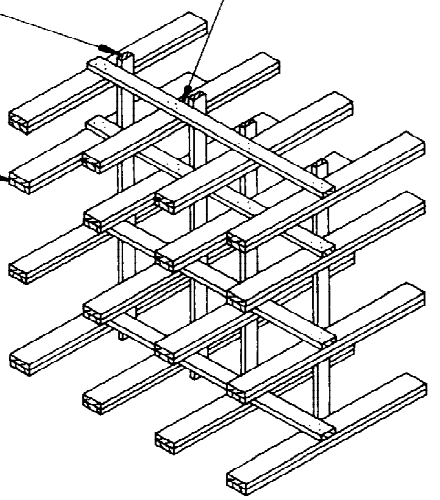
BRACING FOR 9-CONTAINER PARTIAL LAYER. SEE SPECIAL NOTE 5 ON PAGE 7.



50'-6" LONG BY 9'-4" WIDE OR WIDER CAR

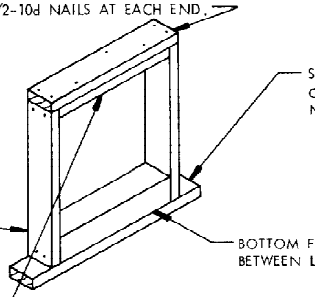
BRACING FOR 11-CONTAINER PARTIAL LAYER. SEE SPECIAL NOTE 5 ON PAGE 7.

SPECIAL PLAN VIEWS (CONVENTIONAL) (LARGE CONTAINER)

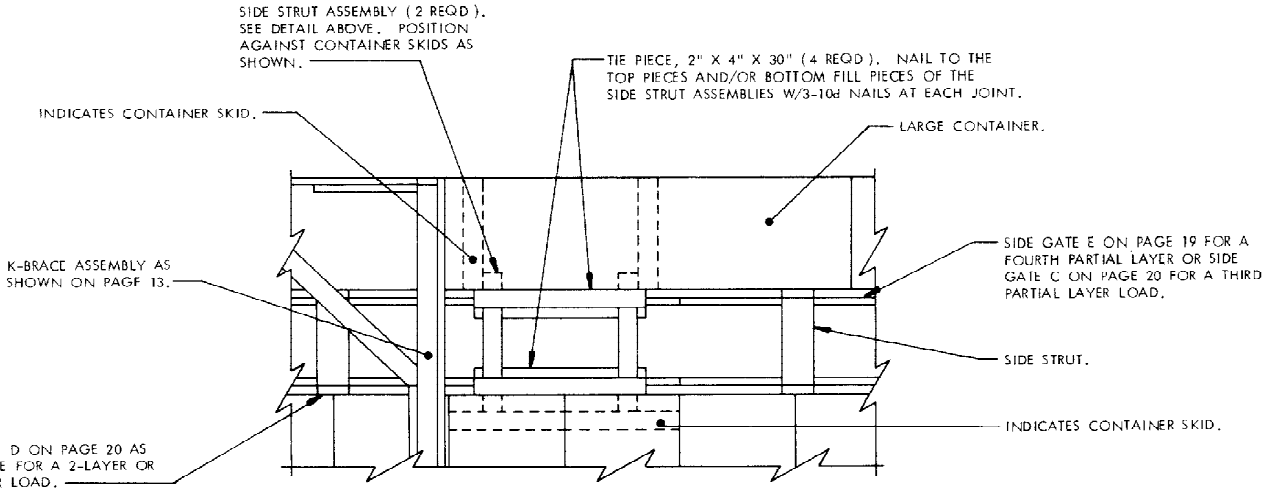


NOTE: THE DETAIL AS SHOWN IS BASED ON A 3-CONTAINER HIGH LOAD. HOWEVER, THE PROCEDURES ALSO APPLY TO LOADS OTHER THAN 3-CONTAINERS HIGH. STRUT BRACING IS REQUIRED WHEN STRUTS ARE 48" OR GREATER IN LENGTH. ONE (1) SET OF BRACING IS REQUIRED FOR EVERY 48" OF STRUT LENGTH.

STRUT BRACING DETAIL (TYPICAL)

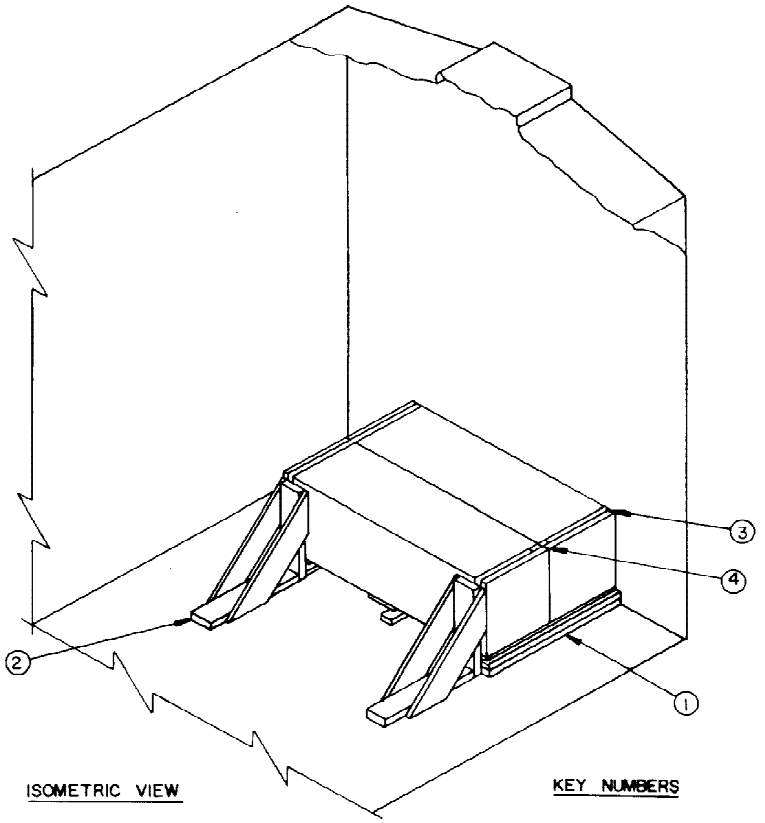


SIDE STRUT ASSEMBLY



PLACEMENT OF SIDE STRUT ASSEMBLIES

SIDE STRUT ASSEMBLIES ARE ONLY REQUIRED FOR A PARTIAL LAYER OF 9 LARGE CONTAINERS IN A 9'-2" WIDE CAR.



ISOMETRIC VIEW

KEY NUMBERS

(1) SIDE BLOCKING, 2" X 4" X 40" (DOUBLED) (2 REQD). PRE-POSITION TO CONTACT THE CONTAINER SKIDS, AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "P" ON PAGE 2 AND NOTE "R" ON PAGE 3.

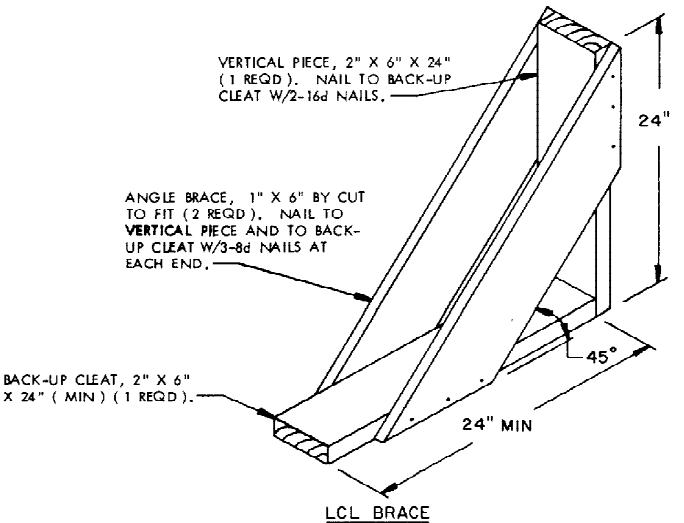
(2) LCL BRACE (2 REQD). POSITION AS SHOWN AND NAIL TO THE CAR FLOOR W/7-16d NAILS. SEE THE DETAIL BELOW AND SPECIAL NOTE 3 AT THE LEFT.

(3) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(4) SEAL FOR 1-1/4" STRAPPING (4 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

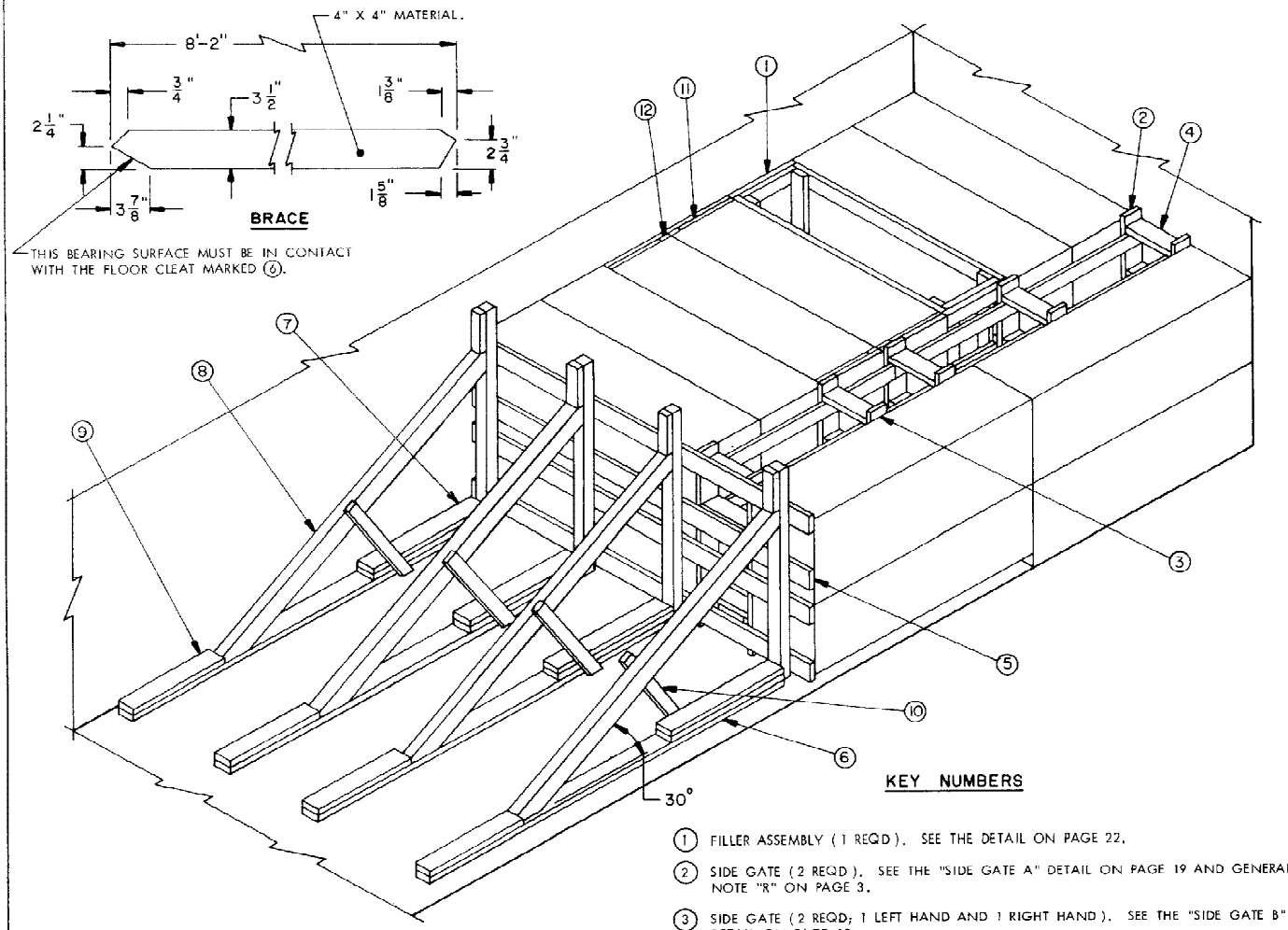
SPECIAL NOTES:

1. THESE LCL OUTLOADING PROCEDURES DEPICT THE SHIPMENT OF A ONE (1) CONTAINER HIGH LOAD USING TWO (2) LCL BRACES IN A BOXCAR EQUIPPED WITH A NAILABLE FLOOR.
2. AN 8'-6" WIDE BOXCAR IS DEPICTED; HOWEVER, ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING SPECIFIED.
3. EACH LCL BRACE AS APPLIED FOR LONGITUDINAL BRACING WILL SUPPORT 2,000 POUNDS. AT LEAST TWO (2) BRACES MUST BE USED AGAINST A CONTAINER. ADDITIONAL BRACES MAY BE APPLIED AS NECESSARY.



LCL BRACE

TYPICAL LCL (2-UNIT LOAD) IN AN 8'-6" WIDE CAR (CONVENTIONAL)



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 17-UNIT LOAD OF LARGE CONTAINERS IS SHOWN IN A 9'-2" WIDE CAR HAVING A WOOD OR NAILABLE METAL FLOOR AND DEPICTS THE USE OF KNEE BRACE ASSEMBLIES. NARROWER OR WIDER CARS CAN BE USED. THESE PROCEDURES ARE LIMITED TO A 2-LAYER LOAD. ALSO, TYPICALLY SHOWN IS THE APPLICATION OF A "FILLER ASSEMBLY" USED IN THE PLACE OF AN OMITTED CONTAINER. ADDITIONAL "FILLER ASSEMBLIES" MAY BE USED IN THE TOP LAYER, AS REQUIRED, TO FURTHER REDUCE THE QUANTITY OF CONTAINERS TO BE SHIPPED. THE SPECIFIED PROCEDURES ALSO APPLY TO A 2-LAYER LCL SHIPMENT OF SMALL CONTAINERS.

2. WHEN SHIPPING AN LCL LOAD OF SMALL CONTAINERS OR WHEN A 9'-4" WIDE OR WIDER CAR IS OFFERED FOR SHIPMENT OF LARGE CONTAINERS, IT IS POSSIBLE TO LOAD TWO ROWS OF CONTAINERS POSITIONED LONGITUDINALLY IN THE CAR. HOWEVER, AN ADDITIONAL "KNEE BRACE ASSEMBLY", PIECES MARKED (6) THRU (10), WILL BE REQUIRED TO RETAIN THE SECOND ROW OF LONGITUDINALLY POSITIONED CONTAINERS, AND THE LOAD BEARING GATE MARKED (5) MUST BE PROVIDED WITH AN ADDITIONAL 4" X 4" VERTICAL PIECE AND A 2" X 4" BRACE HOLD-DOWN PIECE AS SHOWN BY PHANTOM LINES IN THE DETAIL ON PAGE 22. ALSO, WHEN TWO ROWS OF CONTAINERS ARE POSITIONED LONGITUDINALLY IN A CAR, PIECES MARKED (2), (3), AND (4) WILL NOT BE REQUIRED, EXCEPT, THAT IN LIEU THEREOF, "CRIB FILL A" ASSEMBLIES, AS DETAILED ON PAGE 14, MUST BE USED FOR A LOAD OF SMALL CONTAINERS. THREE (3) "KNEE BRACE ASSEMBLIES", SHOWN AS PIECES MARKED (6) THRU (10), ARE ADEQUATE FOR RETAINING ONE 2-LAYER ROW OF NOT MORE THAN 14 LARGE CONTAINERS (7 PER LAYER) OR 18 SMALL CONTAINERS (9 PER LAYER) POSITIONED LATERALLY IN THE CAR. LIKEWISE, ONE (1) "KNEE BRACE ASSEMBLY" IS ADEQUATE FOR RETAINING ONE 2-LAYER ROW OF NOT MORE THAN 4 LARGE CONTAINERS (2 PER LAYER) OR 6 SMALL CONTAINERS (3 PER LAYER) POSITIONED LONGITUDINALLY IN THE CAR.

KEY NUMBERS

(1) FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 22.

(2) SIDE GATE (2 REQD). SEE THE "SIDE GATE A" DETAIL ON PAGE 19 AND GENERAL NOTE "R" ON PAGE 3.

(3) SIDE GATE (2 REQD; 1 LEFT HAND AND 1 RIGHT HAND). SEE THE "SIDE GATE B" DETAIL ON PAGE 19.

(4) SIDE STRUTS, 2" X 6" BY CUT TO FIT (15 REQD). TOENAIL TO SIDE GATES MARKED (2) OR (3) W/2-12d NAILS AT EACH END.

(5) LOAD BEARING GATE (1 REQD). SEE THE DETAIL ON PAGE 22. SEE GENERAL NOTE "R" ON PAGE 3.

(6) FLOOR CLEAT, 2" X 6" X 9'-7" (4 REQD). ALIGN WITH VERTICAL OF GATE MARKED (5) SO THAT THE SUPPORT PIECE MARKED (10) CAN BE NAILED PROPERLY. NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 8". SEE GENERAL NOTE "P" ON PAGE 2 AND NOTE "R" ON PAGE 3.

(7) POCKET CLEAT, 2" X 6" X 36" (DOUBLED) (4 REQD). NAIL THE FIRST PIECE TO FLOOR CLEAT MARKED (6) W/8-40d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER AND TOENAIL TO THE VERTICAL OF GATE MARKED (5) W/2-16d NAILS.

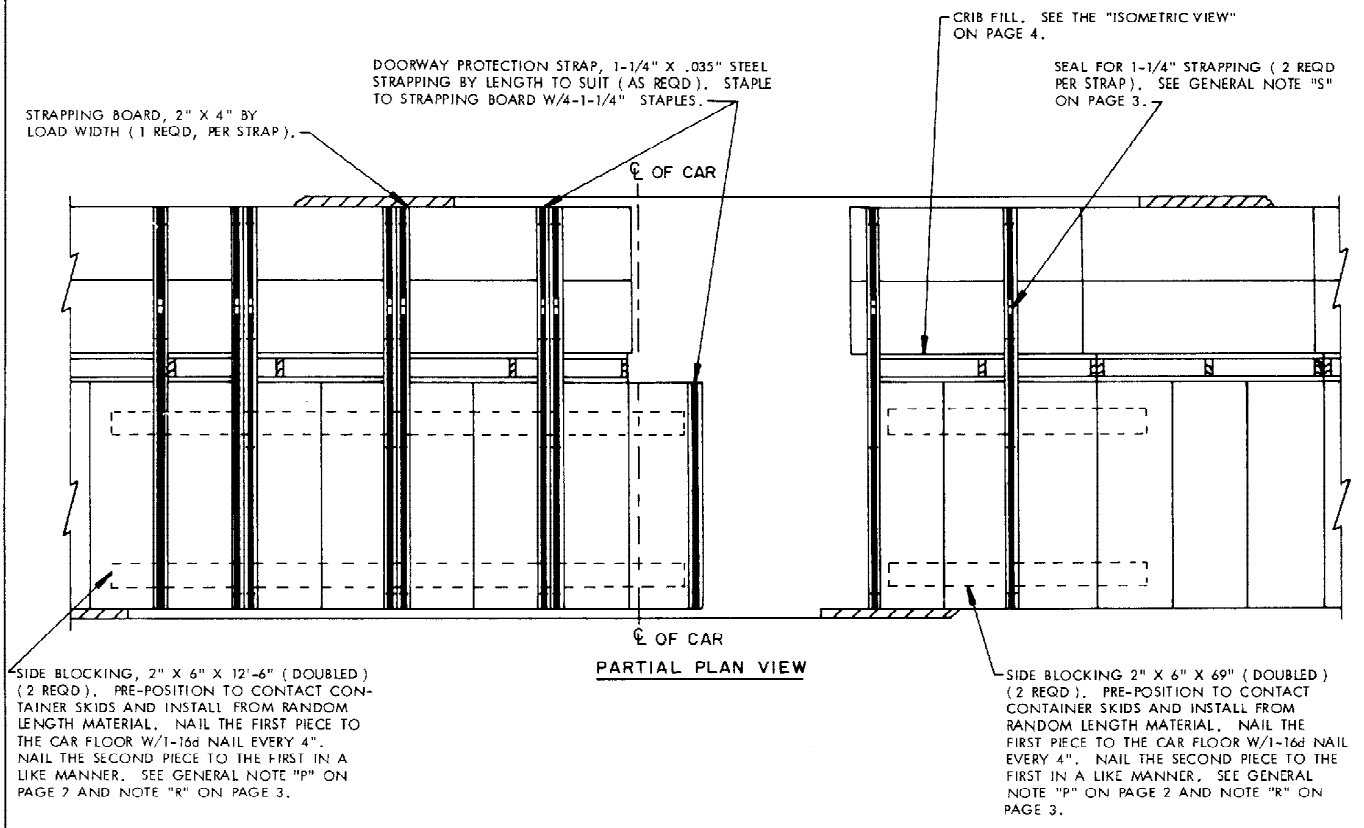
(8) DIAGONAL BRACE, 4" X 4" X 8'-2" (4 REQD). SEE THE "BRACE" DETAIL ABOVE. TOENAIL TO THE GATE MARKED (5) AND TO THE FLOOR CLEAT MARKED (6) W/2-16d NAILS AT EACH END.

(9) BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO THE FLOOR CLEAT MARKED (6) W/6-40d NAILS.

(10) SUPPORT PIECE, 2" X 4" X 36" (4 REQD). POSITION SO AS TO BE PERPENDICULAR TO AND CENTERED ON THE LENGTH OF A "DIAGONAL BRACE" MARKED (8). NAIL TO THE BRACE AND TO THE POCKET CLEAT MARKED (7) W/3-10d NAILS AT EACH END.

(11) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" STEEL STRAPPING (12 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(12) SEAL FOR 1-1/4" STRAPPING (24 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

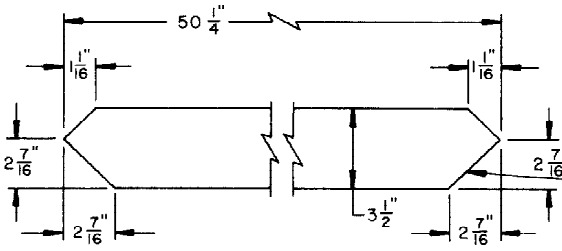


PARTIAL PLAN VIEW

SPECIAL NOTES:

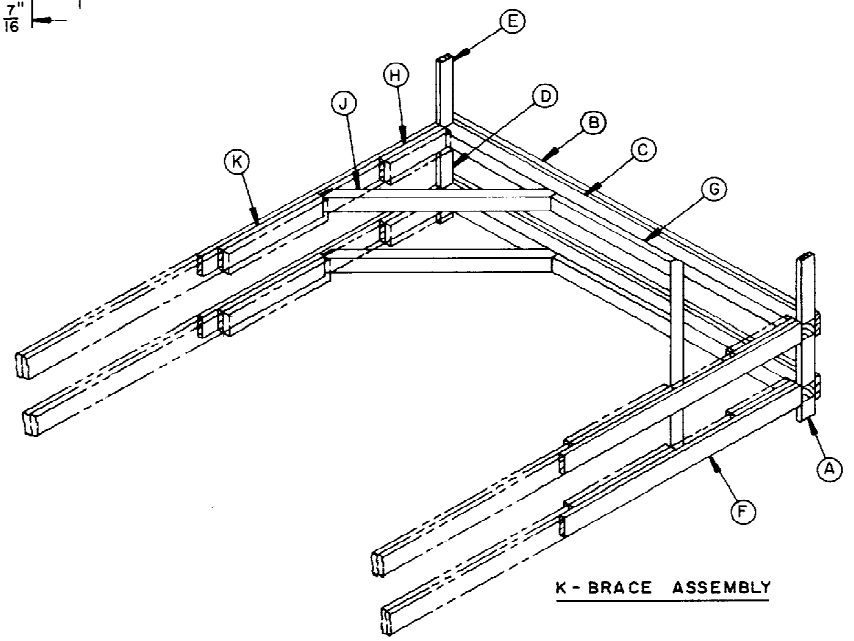
1. THE PARTIAL PLAN VIEW ABOVE DEPICTS DOORWAY PROTECTION PROCEDURES FOR BOXCARS EQUIPPED WITH PLUG DOORS AND CONSISTS OF USING STEEL STRAPPING TO ENCIRCLE AND BUNDLE ADJACENT STACKS OF CONTAINERS, ACROSS THE WIDTH OF THE CAR, WITHIN THE DOORWAY AREA. PRE-POSITIONED SIDE BLOCKING IS ALSO REQUIRED IN THE DOORWAY AREA TO PREVENT LATERAL MOVEMENT OF THE BUNDLED STACKS. THE PROCEDURES ARE APPLICABLE TO A LOAD OF SMALL OR LARGE CONTAINERS. A LOAD OF SMALL CONTAINERS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE CAR HAVING 15'-0" WIDE STAGGERED DOOR OPENINGS. CENTER GATES AND STRUTS HAVE BEEN OMITTED FOR CLARITY. SEE GENERAL NOTE "O" ON PAGE 2.

2. DOORWAY PROTECTION STRAPPING IS REQUIRED FOR EACH STACK OF CONTAINERS POSITIONED LONGITUDINALLY IN THE CAR WHEN MORE THAN ONE-HALF THE LENGTH OF A CONTAINER EXTENDS INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR. ALSO, STRAPPING IS REQUIRED FOR EACH STACK OF CONTAINERS POSITIONED LATERALLY IN THE CAR WHEN 10" OR MORE OF THE WIDTH OF A CONTAINER EXTENDS INTO THE DOORWAY AREA ON EITHER SIDE OF THE CAR.



DIAGONAL BRACE

4" X 4" MATERIAL, PIECE MARKED (J)



K - BRACE ASSEMBLY

SPECIAL NOTES:

1. THE K-BRACE AS SHOWN IS DESIGNED FOR BRACING A PARTIAL LAYER CONTAINING A MAXIMUM OF FIFTEEN (15) SMALL CONTAINERS, OR NINE (9) LARGE CONTAINERS IN A 9'-2" WIDE CAR, OR ELEVEN (11) LARGE CONTAINERS IN A 9'-4" WIDE CAR. THE SPECIFIED LENGTH OF THE CENTER CLEAT MARKED (G) IS BASED ON A 9'-2" WIDE CAR. IF A WIDER CAR IS USED, THE LENGTH OF THE CLEAT MUST BE INCREASED ACCORDINGLY. A K-BRACE MAY BE USED AT EITHER OR BOTH ENDS OF A CAR. TO SATISFY THE QUANTITY OF CONTAINERS TO BE SHIPPED, ONE OR MORE "FILLER ASSEMBLIES", AS DETAILED ON PAGE 22, MAY BE USED IN CONJUNCTION WITH A K-BRACE ASSEMBLY.

2. CAUTION: SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "K-BRACE TYPE PARTIAL-LAYER BRACING", BECAUSE THE LENGTH OF THE PARTIAL LAYER TO BE SHIPPED AND/OR THE SIZE AND/OR CONFIGURATION OF THE CAR DOORS WILL NOT PERMIT PROPER INSTALLATION OF THE SPECIFIED K-BRACE DUNNAGE. PIECES MARKED (A), (B), (C), (D), (E) AND (H) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDE WALL. IT IS ALRIGHT FOR THE END OF A DIAGONAL BRACE MARKED (J) TO BEAR IN FRONT OF A DOOR OPENING; HOWEVER, THE ADJACENT PIECE MARKED (F) MUST BE DOUBLED, AS SHOWN ABOVE IN PHANTOM LINES, AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.

KEY LETTERS

(A) WALL CLEAT, 2" X 4" X 5" (2 REQD). NAIL TO THE CAR SIDE WALL W/2-12d NAILS.

(B) HORIZONTAL PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT) (2 REQD). NAIL TO CROSS CAR BRACE MARKED (C) W/1-16d NAIL EVERY 6". SEE GENERAL NOTE "R" ON PAGE 3.

(C) CROSS CAR BRACE, 4" X 4" BY CAR WIDTH (CUT TO FIT) (2 REQD).

(D) MIDDLE WALL CLEAT, 2" X 4" X 13" (2 REQD). NAIL TO THE CAR SIDE WALL W/4-12d NAILS.

(E) HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO THE CAR SIDE WALL W/4-12d NAILS.

(F) HORIZONTAL WALL CLEAT, 2" X 6" X 72" (4 REQD). NAIL TO THE CAR SIDE WALL W/16-12d NAILS. SEE SPECIAL NOTE 2 AT LEFT.

(G) CENTER CLEAT, 2" X 4" X 36" (2 REQD). CENTER ON AND NAIL TO CROSS CAR BRACE MARKED (C) W/7-20d NAILS. SEE SPECIAL NOTE 1 AT LEFT.

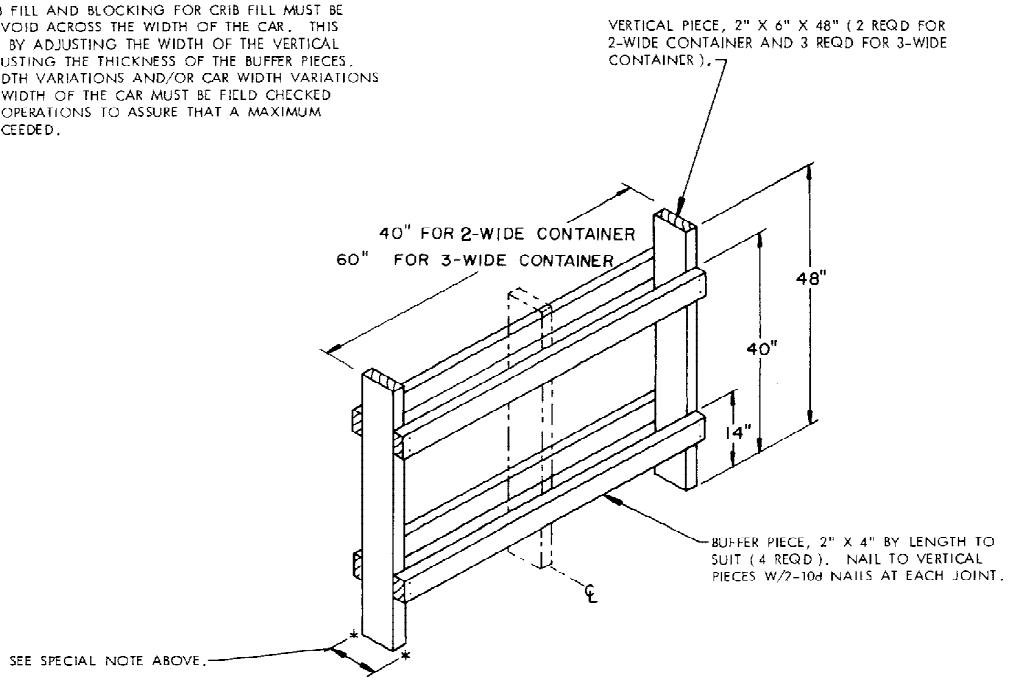
(H) POCKET CLEAT, 2" X 6" X 18" (4 REQD). NAIL TO HORIZONTAL WALL CLEAT MARKED (F) W/7-20d NAILS.

(J) DIAGONAL BRACE, 4" X 4" X50-1/4" (4 REQD). SEE THE "BRACE" DETAIL ABOVE FOR BEVEL CUT REQUIREMENTS. TOENAIL TO THE CROSS CAR BRACE MARKED (C) AND TO THE HORIZONTAL WALL CLEAT MARKED (F) W/1-60d NAIL AT EACH END.

(K) BACK-UP CLEAT, 2" X 6" X 30" (4 REQD). NAIL TO THE HORIZONTAL WALL CLEAT MARKED (F) W/14-20d NAILS.

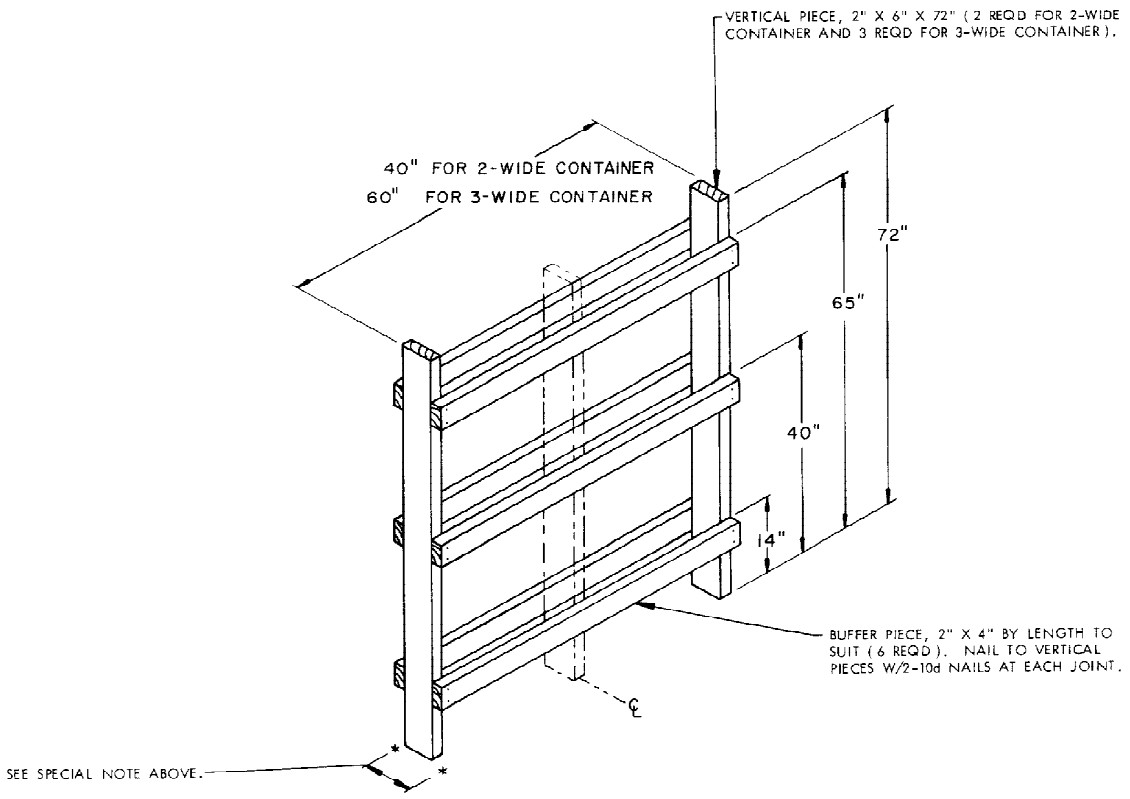
SPECIAL NOTE:

THE WIDTH OF THE CRIB FILL AND BLOCKING FOR CRIB FILL MUST BE ADJUSTED TO FILL THE VOID ACROSS THE WIDTH OF THE CAR. THIS CAN BE ACCOMPLISHED BY ADJUSTING THE WIDTH OF THE VERTICAL PIECES AND/OR BY ADJUSTING THE THICKNESS OF THE BUFFER PIECES. DUE TO CONTAINER WIDTH VARIATIONS AND/OR CAR WIDTH VARIATIONS THE VOID ACROSS THE WIDTH OF THE CAR MUST BE FIELD CHECKED DURING OUTLOADING OPERATIONS TO ASSURE THAT A MAXIMUM VOID OF 1" IS NOT EXCEEDED.



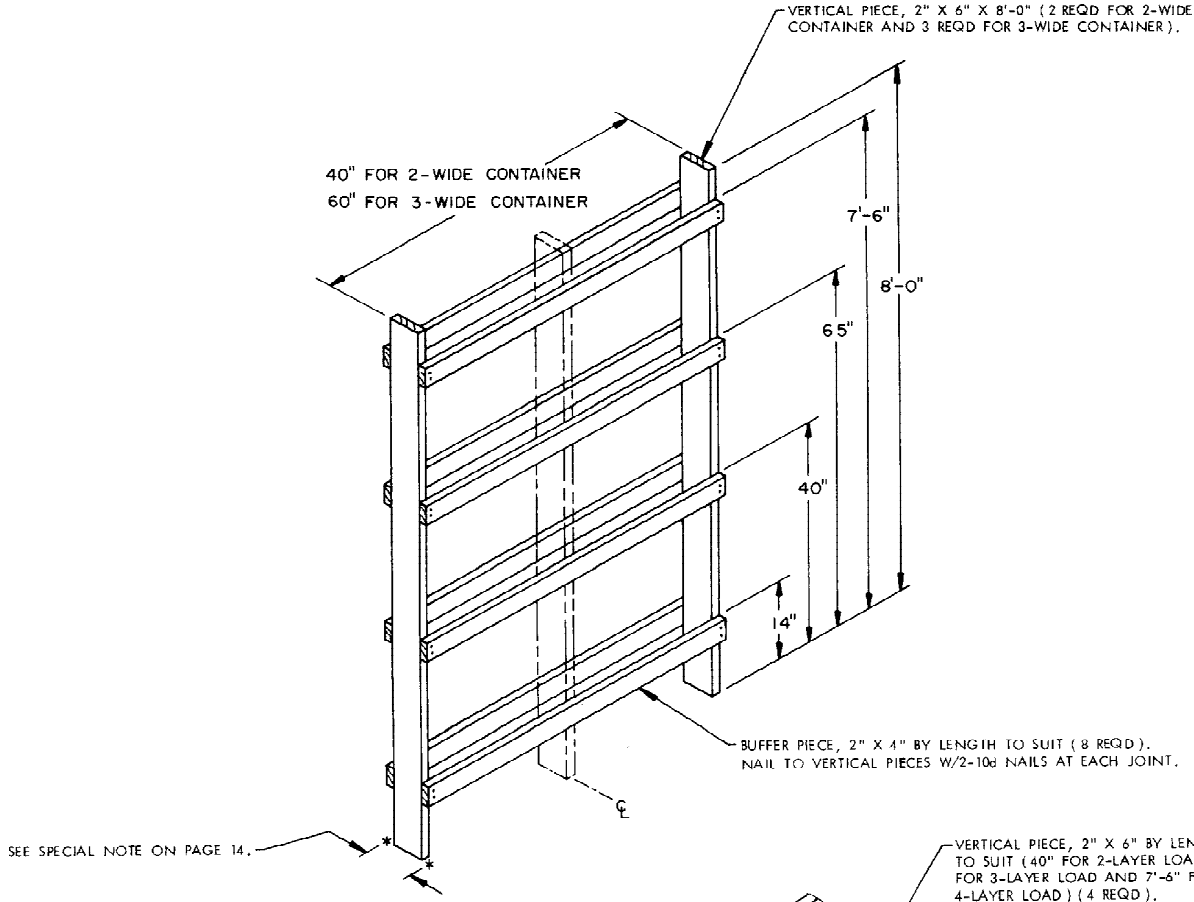
CRIB FILL A

FOR 2-LAYER LOAD.



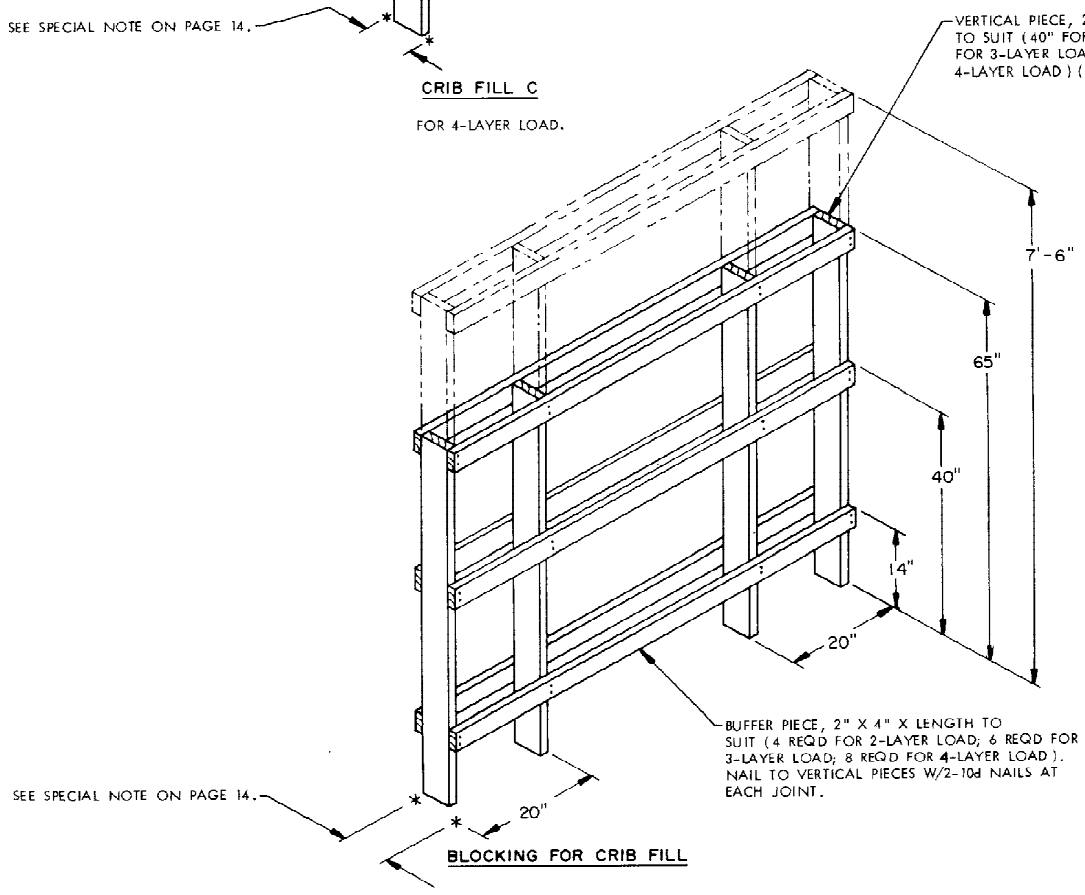
CRIB FILL B

FOR 3-LAYER LOAD.

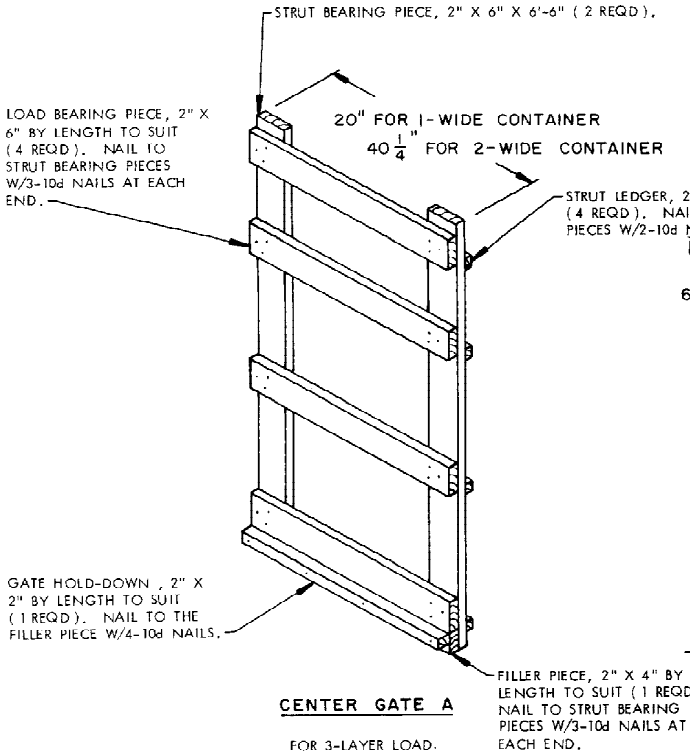


CRIB FILL C

FOR 4-LAYER LOAD.

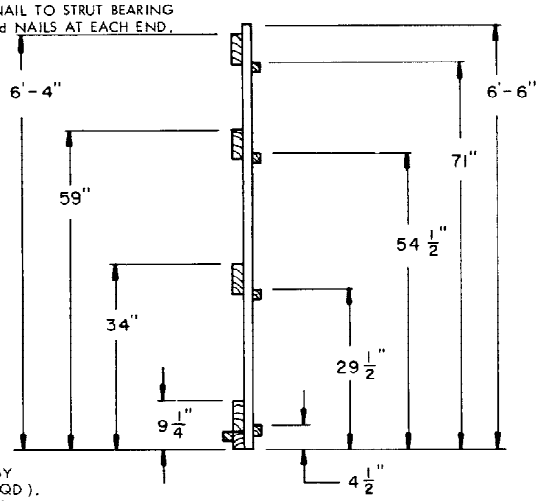


BLOCKING FOR CRIB FILL

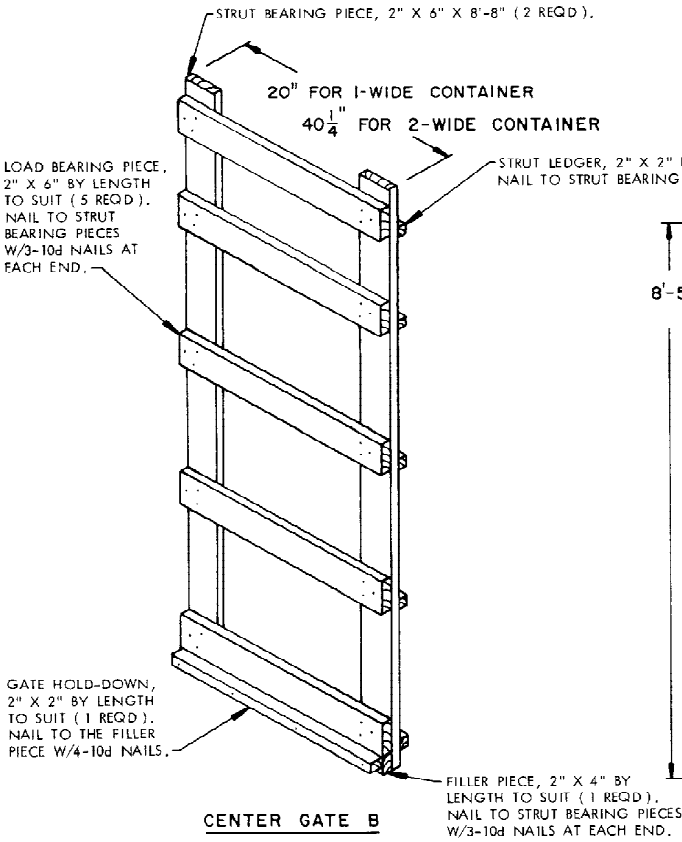


CENTER GATE A

FOR 3-LAYER LOAD.

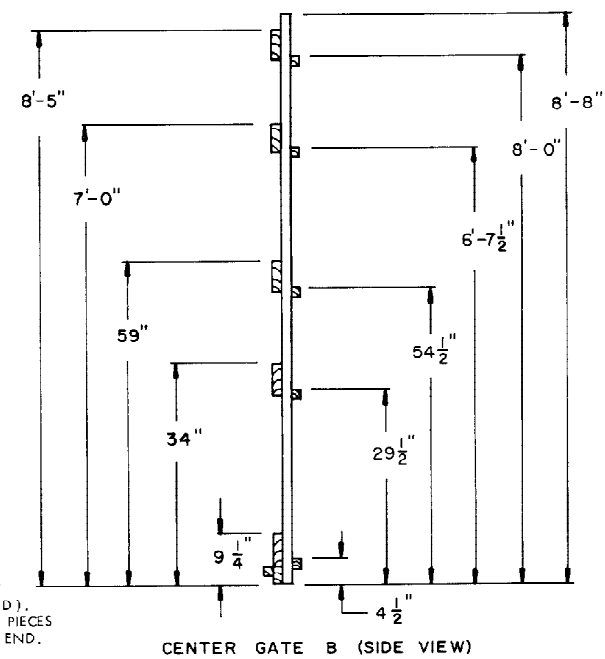


CENTER GATE A (SIDE VIEW)

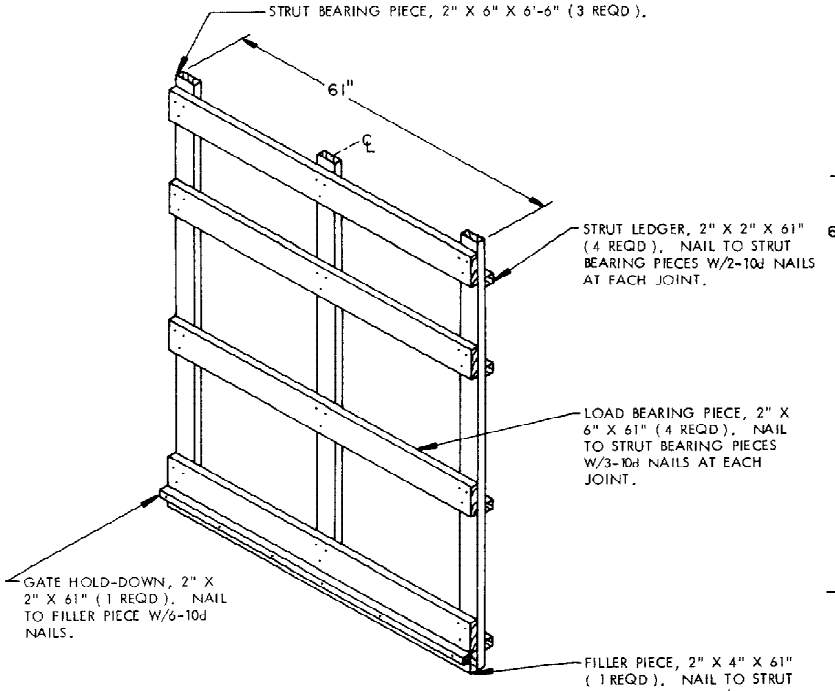


CENTER GATE B

FOR 4-LAYER LOAD.

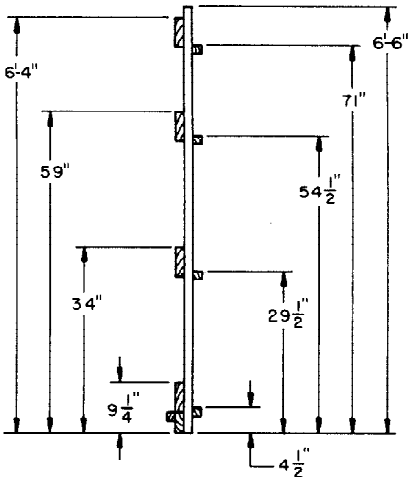


CENTER GATE B (SIDE VIEW)

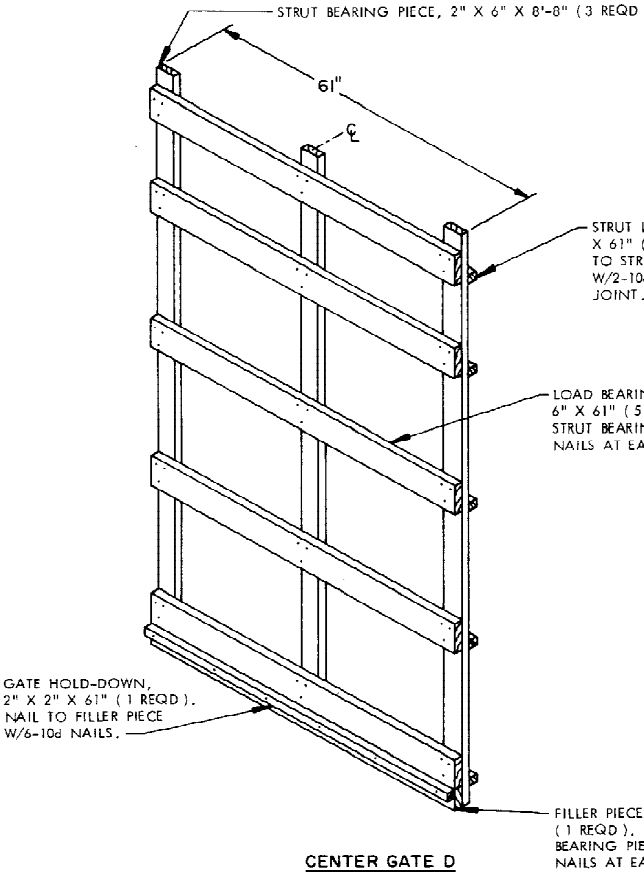


CENTER GATE C

FOR 3-LAYER LOAD.

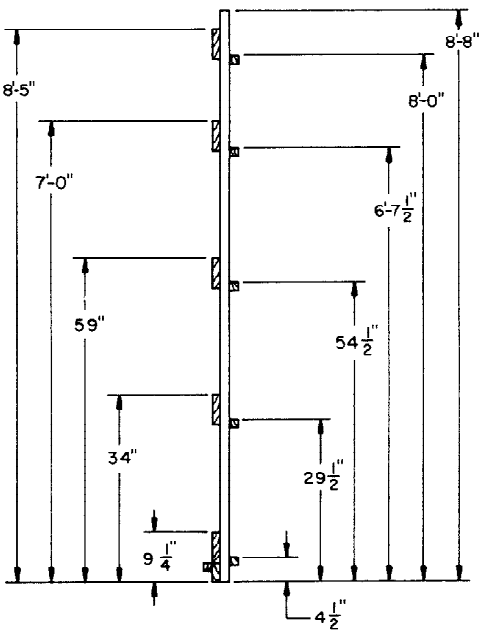


CENTER GATE C (SIDE VIEW)

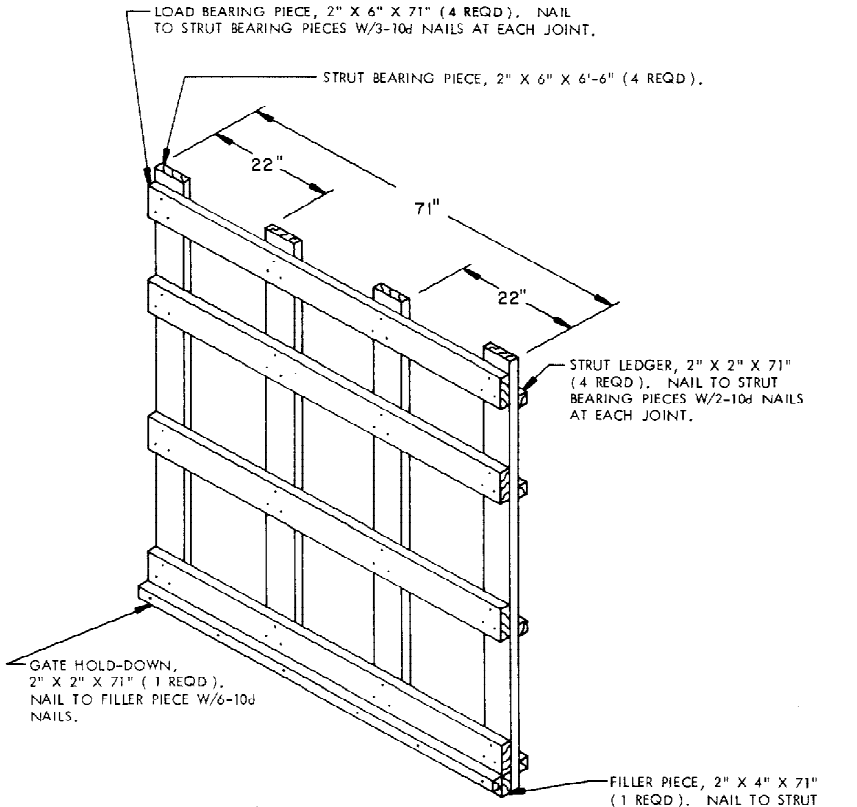


CENTER GATE D

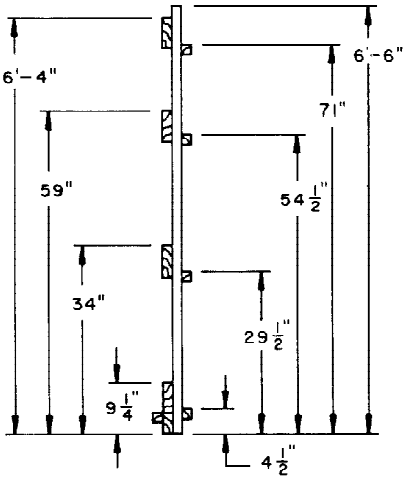
FOR 4-LAYER LOAD.



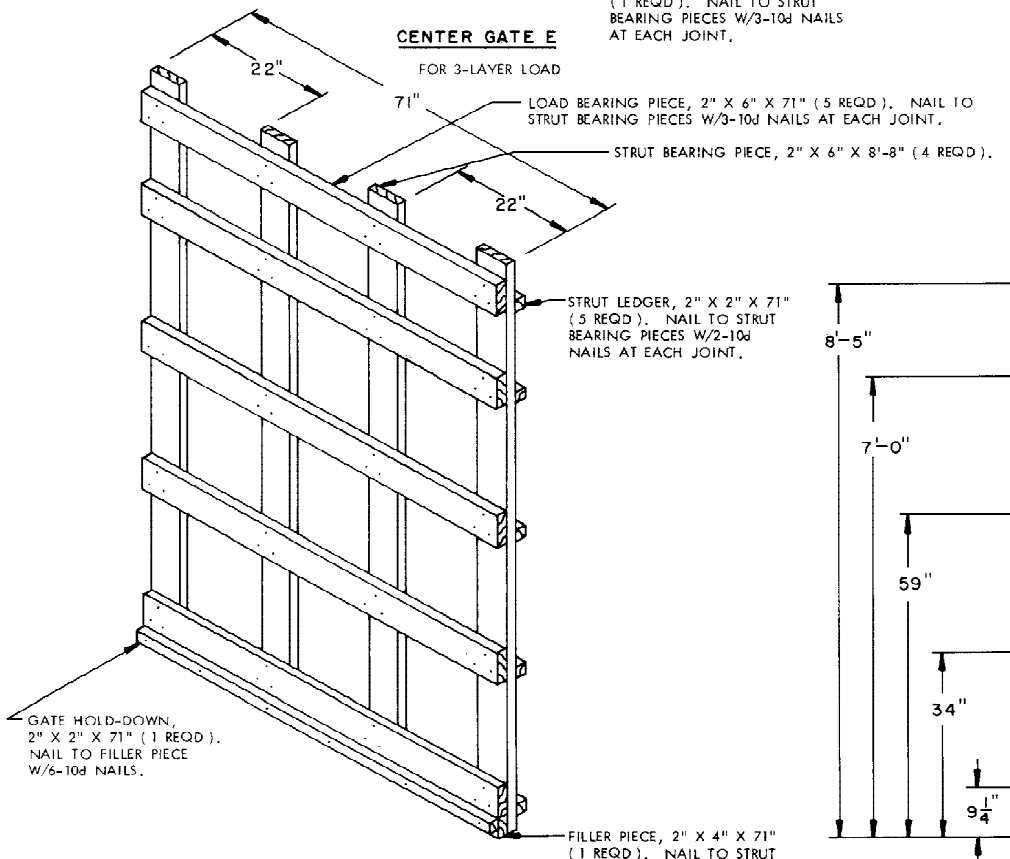
CENTER GATE D (SIDE VIEW)



CENTER GATE E

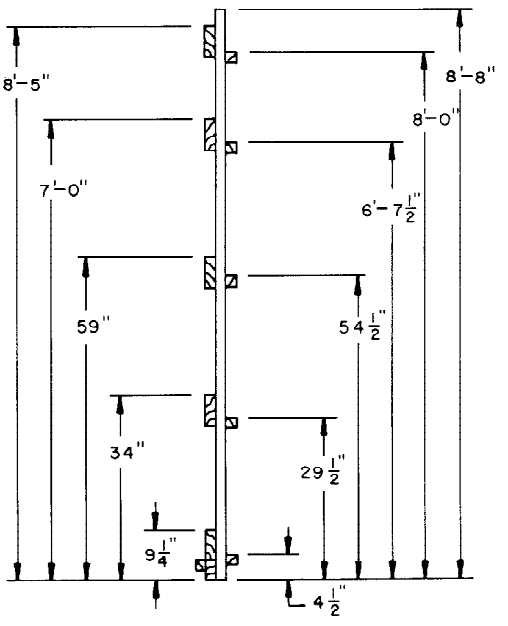


CENTER GATE E (SIDE VIEW)



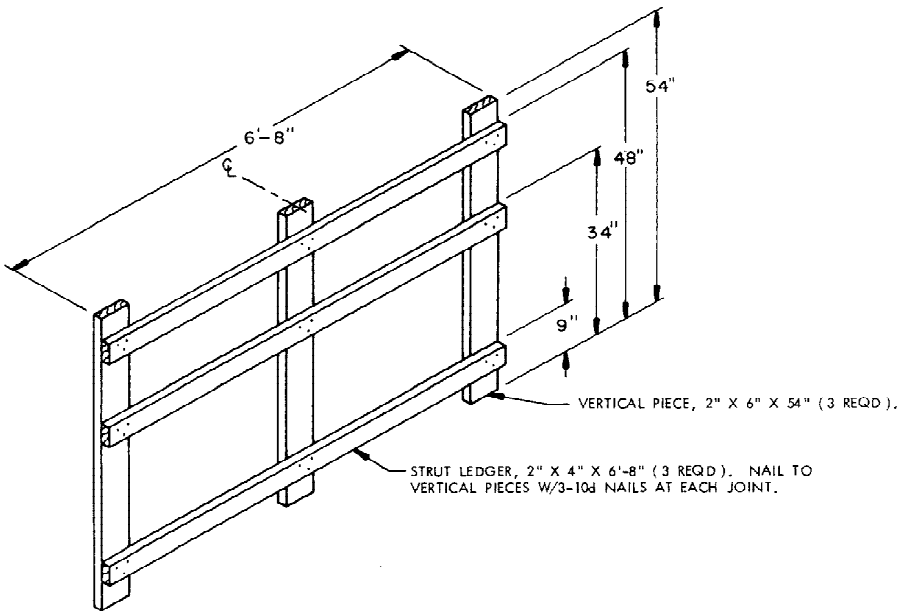
CENTER GATE F

FOR 4-LAYER LOAD.



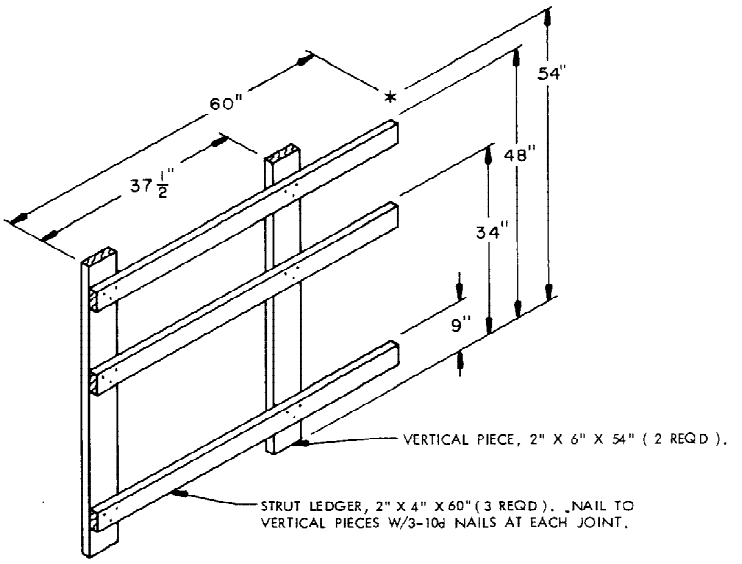
CENTER GATE F (SIDE VIEW)

FOR 3-LAYER LOAD



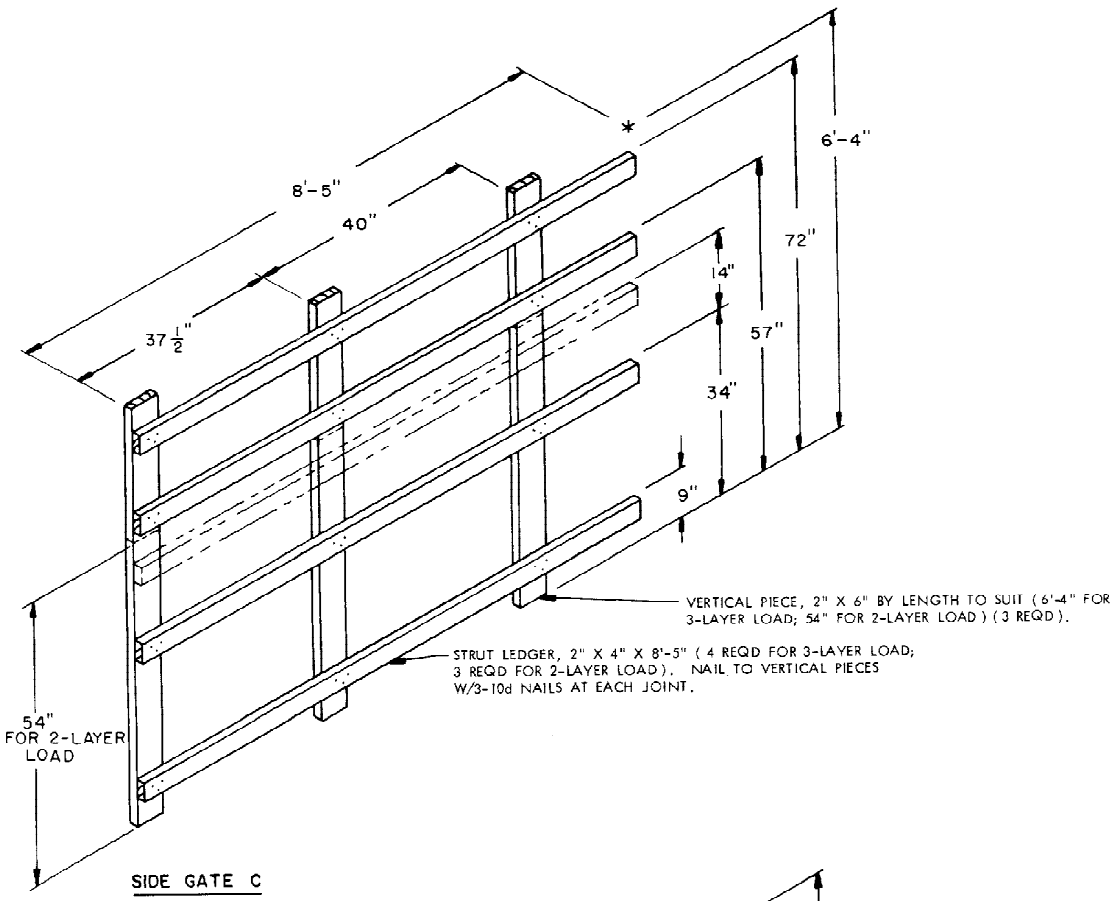
SIDE GATE A

FOR 2-LAYER LOAD.



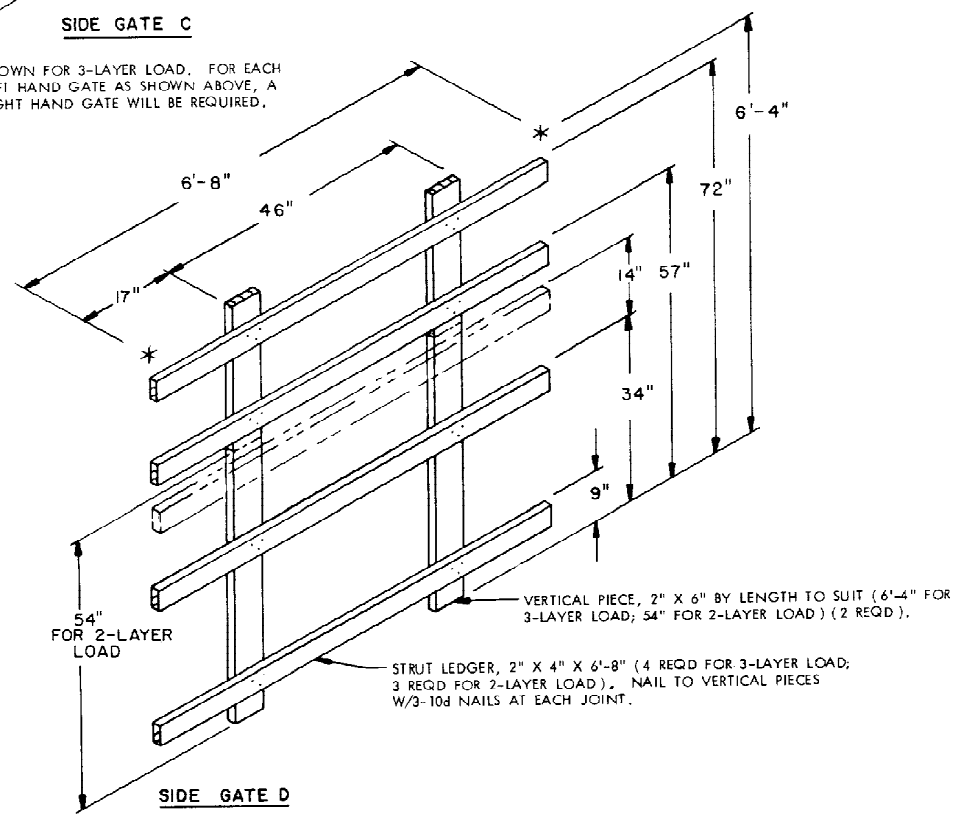
SIDE GATE B

FOR 2-LAYER LOAD.
FOR EACH LEFT HAND GATE AS SHOWN ABOVE, A RIGHT HAND GATE WILL BE REQUIRED.



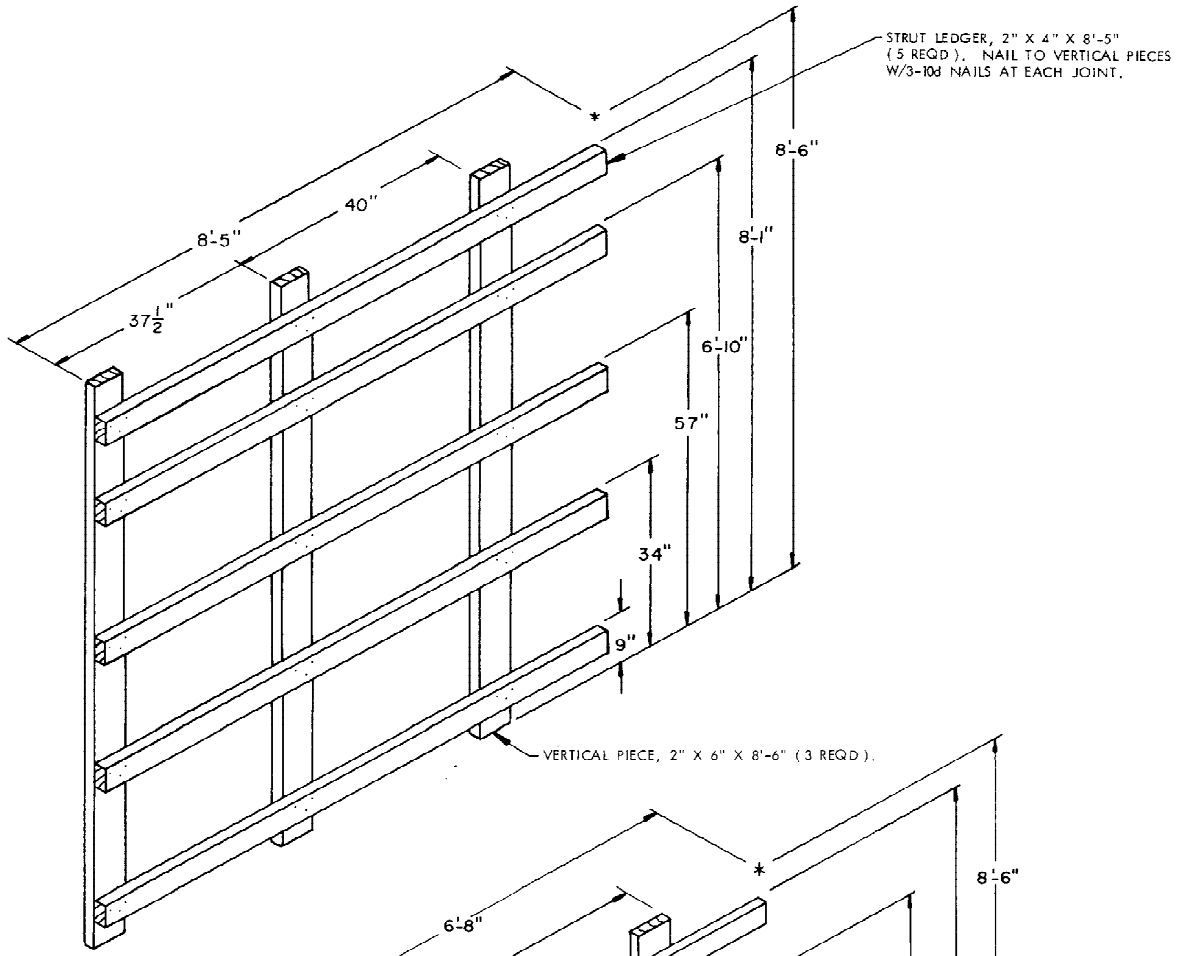
SIDE GATE C

SHOWN FOR 3-LAYER LOAD. FOR EACH LEFT HAND GATE AS SHOWN ABOVE, A RIGHT HAND GATE WILL BE REQUIRED.



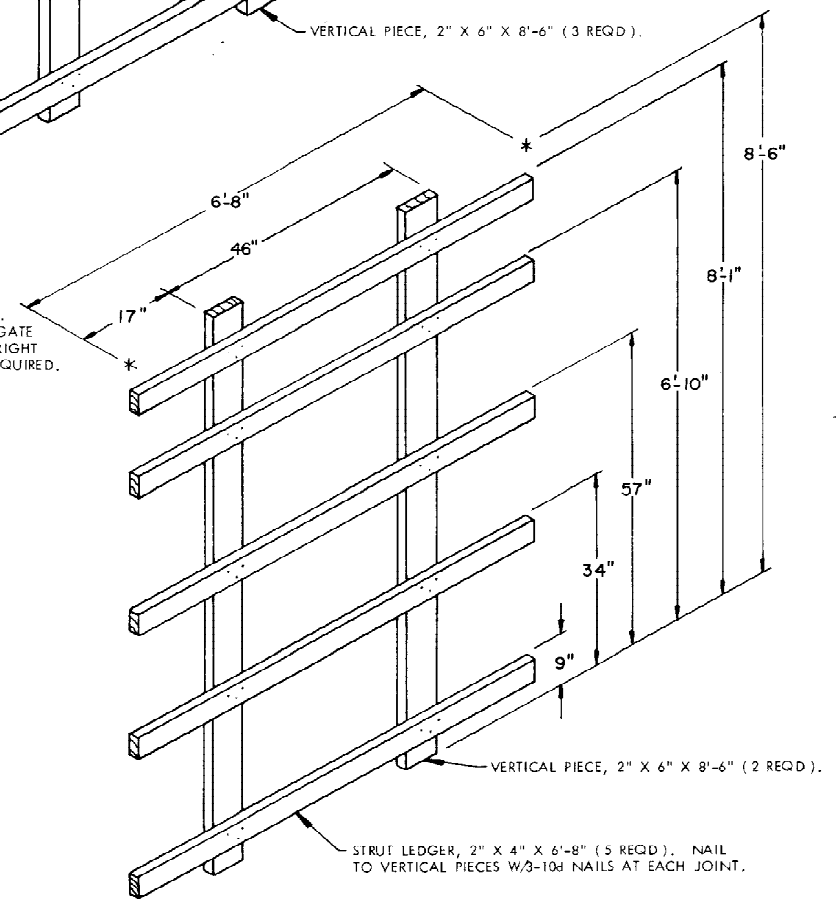
SIDE GATE D

SHOWN FOR 3-LAYER LOAD.



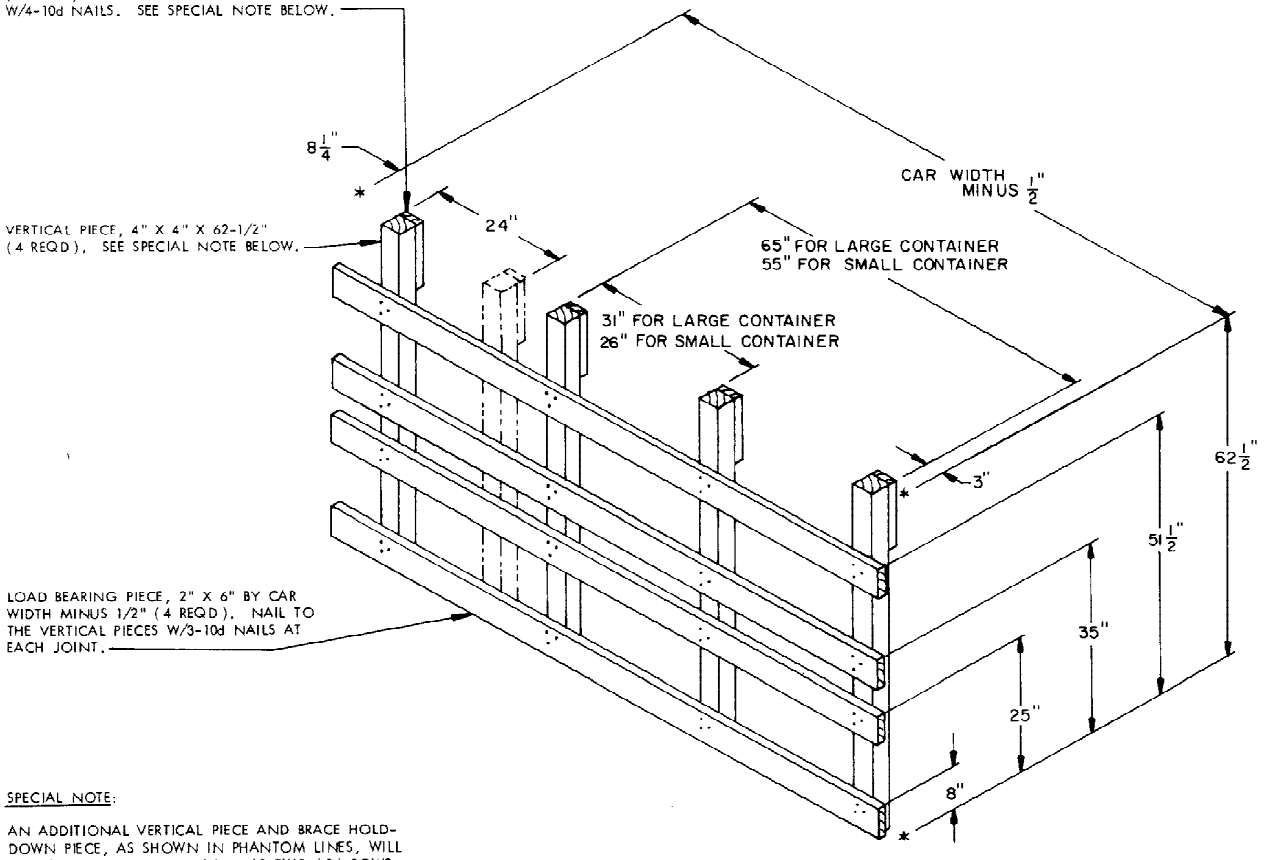
SIDE GATE E

FOR 4-LAYER LOAD.
FOR EACH LEFT HAND GATE AS SHOWN ABOVE, A RIGHT HAND GATE WILL BE REQUIRED.



SIDE GATE F

FOR 4-LAYER LOAD.



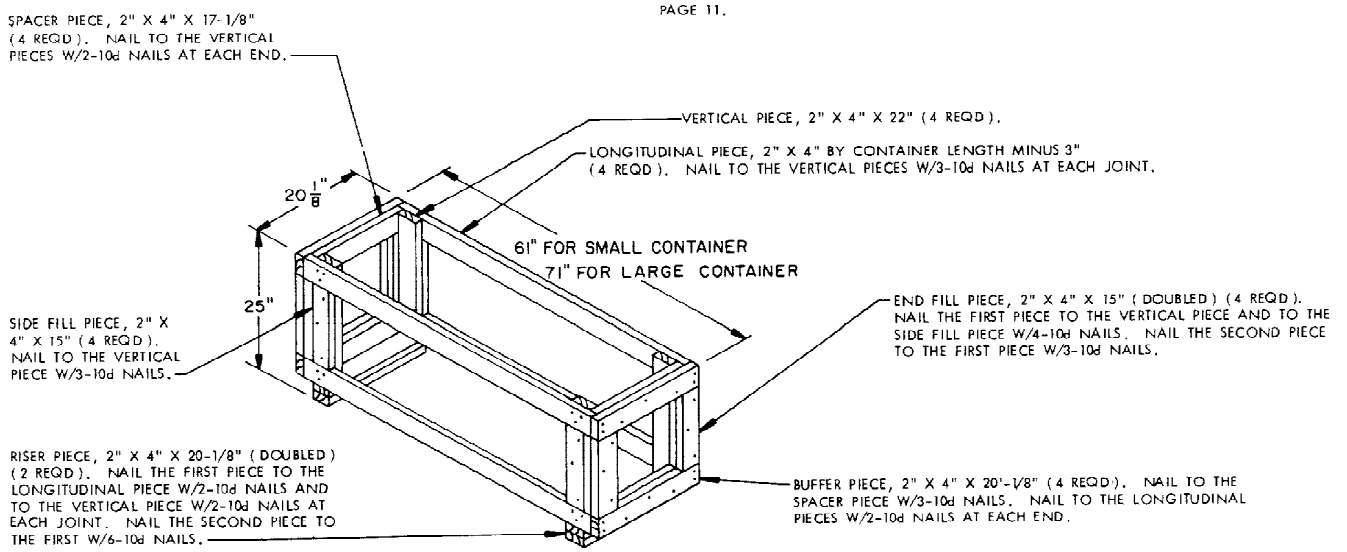
SPECIAL NOTE:

AN ADDITIONAL VERTICAL PIECE AND BRACE HOLD-DOWN PIECE, AS SHOWN IN PHANTOM LINES, WILL BE REQUIRED WHEN THE LOAD HAS TWO (2) ROWS OF CONTAINERS POSITIONED LONGITUDINALLY IN THE CAR.

LOAD BEARING GATE

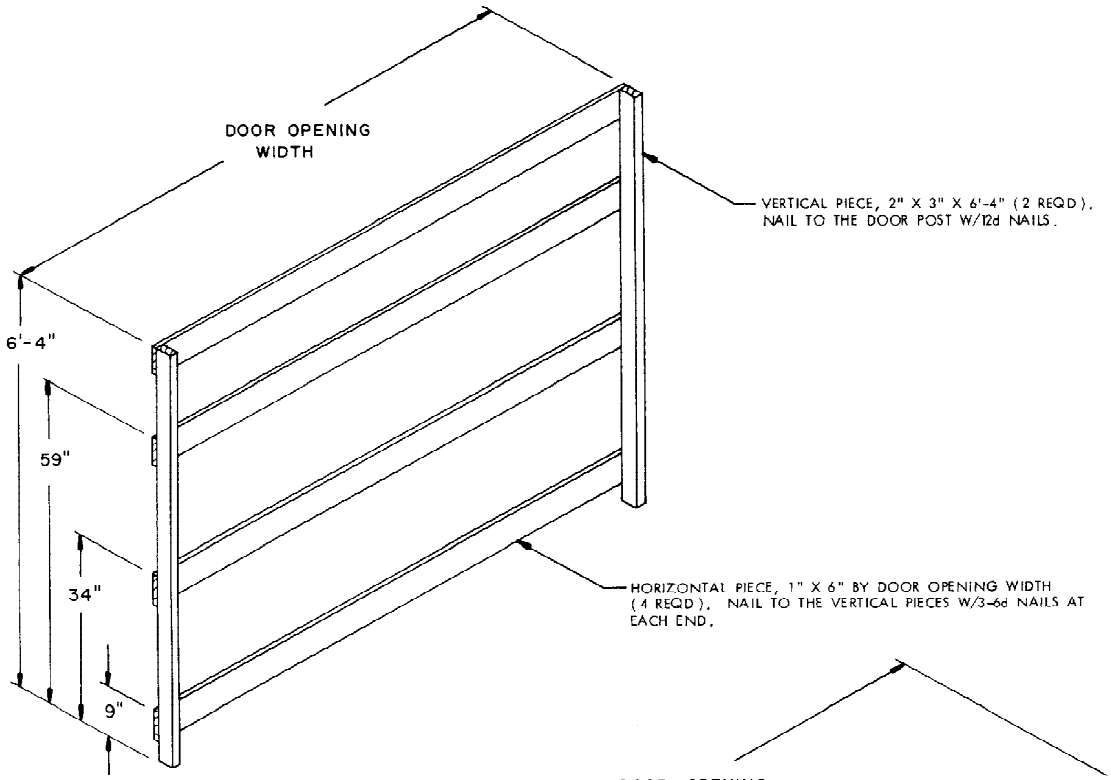
FOR 2-LAYER LOAD.

FOR CLARITY, THE GATE ABOVE IS SHOWN IN A REVERSE POSITION FROM THAT DEPICTED IN THE LOAD VIEW ON PAGE 11.



FILLER ASSEMBLY

THE FILLER ASSEMBLY AS SHOWN IS ONLY TO BE USED WITHIN THE TOP LAYER OF A LOAD TO TAKE THE PLACE OF AN OMITTED CONTAINER. ALSO, IT WILL NOT BE POSITIONED ADJACENT TO CENTER GATES OR MECHANICAL CROSS MEMBERS.



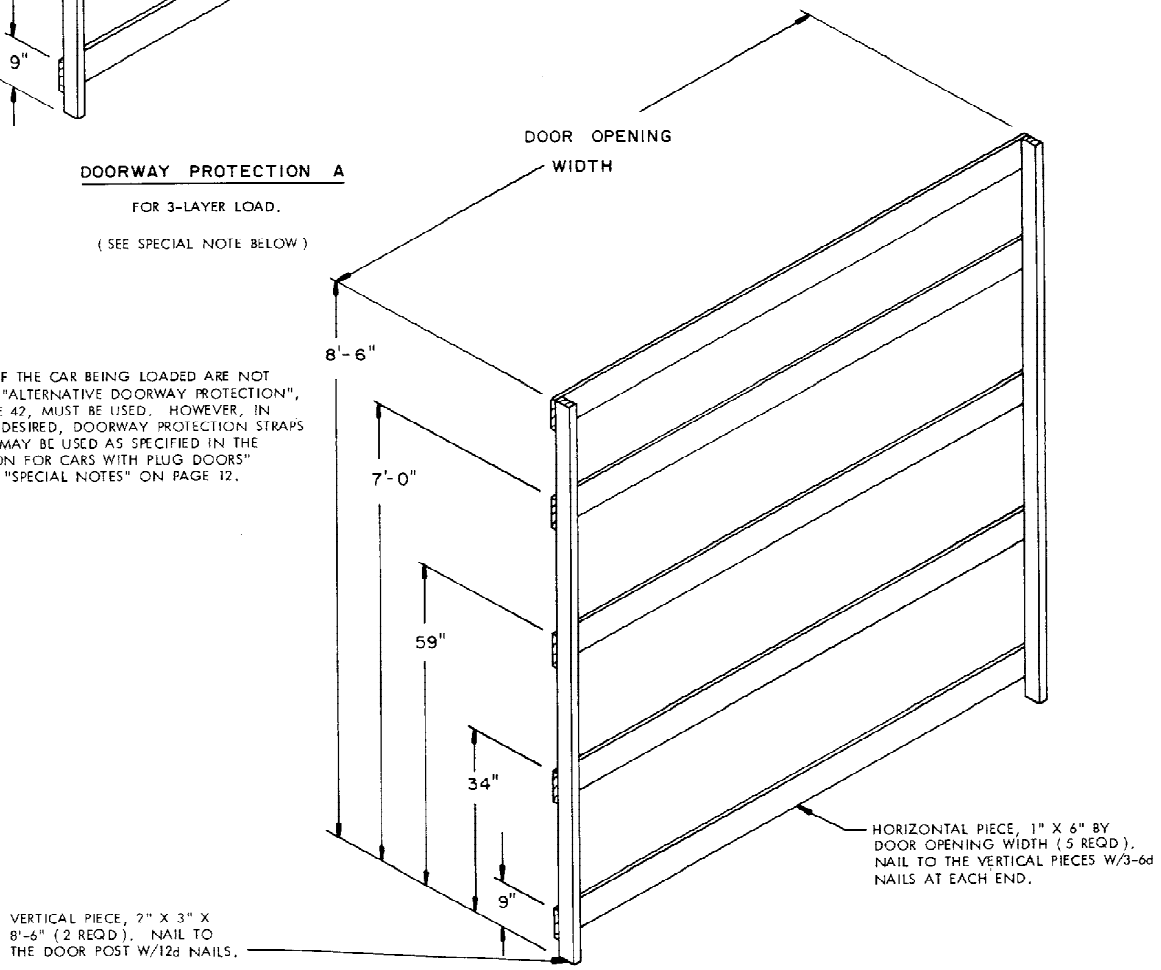
DOORWAY PROTECTION A

FOR 3-LAYER LOAD.

(SEE SPECIAL NOTE BELOW)

SPECIAL NOTE:

IF THE DOOR POSTS OF THE CAR BEING LOADED ARE NOT NAILABLE POSTS, THE "ALTERNATIVE DOORWAY PROTECTION", AS DETAILED ON PAGE 42, MUST BE USED. HOWEVER, IN LIEU THEREOF AND IF DESIRED, DOORWAY PROTECTION STRAPS AND SIDE BLOCKING MAY BE USED AS SPECIFIED IN THE "DOORWAY PROTECTION FOR CARS WITH PLUG DOORS" PROCEDURES AND THE "SPECIAL NOTES" ON PAGE 12.



DOORWAY PROTECTION B

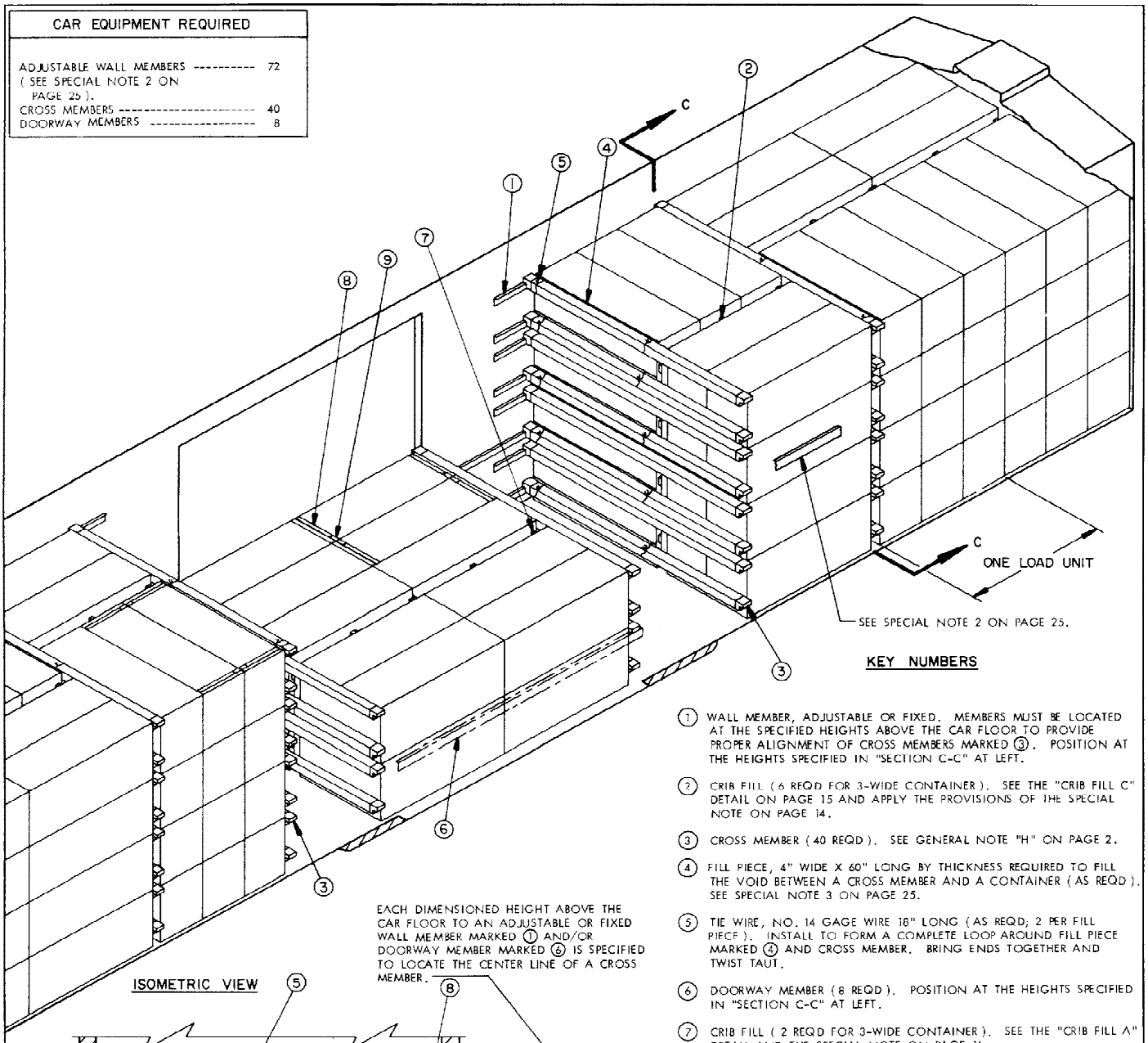
FOR 4-LAYER LOAD.

(SEE SPECIAL NOTE AT LEFT)

DETAILS

CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBERS (SEE SPECIAL NOTE 2 ON PAGE 25).	72
CROSS MEMBERS	40
DOORWAY MEMBERS	8

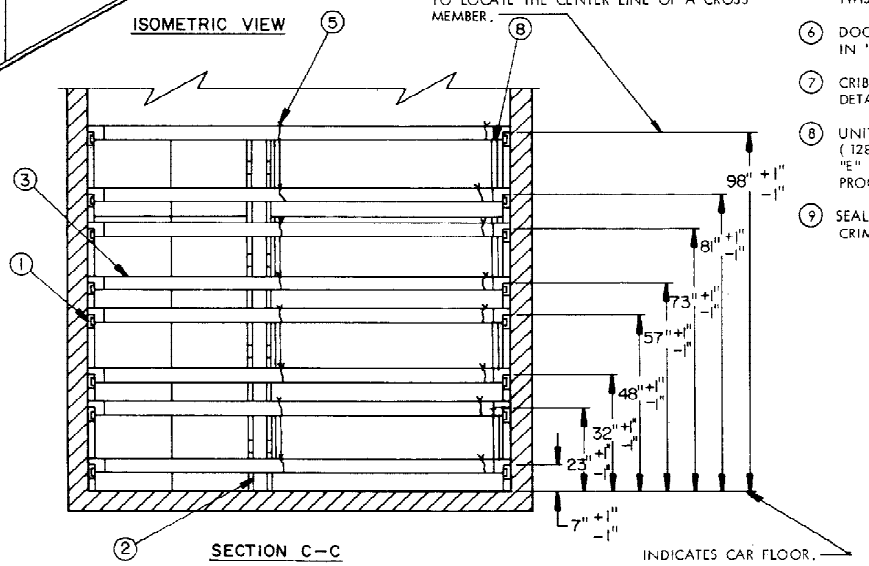


KEY NUMBERS

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 ③. POSITION AT THE HEIGHTS SPECIFIED IN "SECTION C-C" AT LEFT.
2. CRIB FILL (6 REQD FOR 3-WIDE CONTAINER). SEE THE "CRIB FILL C" DETAIL ON PAGE 15 AND APPLY THE PROVISIONS OF THE SPECIAL NOTE ON PAGE 14.
3. CROSS MEMBER (40 REQD). SEE GENERAL NOTE "H" ON PAGE 2.
4. FILL PIECE, 4" WIDE X 60" LONG BY THICKNESS REQUIRED TO FILL THE VOID BETWEEN A CROSS MEMBER AND A CONTAINER (AS REQD). SEE SPECIAL NOTE 3 ON PAGE 25.
5. TIE WIRE, NO. 14 GAGE WIRE 16" LONG (AS REQD; 2 PER FILL PIECE). INSTALL TO FORM A COMPLETE LOOP AROUND FILL PIECE MARKED ④ AND CROSS MEMBER. BRING ENDS TOGETHER AND TWIST TAUT.
6. DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED IN "SECTION C-C" AT LEFT.
7. CRIB FILL (2 REQD FOR 3-WIDE CONTAINER). SEE THE "CRIB FILL A" DETAIL AND THE SPECIAL NOTE ON PAGE 14.
8. UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (128 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.
9. SEAL FOR 1-1/4" STRAPPING (256 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

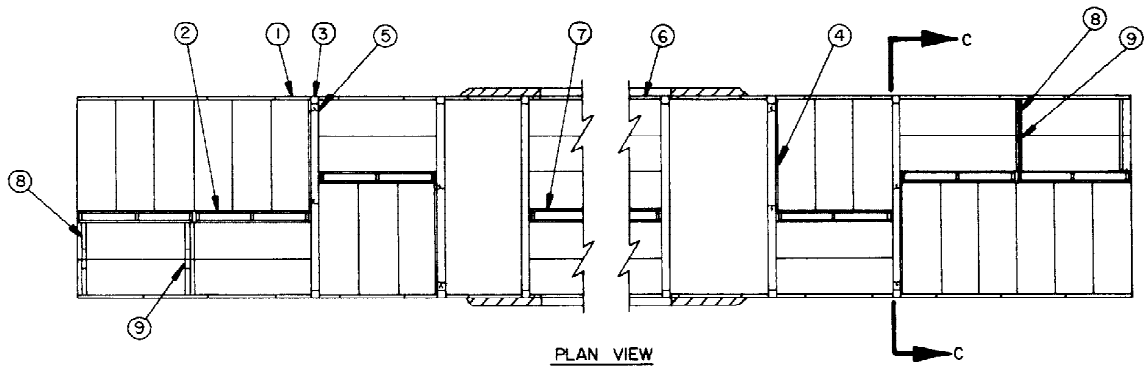
EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED ① AND/OR DOORWAY MEMBER MARKED ⑥ IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.

ISOMETRIC VIEW



SECTION C-C

140-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE CAR (MECHANICAL) (SMALL CONTAINER)



PLAN VIEW

SPECIAL NOTES:

1. A 140-UNIT LOAD OF SMALL CONTAINERS IS SHOWN IN A 50'-6" LONG BY 8'-11" WIDE (INSIDE CLEARANCE) BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS AND WITH A 10'-2" WIDE DOOR OPENING. TO FACILITATE LOADING AND UNLOADING OPERATIONS, CARS WITH DOOR OPENINGS LESS THAN 8'-0" SHOULD NOT BE USED. HOWEVER, CARS WITH WIDER AND/OR STAGGERED DOOR OPENINGS CAN BE USED. ALSO, NARROWER OR WIDER CARS CAN BE USED BY ADJUSTING THE WIDTH OF THE "CRIB FILL" ASSEMBLIES, PIECES MARKED (2) AND/OR (7).

2. THE QUANTITY OF ADJUSTABLE WALL MEMBERS SPECIFIED IN THE "CAR EQUIPMENT REQUIRED" CHART ON PAGE 24 IS FOR SECUREMENT OF CROSS MEMBERS AND IS BASED ON CARS NOT EQUIPPED WITH FIXED WALL MEMBERS. FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT ANY OF THE DIMENSIONED HEIGHTS SPECIFIED IN "SECTION C-C" ON PAGE 24, THE QUANTITY OF ADJUSTABLE WALL MEMBERS CAN BE REDUCED ACCORDINGLY. HOWEVER, IN ADDITION TO WALL MEMBERS REQUIRED TO SECURE CROSS MEMBERS, SIDE BEARING SURFACES MUST BE PROVIDED BETWEEN ALL CONTAINERS AND THE CAR SIDEWALL. PROPERLY POSITIONED FIXED WALL MEMBERS OR PLACEMENT OF ADDITIONAL ADJUSTABLE WALL MEMBERS MUST PROVIDE A MINIMUM OF ONE SURFACE AREA FOR SIDE BEARING AT SOME LOCATION WITHIN THE HEIGHT OF EACH CONTAINER. SEE GENERAL NOTE "H" ON PAGE 2.

3. LOADS OF CONTAINERS SHOULD BE TIGHT AND SNUG SO THAT VOIDS LENGTHWISE IN THE CAR ARE HELD TO A MINIMUM. DUE TO POSSIBLE VARIATIONS IN CONTAINER DIMENSIONS, USE OF 4" WIDE FILL MATERIAL IS SPECIFIED AS PIECES MARKED (4) AND IS TYPICALLY SHOWN IN THE ISOMETRIC VIEW. HOWEVER, FILL PIECES MARKED (4) NEED ONLY BE PROVIDED WHEN THE VOID BETWEEN ANY CROSS MEMBER AND A CONTAINER IS 1" OR MORE. SEE GENERAL NOTE "H" ON PAGE 2 FOR ADDITIONAL GUIDANCE.

4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-CAR-LOAD QUANTITY OF CONTAINERS, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 22, MAY BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER WITHIN THE TOP LAYER OF THE LOAD; HOWEVER, FILLER ASSEMBLIES MUST NOT BE LOCATED ADJACENT TO ANY CROSS MEMBER. FOR REDUCING THE QUANTITY BY 4 CONTAINERS, OMIT TWO (2) LONGITUDINALLY ADJACENT 2-LAYER STACKS WITHIN THE DOORWAY AREA AND IN LIEU OF "CRIB FILL" MARKED (7), SUBSTITUTE FOUR (4) "SIDE GATE B" ASSEMBLIES AS DETAILED ON PAGE 19 AND PROVIDE TWELVE SIDE STRUTS, 2" X 6" BY CUT TO FIT, AS DEPICTED IN THE ISOMETRIC VIEW ON PAGE 11, PIECES MARKED (3) AND (4). ALSO, THE QUANTITY OF CONTAINERS CAN BE REDUCED IN MULTIPLES OF 5 CONTAINERS BY OMITTING THE TOP LAYER WITHIN ONE OR MORE LOAD UNITS, OR BY OMITTING AN ENTIRE LOAD UNIT.

BILL OF MATERIAL*

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	280	94
2" X 4"	168	112
NAILS	NO. REQD	POUNDS
10d (3")	336	5-1/4

STEEL STRAPPING, 1-1/4" X .035"-------1664' REQD---238 LBS
SEAL FOR 1-1/4" STRAPPING--------- 256 REQD---13 LBS
WIRE, NO. 14 GAGE----------AS REQD---NIL

* FILL PIECES MARKED (4) ARE NOT INCLUDED IN THE "BILL OF MATERIAL". SEE SPECIAL NOTE 3 AT RIGHT.

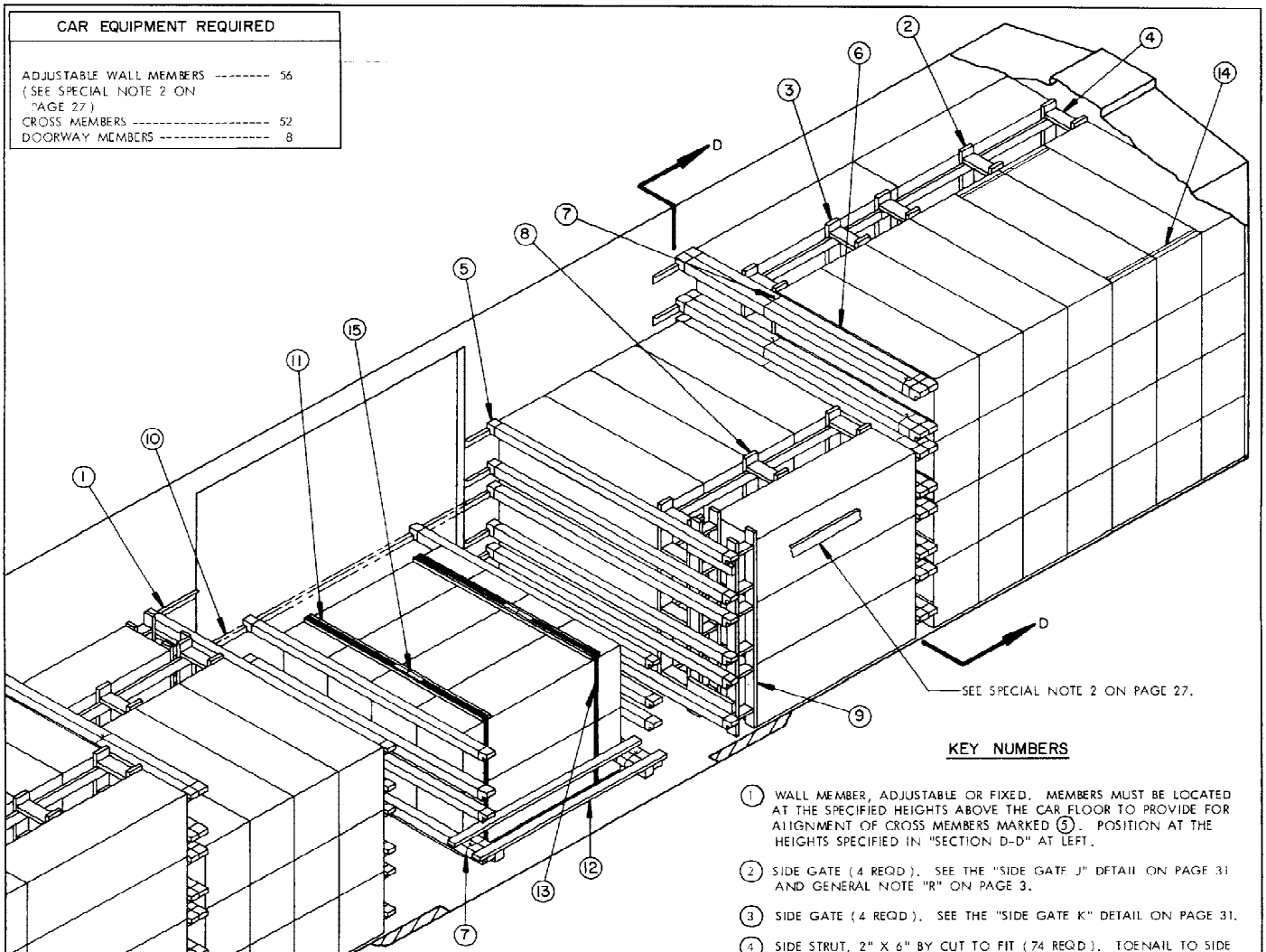
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SMALL CONTAINER	140	106,400 LBS
DUNNAGE		771 LBS
TOTAL WEIGHT		107,171 LBS

140-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE CAR (MECHANICAL) (SMALL CONTAINER)

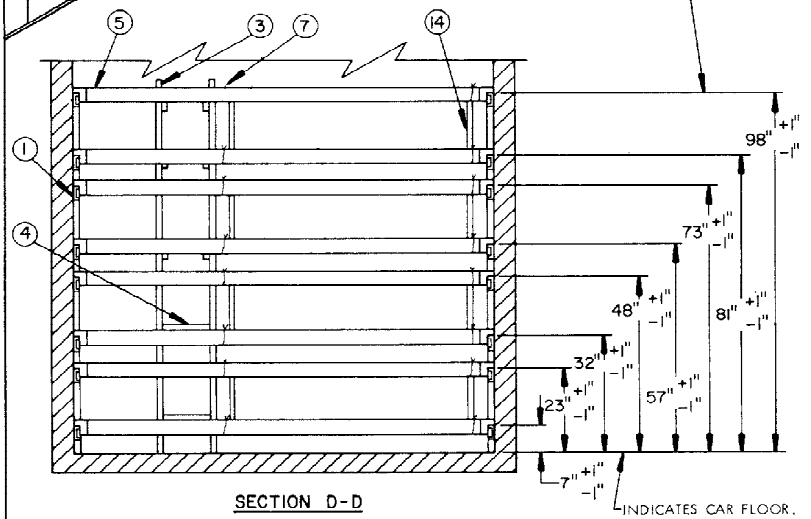
CAR EQUIPMENT REQUIRED

ADJUSTABLE WALL MEMBERS -------- 56
(SEE SPECIAL NOTE 2 ON PAGE 27)
CROSS MEMBERS -------- 52
DOORWAY MEMBERS -------- 8



ISOMETRIC VIEW

EACH DIMENSIONED HEIGHT ABOVE THE CAR FLOOR TO AN ADJUSTABLE OR FIXED WALL MEMBER MARKED (1) AND/OR DOORWAY MEMBER MARKED (10) IS SPECIFIED TO LOCATE THE CENTER LINE OF A CROSS MEMBER.



SECTION D-D

KEY NUMBERS

(1) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE LOCATED AT THE SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBERS MARKED (5). POSITION AT THE HEIGHTS SPECIFIED IN "SECTION D-D" AT LEFT.

(2) SIDE GATE (4 REQD). SEE THE "SIDE GATE J" DETAIL ON PAGE 31 AND GENERAL NOTE "R" ON PAGE 3.

(3) SIDE GATE (4 REQD). SEE THE "SIDE GATE K" DETAIL ON PAGE 31.

(4) SIDE STRUT, 2" X 6" BY CUT TO FIT (74 REQD). TOENAIL TO SIDE GATES MARKED (2) OR (3) W/2-12d NAILS AT EACH END.

(5) CROSS MEMBERS (52 REQD). SEE GENERAL NOTE "H" ON PAGE 2.

(6) FILL PIECE, 4" WIDE X 71" LONG BY THICKNESS REQUIRED TO FILL THE VOID BETWEEN A CROSS MEMBER AND A CONTAINER (AS REQD). SEE SPECIAL NOTE 3 ON PAGE 27.

(7) TIE WIRE, NO. 14 GAGE WIRE 30" LONG (AS REQD; 2 PER FILL PIECE MARKED (6) AND/OR SIDE BLOCKING ASSEMBLY MARKED (12)). INSTALL TO FORM A COMPLETE LOOP AROUND CROSS MEMBER AND FILL PIECE OR SIDE BLOCKING ASSEMBLY, AS APPLICABLE. BRING ENDS TOGETHER AND TWIST TAUT.

(8) SIDE GATE (4 REQD). SEE THE "SIDE GATE G" DETAIL ON PAGE 30.

(9) BUFFER/STRUT ASSEMBLY (2 REQD). SEE THE "BUFFER/STRUT ASSEMBLY A" DETAIL ON PAGE 27.

(10) DOORWAY MEMBER (8 REQD). POSITION AT THE HEIGHTS SPECIFIED IN "SECTION D-D" AT LEFT.

(11) STRAPPING BOARD, 2" X 4" BY LOAD WIDTH (2 REQD; 1 PER BUNDLING STRAP).

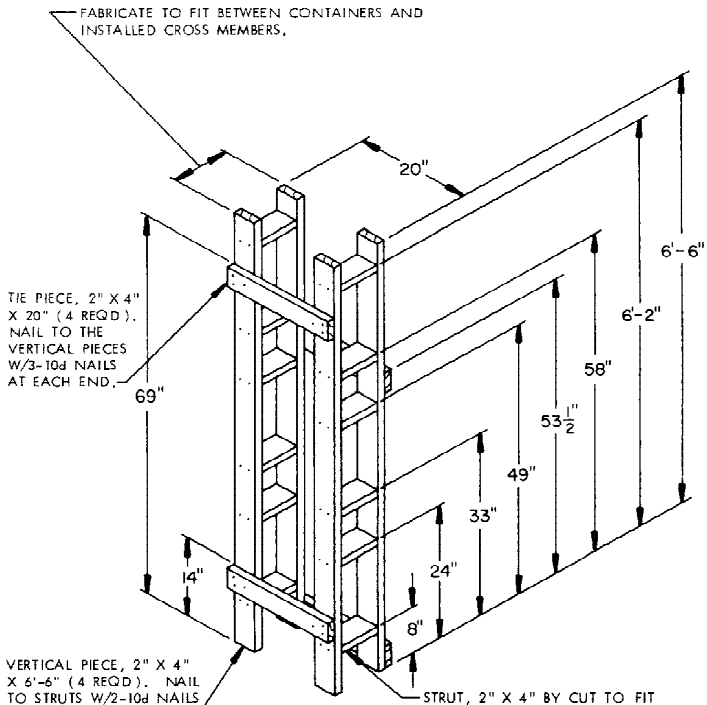
(12) SIDE BLOCKING ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 27.

(13) BUNDLING STRAP, 1-1/4" X .035" X 23'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE ALL CONTAINERS IN THE DOORWAY AREA, STAPLE TO STRAPPING BOARD MARKED (11) W/4-1-1/4" STAPLES.

(14) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (80 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

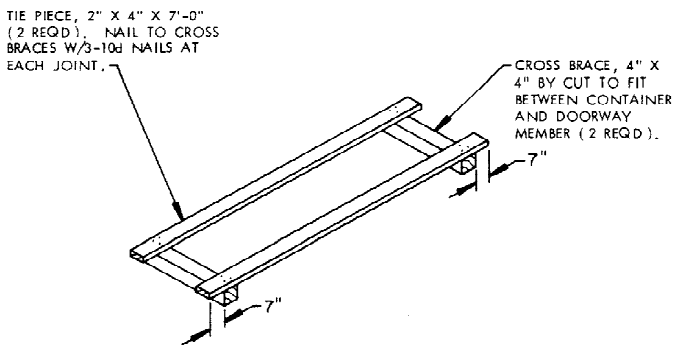
(15) SEAL FOR 1-1/4" STRAPPING (164 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

110-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE CAR (MECHANICAL) (LARGE CONTAINER)



BUFFER/STRUT ASSEMBLY A

FOR 3-LAYER LOAD



SIDE BLOCKING ASSEMBLY

SPECIAL NOTES:

1. A 110-UNIT LOAD OF LARGE CONTAINERS IS SHOWN IN A 50'-6" LONG BY 8'-11" WIDE (INSIDE CLEARANCE) BOXCAR EQUIPPED WITH ADJUSTABLE AND/OR FIXED WALL MEMBERS AND WITH A 10'-2" WIDE DOOR OPENING. TO FACILITATE LOADING AND UNLOADING OPERATIONS, CARS WITH DOOR OPENINGS LESS THAN 8'-0" SHOULD NOT BE USED. HOWEVER, CARS WITH WIDER AND/OR STAGGERED DOOR OPENINGS CAN BE USED. ALSO, NARROWER OR WIDER CARS CAN BE USED.

2. THE QUANTITY OF ADJUSTABLE WALL MEMBERS SPECIFIED IN THE "CAR EQUIPMENT REQUIRED" CHART ON PAGE 26 IS FOR SECUREMENT OF CROSS MEMBERS AND IS BASED ON CARS NOT EQUIPPED WITH FIXED WALL MEMBERS. FOR CARS EQUIPPED WITH FIXED WALL MEMBERS LOCATED AT ANY OF THE DIMENSIONED HEIGHTS SPECIFIED IN "SECTION D-D" ON PAGE 26, THE QUANTITY OF ADJUSTABLE WALL MEMBERS CAN BE REDUCED ACCORDINGLY. HOWEVER, IN ADDITION TO WALL MEMBERS REQUIRED TO SECURE CROSS MEMBERS, SIDE BEARING SURFACES MUST BE PROVIDED BETWEEN ALL CONTAINERS AND THE CAR SIDEWALL. PROPERLY POSITIONED FIXED WALL MEMBERS OR PLACEMENT OF ADDITIONAL ADJUSTABLE WALL MEMBERS MUST PROVIDE A MINIMUM OF ONE SURFACE AREA FOR SIDE BEARING AT SOME LOCATION WITHIN THE HEIGHT OF EACH CONTAINER. SEE GENERAL NOTE "H" ON PAGE 2.

3. LOADS OF CONTAINERS SHOULD BE TIGHT AND SNUG SO THAT VOIDS LENGTHWISE IN THE CAR ARE HELD TO A MINIMUM. DUE TO POSSIBLE VARIATIONS IN CONTAINER DIMENSIONS, USE OF 4" WIDE FILL MATERIAL IS SPECIFIED AS PIECES MARKED (6) AND IS TYPICALLY SHOWN IN THE ISOMETRIC VIEW. HOWEVER, FILL PIECES MARKED (6) NEED ONLY BE PROVIDED WHEN THE VOID BETWEEN ANY CROSS MEMBER AND A CONTAINER IS 1" OR MORE. SEE GENERAL NOTE "H" ON PAGE 2 FOR ADDITIONAL GUIDANCE.

4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-CAR-LOAD QUANTITY OF CONTAINERS, A "FILLER ASSEMBLY", AS DETAILED ON PAGE 22, MAY BE SUBSTITUTED IN THE PLACE OF EACH OMITTED CONTAINER WITHIN THE TOP LAYER OF THE LOAD; HOWEVER, FILLER ASSEMBLIES MUST NOT BE LOCATED ADJACENT TO ANY CROSS MEMBER. FOR REDUCING THE QUANTITY BY 4, 5 OR 9 CONTAINERS, OMIT THE TOP LAYER OF THE BAY CONTAINING THE SPECIFIC QUANTITY REQUIRED.

5. IF THE CAR OFFERED FOR SHIPMENT HAS A LOAD LIMIT OF NOT LESS THAN 119,500 POUNDS, A FOURTH LAYER OF 5 CONTAINERS CAN BE ADDED TO EITHER OR BOTH BAYS OF CONTAINERS ON EACH SIDE OF THE DOOR OPENING. HOWEVER, THE HEIGHT OF THE ASSEMBLIES MARKED (8) AND (7) MUST BE ADJUSTED ACCORDINGLY AND ADDITIONAL SIDE STRUTS MARKED (4) WILL BE REQUIRED.

BILL OF MATERIAL *

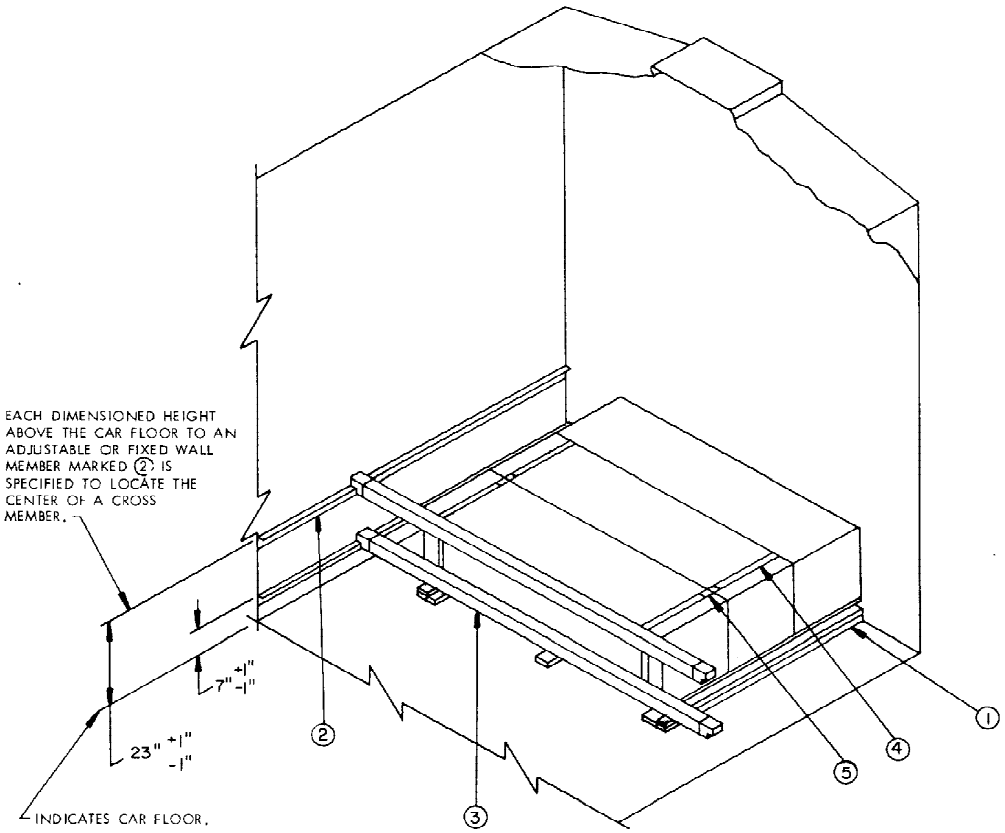
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	462	308
2" X 6"	327	327
4" X 4"	5	7
NAILS	**NO. REQD**	**POUNDS**
10d (3")	612	9-1/2
12d (3-1/4")	296	5
STEEL STRAPPING, 1-1/4" X .035" -----	1,086' REQD ---	155 LBS
SEAL FOR 1-1/4" STRAPPING ----------	164 REQD ---	8 LBS
STAPLE FOR 1-1/4" STRAPPING --------	8 REQD ---	NIL
WIRE, NO. 14 GAGE -----------------	AS REQD ---	NIL

* FILL PIECES MARKED (6) ARE NOT INCLUDED IN THE "BILL OF MATERIAL". SEE SPECIAL NOTE 3 AT RIGHT.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
LARGE CONTAINER ----------	110 ----------	107,580 LBS
DUNNAGE ----------		1,783 LBS
TOTAL WEIGHT ----------		109,363 LBS

110-UNIT LOAD IN A 50'-6" LONG BY 8'-11" WIDE CAR (MECHANICAL)(LARGE CONTAINER)



ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

1. THESE OUTLOADING PROCEDURES DEPICT THE SHIPMENT OF A ONE (1) CONTAINER HIGH LOAD OF SMALL OR LARGE CONTAINERS IN A BOXCAR (MECHANICAL) EQUIPPED WITH A NAILABLE FLOOR.
2. AN 8'-11" WIDE BOXCAR IS DEPICTED; HOWEVER ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING DEPICTED.
3. TWO (2) CROSS MEMBERS, LOCATED AT SPECIFIED HEIGHTS, ARE ADEQUATE FOR RETAINING A 1-LAYER LOAD OF SEVEN (7) SMALL CONTAINERS OR FIVE (5) LARGE CONTAINERS WHEN THE LOAD IS CENTERED IN THE CAR AS SHOWN.

(1) SIDE BLOCKING, 2" X 6" X 60" (DOUBLED) (2 REQD). PRE-POSITION TO CONTACT CONTAINER SKID AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/10-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "P" ON PAGE 2 AND NOTE "R" ON PAGE 3.

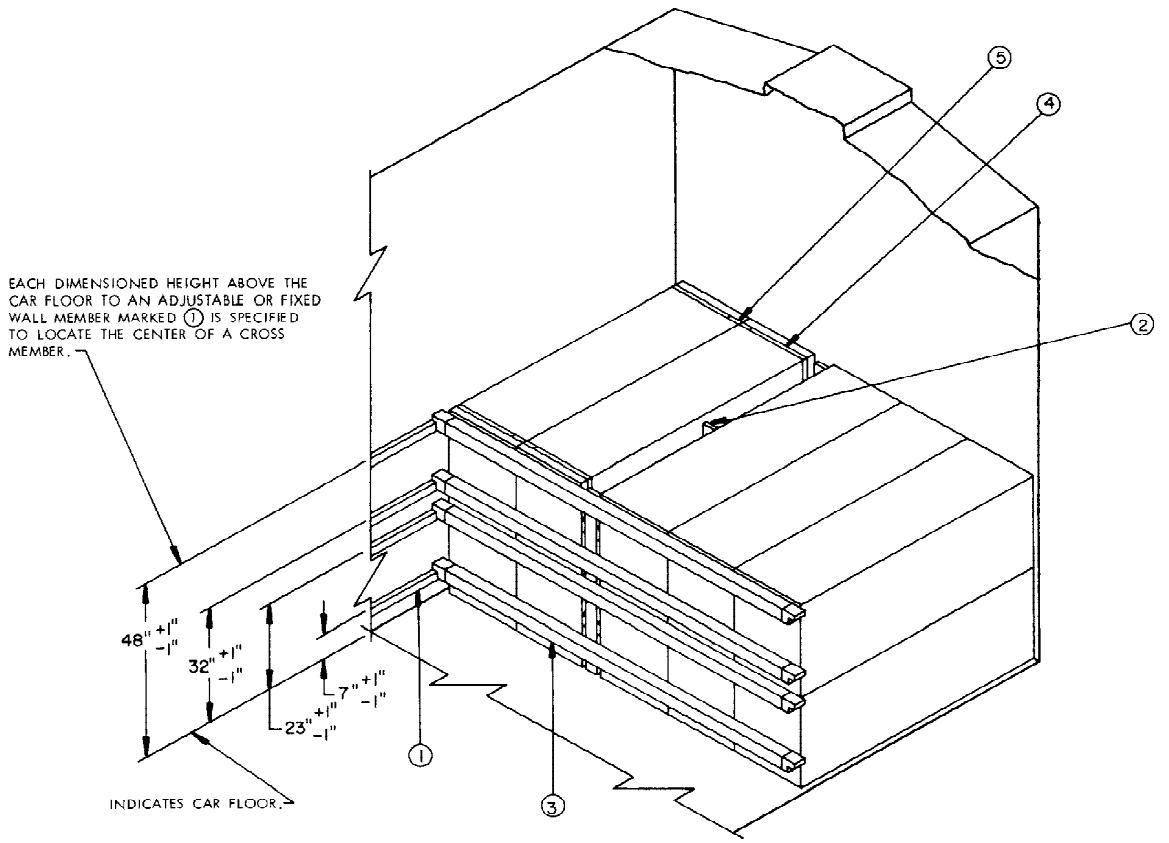
(2) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE AT SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBERS MARKED (3).

(3) CROSS MEMBER (2 REQD). SEE SPECIAL NOTE 3 AT LEFT AND GENERAL NOTE "H" ON PAGE 2.

(4) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (2 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(5) SEAL FOR 1-1/4" STRAPPING (4 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

TYPICAL LCL (3-UNIT LOAD) IN AN 8'-11" WIDE CAR (MECHANICAL)



ISOMETRIC VIEW

SPECIAL NOTES:

1. A 10-UNIT, TWO (2) CONTAINER HIGH LOAD OF SMALL OR LARGE CONTAINERS IS SHOWN IN AN 8'-11" WIDE BOXCAR (MECHANICAL). ANY WIDTH CAR CAN BE USED FOR THE TYPE OF OUTLOADING DEPICTED.
2. TO ADJUST THE QUANTITY OF CONTAINERS TO BE SHIPPED, A "FILLER ASSEMBLY" AS DETAILED ON PAGE 22 CAN BE USED IN THE PLACE OF EACH CONTAINER OMITTED IN THE TOP LAYER.
3. FOUR (4) CROSS MEMBERS, LOCATED AT SPECIFIED HEIGHTS, ARE ADEQUATE FOR RETAINING A MAXIMUM 2-LAYER LOAD OF TWENTY (20) SMALL CONTAINERS OR TEN (10) LARGE CONTAINERS WHEN THE LOAD IS UNIFORMLY DISTRIBUTED ACROSS THE WIDTH OF THE CAR AS SHOWN.

KEY NUMBERS

(1) WALL MEMBER, ADJUSTABLE OR FIXED. MEMBERS MUST BE AT SPECIFIED HEIGHTS ABOVE THE CAR FLOOR TO PROVIDE FOR ALIGNMENT OF CROSS MEMBERS MARKED (3).

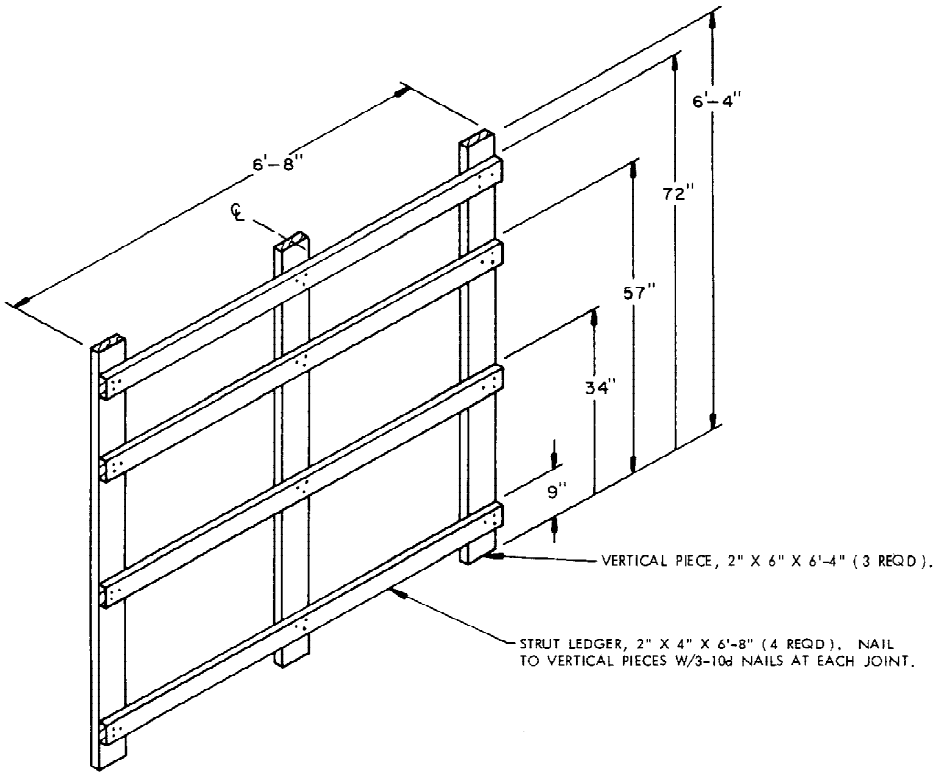
(2) CRIB FILL (1 REQD). SEE THE "CRIB FILL A" DETAIL ON PAGE 14 AND APPLY THE PROVISIONS OF THE SPECIAL NOTE ON PAGE 14. ALSO, THE LENGTH OF THE CRIB FILL MUST BE 60" FOR A LOAD OF SMALL CONTAINERS OR 70" FOR A LOAD OF LARGE CONTAINERS.

(3) CROSS MEMBER (4 REQD). SEE SPECIAL NOTE 3 AT LEFT AND GENERAL NOTE "H" ON PAGE 2.

(4) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (8 REQD; 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

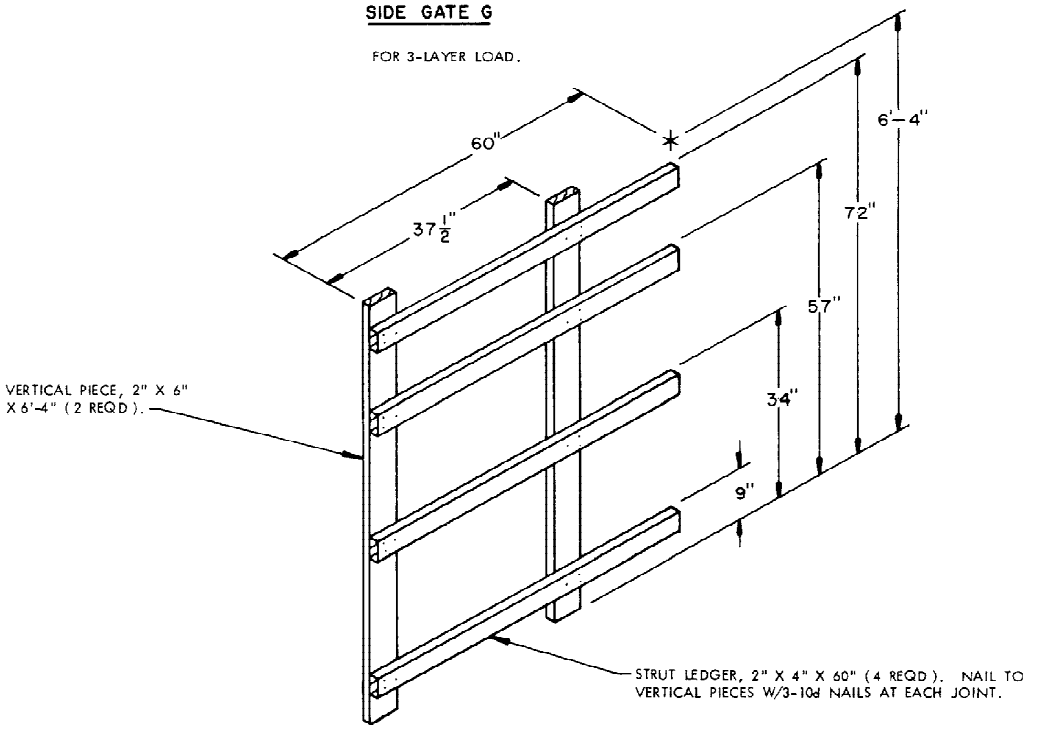
(5) SEAL FOR 1-1/4" STRAPPING (16 REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

TYPICAL LCL (10-UNIT LOAD) IN AN 8'-11" WIDE CAR (MECHANICAL)



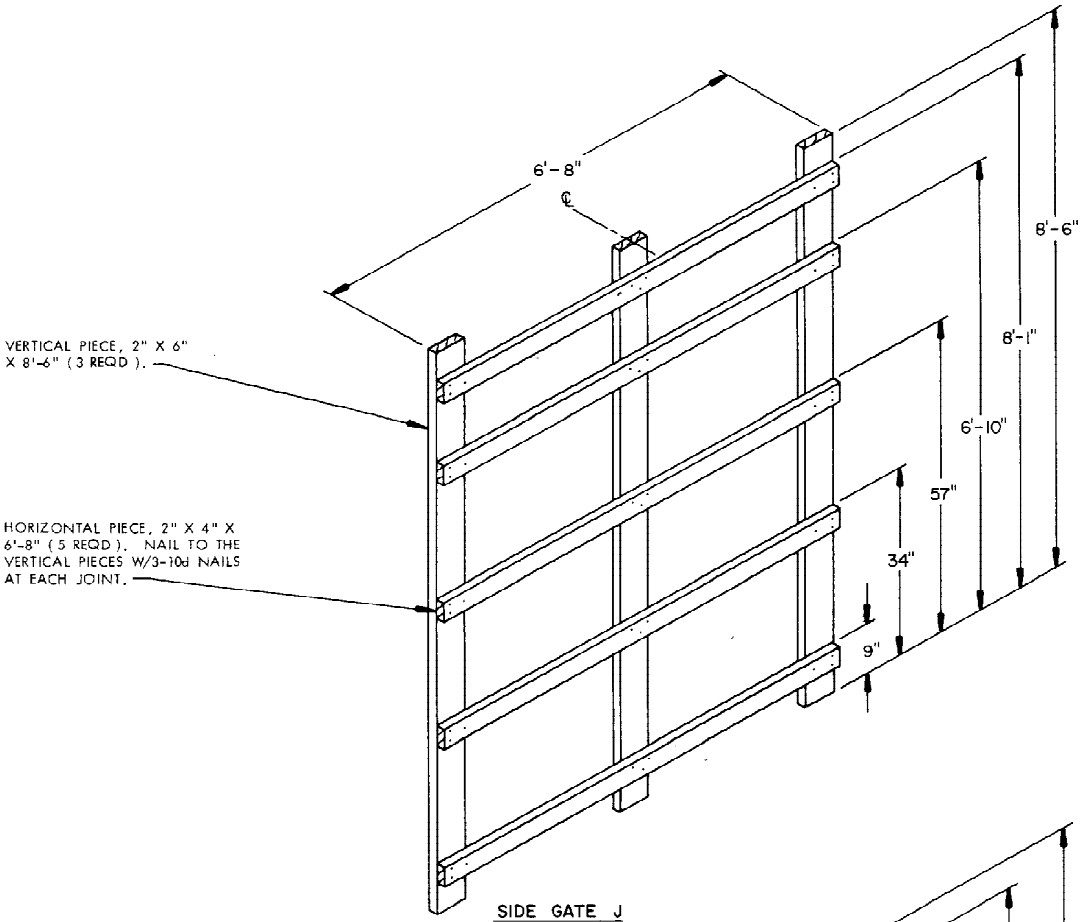
SIDE GATE G

FOR 3-LAYER LOAD.



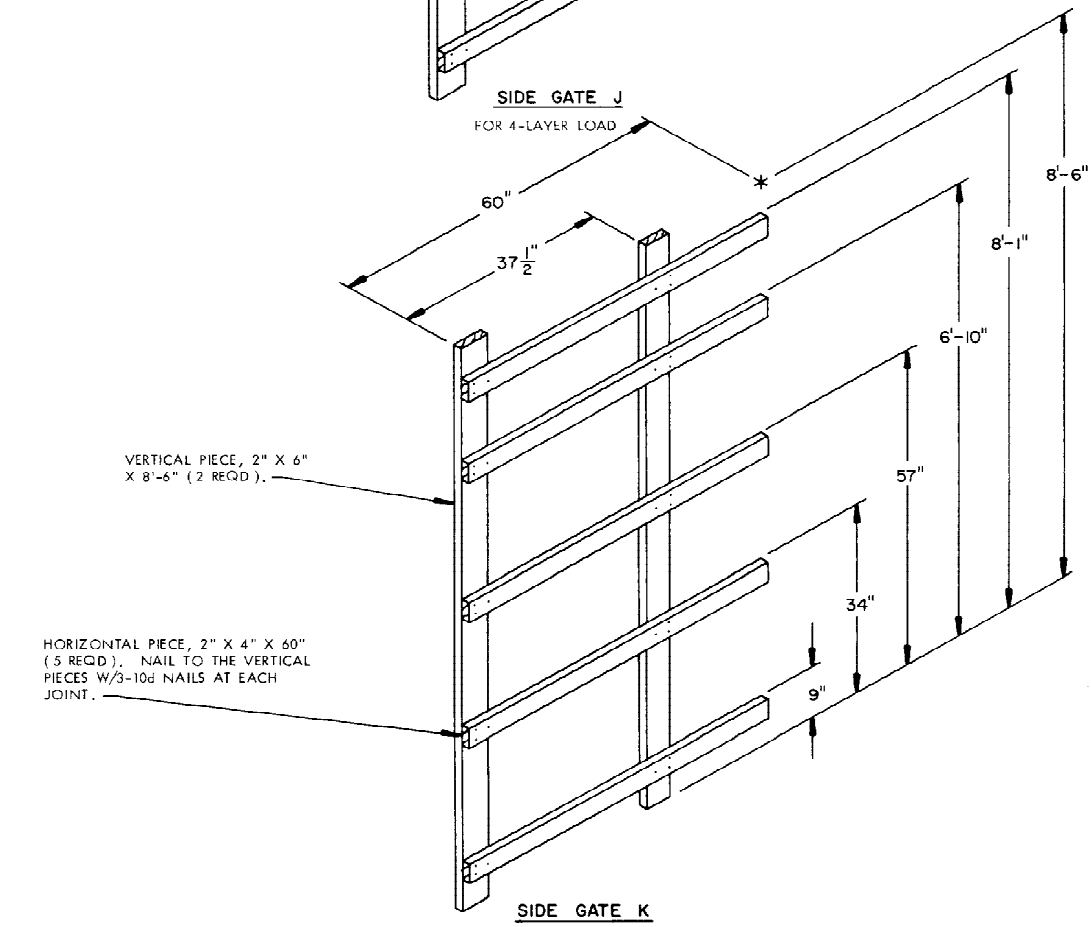
SIDE GATE H

FOR 3-LAYER LOAD.
FOR EACH LEFT HAND GATE AS SHOWN ABOVE, A RIGHT HAND GATE WILL BE REQUIRED.



SIDE GATE J

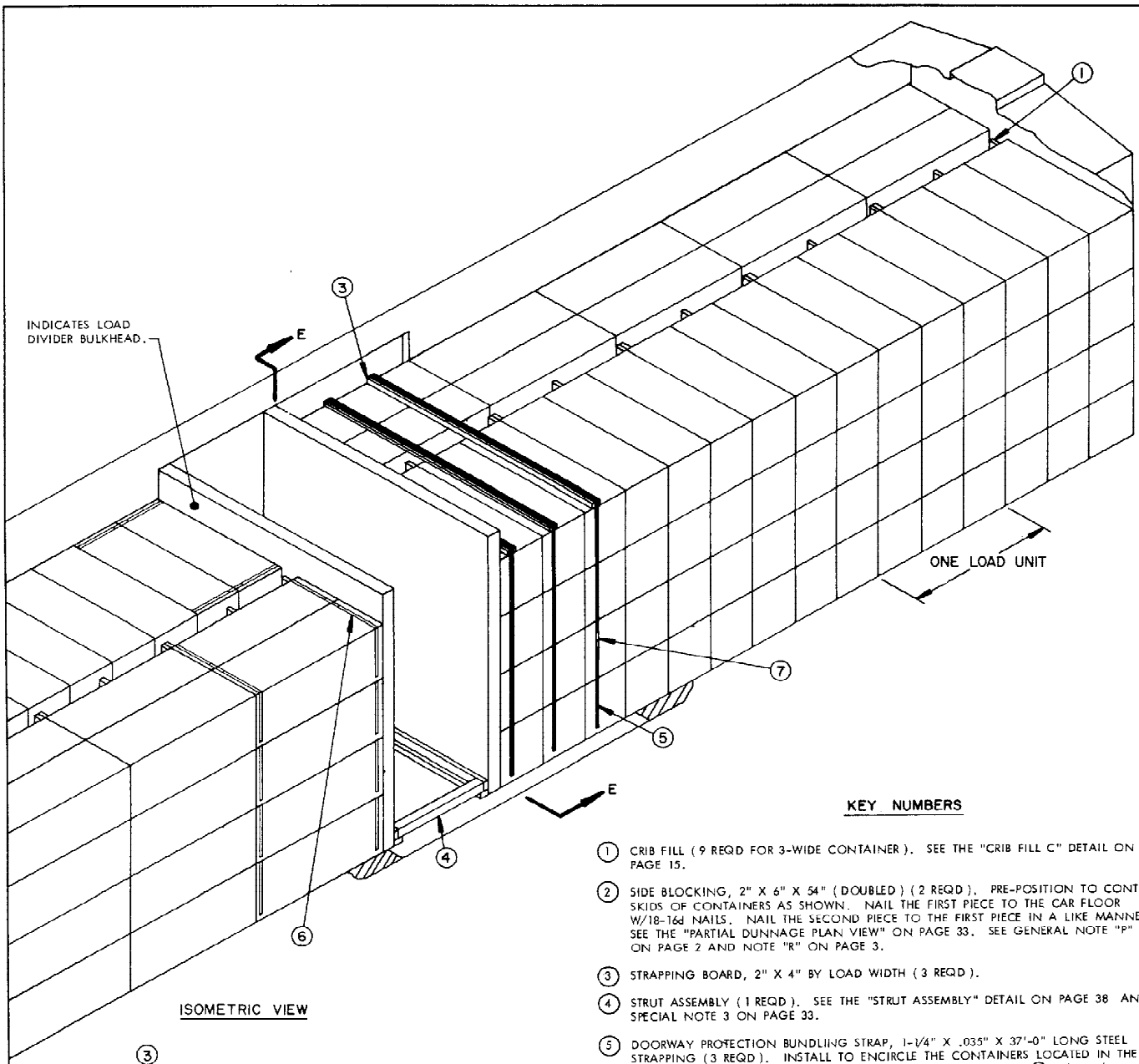
FOR 4-LAYER LOAD



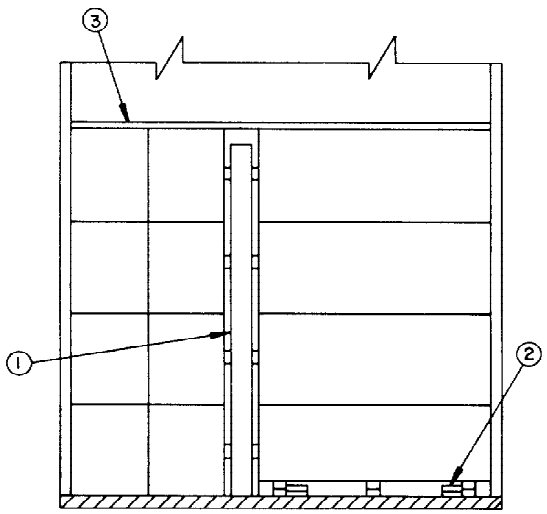
SIDE GATE K

FOR A 4-LAYER LOAD,
FOR EACH LEFT HAND GATE AS SHOWN ABOVE, A RIGHT HAND GATE WILL BE REQUIRED.

DETAILS



ISOMETRIC VIEW



SECTION E-E

KEY NUMBERS

(1) CRIB FILL (9 REQD FOR 3-WIDE CONTAINER). SEE THE "CRIB FILL C" DETAIL ON PAGE 15.

(2) SIDE BLOCKING, 2" X 6" X 54" (DOUBLED) (2 REQD). PRE-POSITION TO CONTACT SKIDS OF CONTAINERS AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/18-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST PIECE IN A LIKE MANNER. SEE THE "PARTIAL DUNNAGE PLAN VIEW" ON PAGE 33. SEE GENERAL NOTE "P" ON PAGE 2 AND NOTE "R" ON PAGE 3.

(3) STRAPPING BOARD, 2" X 4" BY LOAD WIDTH (3 REQD).

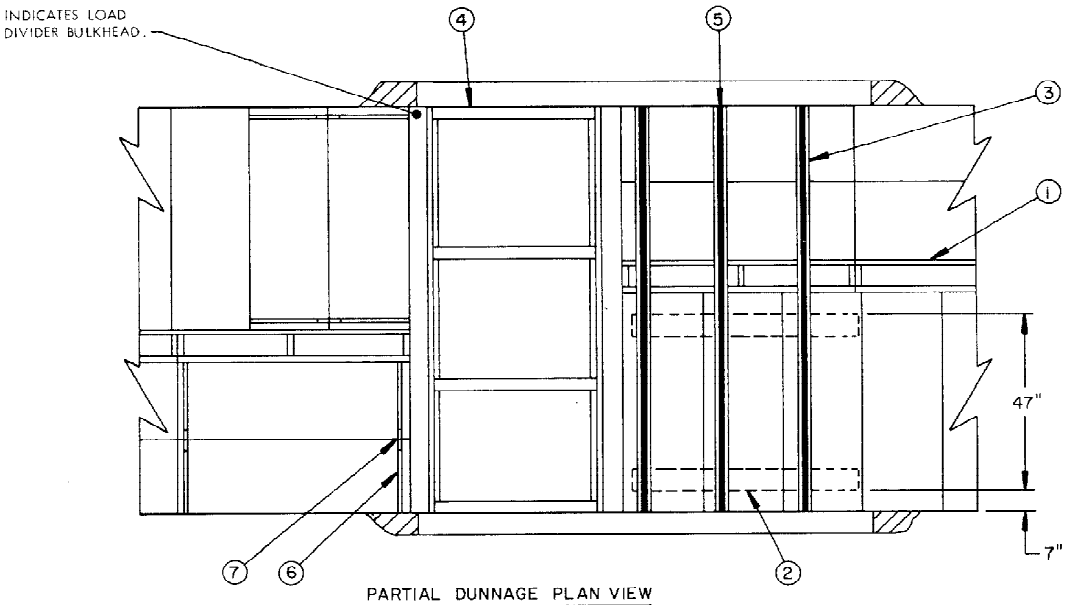
(4) STRUT ASSEMBLY (1 REQD). SEE THE "STRUT ASSEMBLY" DETAIL ON PAGE 38 AND SPECIAL NOTE 3 ON PAGE 33.

(5) DOORWAY PROTECTION BUNDLING STRAP, 1-1/4" X .035" X 37'-0" LONG STEEL STRAPPING (3 REQD). INSTALL TO ENCIRCLE THE CONTAINERS LOCATED IN THE "DOORWAY AREA", STAPLE TO THE STRAPPING BOARD MARKED (3) W/4-1-1/4" STAPLES. SEE GENERAL NOTE "S" ON PAGE 3.

(6) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (176 REQD, 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(7) SEAL FOR 1-1/4" STEEL STRAPPING (358 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

180-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (WITH LOAD DIVIDERS) (SMALL CONTAINER)



PARTIAL DUNNAGE PLAN VIEW

SPECIAL NOTES:

1. A 180 UNIT LOAD OF SMALL CONTAINERS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE (INSIDE DIMENSION) BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND HAVING 10'-0" WIDE THROUGH DOOR OPENINGS OF THE CONVENTIONAL SLIDING OR PLUG TYPE. WIDER OR NARROWER CARS AND CARS WITH ANY WIDTH DOOR OPENINGS CAN BE USED. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.

2. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS, THE QUANTITY CAN BE REDUCED BY OMITTING A COMPLETE LOAD UNIT OR A COMPLETE LAYER IN EITHER OR BOTH ENDS OF THE CAR. FOR OMITTING ONE (1) TO FOUR (4) STACKS OF CONTAINERS, THE METHODS DEPICTED ON PAGE 36 SHOULD BE USED FOR EITHER OR BOTH ENDS OF THE CAR. LOAD QUANTITIES CAN ALSO BE ADJUSTED BY SUBSTITUTING A "FILLER ASSEMBLY", AS DETAILED ON PAGE 22, IN THE PLACE OF EACH OMITTED CONTAINER, BUT ONLY WITHIN A TOP LAYER OF THE LOAD. ADDITIONALLY, TO SATISFY THE QUANTITY TO BE SHIPPED, ONE OR MORE "RISER ASSEMBLIES" MAY BE USED BY APPLYING THE PROCEDURES DEPICTED ON PAGES 41 AND 42.

3. SOME CARS ARE EQUIPPED WITH 2-PIECE BULKHEADS WHICH MAY REQUIRE THE USE OF TWO (2) STRUT ASSEMBLIES AS SHOWN IN THE "STRUT ASSEMBLY FOR 2-PIECE BULKHEADS" DETAIL ON PAGE 38. ALSO SEE THE "SPECIAL NOTE" ON PAGE 38.

BILL OF MATERIAL

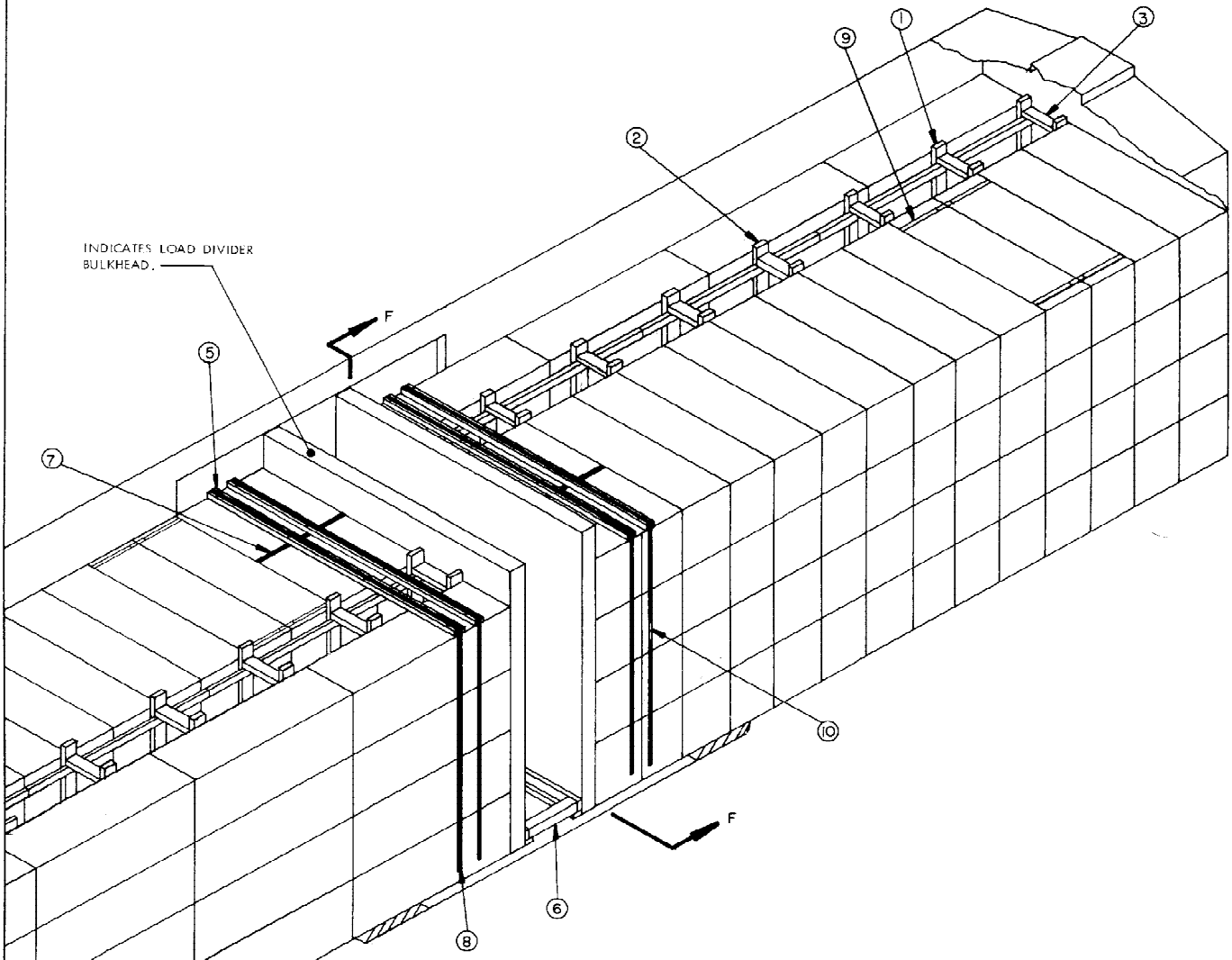
LUMBER	LINEAR FEET	BOARD FEET
1" X 8"	16	11
2" X 4"	425	284
2" X 6"	236	236
4" X 4"	15	20
NAILS	**NO. REQD**	**POUNDS**
6d (2")	16	1/4
10d (3")	450	7
12d (3-1/4")	16	1/4
16d (3-1/2")	72	1-1/2

STEEL STRAPPING, 1-1/4" X .035" -----	2,399' REQD --	343 LBS
SEAL FOR 1-1/4" STRAPPING ----------	358 REQD --	18 LBS
STAPLE FOR 1-1/4" STRAPPING ---------	12 REQD	NIL

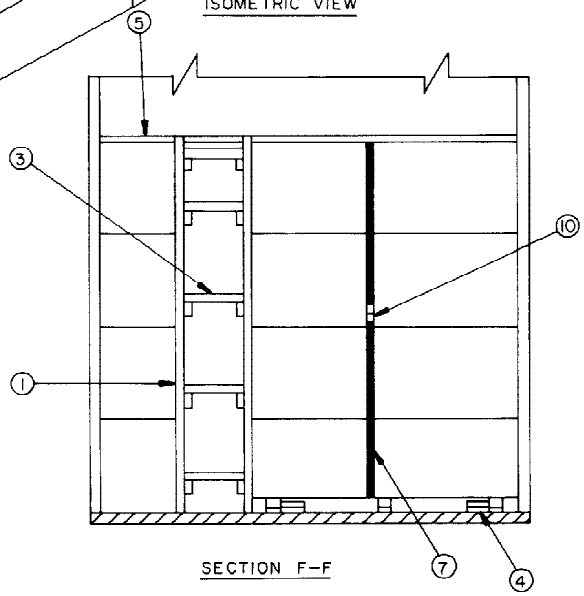
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SMALL CONTAINER	180	136,800 LBS
DUNNAGE		1,748 LBS
TOTAL WEIGHT		138,548 LBS

180-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (WITH LOAD DIVIDERS) (SMALL CONTAINER)



ISOMETRIC VIEW



SECTION F-F

KEY NUMBERS

(1) SIDE GATE (8 REQD). SEE THE "SIDE GATE E" DETAIL ON PAGE 21. SEE GENERAL NOTE "R" ON PAGE 3.

(2) SIDE GATE (4 REQD). SEE THE "SIDE GATE F" DETAIL ON PAGE 21.

(3) SIDE STRUT, 2" X 6" BY CUT TO FIT (80 REQD). TOENAIL TO SIDE GATES MARKED (1) OR (2) W/2-12d NAILS AT EACH END.

(4) SIDE BLOCKING, 2" X 6" X 36" (DOUBLED) (4 REQD). PRE-POSITION TO CONTACT SKIDS OF CONTAINERS AS SHOWN. NAIL THE FIRST PIECE TO THE CAR FLOOR W/12-16d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE THE "PARTIAL DUNNAGE PLAN VIEW" ON PAGE 35. SEE GENERAL NOTE "P" ON PAGE 2 AND NOTE "R" ON PAGE 3.

(5) STRAPPING BOARD, 2" X 4" BY LOAD WIDTH (4 REQD).

(6) STRUT ASSEMBLY (1 REQD). SEE THE "STRUT ASSEMBLY" DETAIL ON PAGE 38 AND SPECIAL NOTE 4 ON PAGE 35.

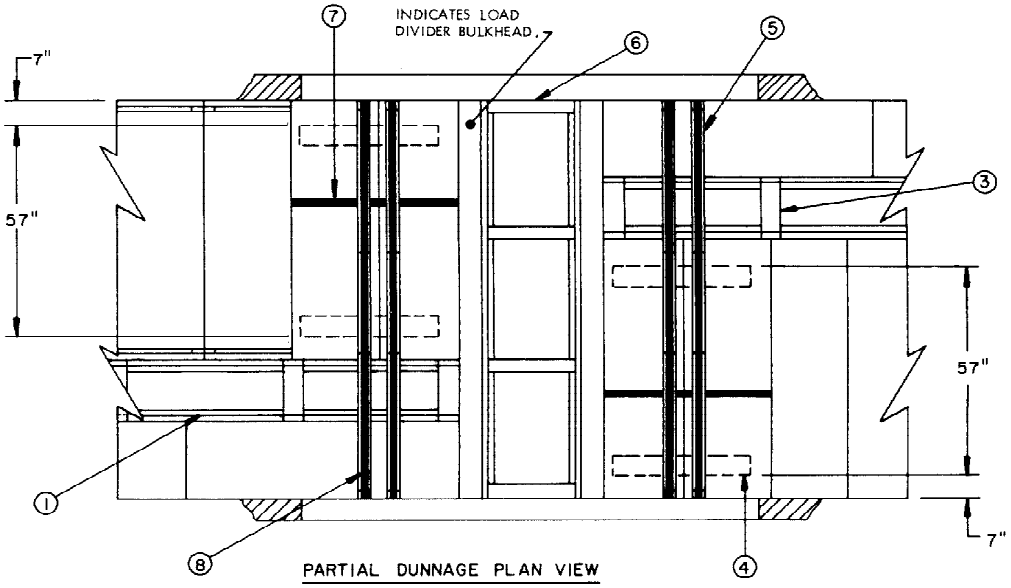
(7) LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 25'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE TWO (2) LATERALLY POSITIONED CONTAINER STACKS IN THE "DOORWAY AREA". SEE GENERAL NOTE "S" ON PAGE 3.

(8) DOORWAY PROTECTION BUNDLING STRAP, 1-1/4" X .035" X 37'-0" LONG STEEL STRAPPING (4 REQD). INSTALL TO ENCIRCLE THE CONTAINERS IN THE "DOORWAY AREA". STAPLE TO THE STRAPPING BOARD MARKED (5) W/4-1-1/4" STAPLES.

(9) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (112 REQD, 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

(10) SEAL FOR 1-1/4" STRAPPING (236 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

144-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (WITH LOAD DIVIDERS) (LARGE CONTAINER)



PARTIAL DUNNAGE PLAN VIEW

SPECIAL NOTES:

1. A 144-UNIT (4-LAYER) LOAD OF LARGE CONTAINERS IS SHOWN IN A 50'-6" LONG BY 9'-2" WIDE (INSIDE DIMENSION) BOXCAR EQUIPPED WITH LOAD DIVIDER BULKHEADS AND HAVING 10'-0" WIDE THROUGH DOOR OPENINGS OF THE CONVENTIONAL SLIDING OR PLUG TYPE. WIDER OR NARROWER CARS AND CARS WITH ANY WIDTH DOOR OPENINGS CAN BE USED. NOTE: IF A CAR IS 9'-4" WIDE OR WIDER, SEE NOTE 2 BELOW. SEE GENERAL NOTES "J" AND "K" ON PAGE 2.

2. A 132-UNIT (3-LAYER) LOAD CAN BE SHIPPED IN A 50'-6" LONG BY 9'-4" WIDE OR WIDER CAR BY LOADING TWO ROWS OF CONTAINERS LONGITUDINALLY IN THE CAR AS SHOWN IN THE "TYPICAL SECTION" ON PAGE 7. PIECES MARKED (1), (2) AND (3) WILL NOT BE REQUIRED.

3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LESS-THAN-FULL-LOAD QUANTITY OF CONTAINERS, THE QUANTITY CAN BE REDUCED BY OMITTING A COMPLETE LAYER IN EITHER OR BOTH ENDS OF THE CAR. FOR OMITTING ONE (1) TO FOUR (4) STACKS OF CONTAINERS, THE METHODS DEPICTED ON PAGE 37 SHOULD BE USED FOR EITHER OR BOTH ENDS OF THE CAR. LOAD QUANTITIES CAN ALSO BE ADJUSTED BY SUBSTITUTING A "FILLER ASSEMBLY", AS DETAILED ON PAGE 22, IN THE PLACE OF EACH OMITTED CONTAINER, BUT ONLY WITHIN A TOP LAYER OF THE LOAD. ADDITIONALLY, TO SATISFY THE QUANTITY TO BE SHIPPED, ONE OR MORE "RISER ASSEMBLIES" MAY BE USED BY APPLYING THE PROCEDURES DEPICTED ON PAGES 41 AND 42.

4. SOME CARS ARE EQUIPPED WITH 2-PIECE BULKHEADS WHICH MAY REQUIRE THE USE OF TWO (2) STRUT ASSEMBLIES AS SHOWN IN THE "STRUT ASSEMBLY FOR 2-PIECE BULKHEADS" DETAIL ON PAGE 38. ALSO, SEE THE "SPECIAL NOTE" ON PAGE 38.

BILL OF MATERIAL

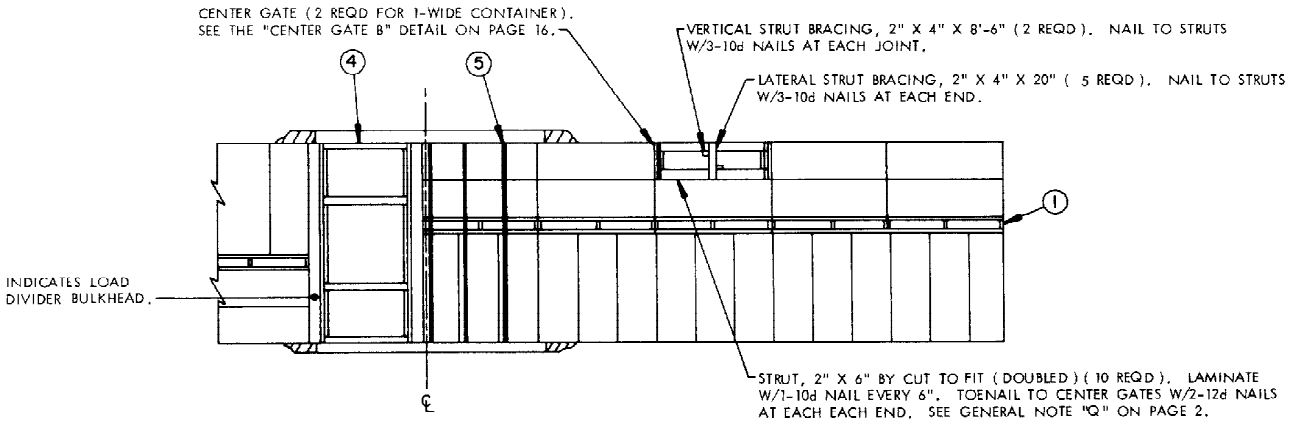
LUMBER	LINEAR FEET	BOARD FEET
1" X 8"	16	11
2" X 4"	543	362
2" X 6"	403	403
4" X 4"	9	12
NAILS	**NO. REQD**	**POUNDS**
6d (2")	16	1/4
10d (3")	498	7-3/4
12d (3-1/4")	336	5-3/4
16d (3-1/2")	96	2-1/4

STEEL STRAPPING, 1-1/4" X .035" ------	1,654' REQD ---	236 LBS
SEAL FOR 1-1/4" STRAPPING ----------	236 REQD ---	12 LBS
STAPLE FOR 1-1/4" STRAPPING ---------	16 REQD ---	NIL

LOAD AS SHOWN

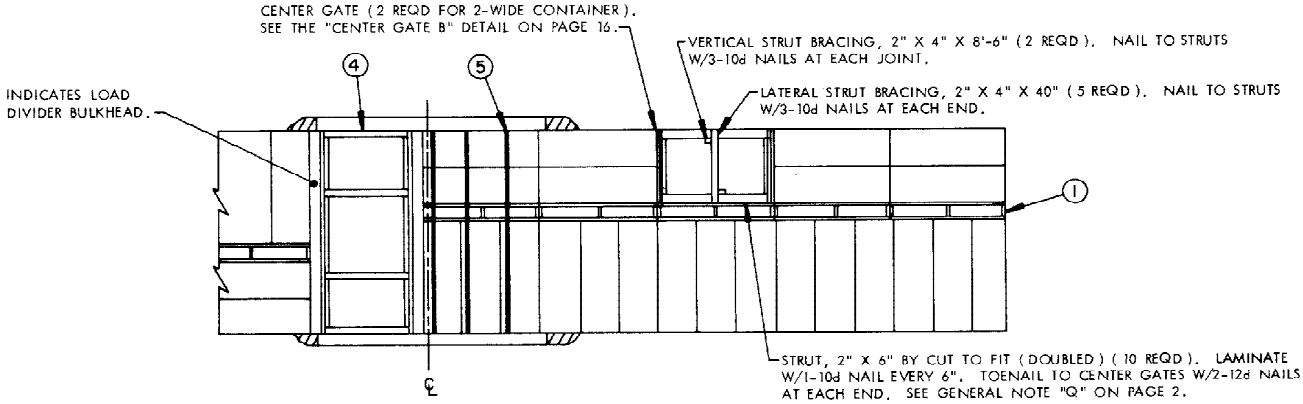
ITEM	QUANTITY	WEIGHT (APPROX)
LARGE CONTAINER ------	144 ----------	140,832 LBS
DUNNAGE ----------		2,234 LBS
TOTAL WEIGHT ----------		143,066 LBS

144-UNIT LOAD IN A 50'-6" LONG BY 9'-2" WIDE CAR (WITH LOAD DIVIDERS)(LARGE CONTAINER)



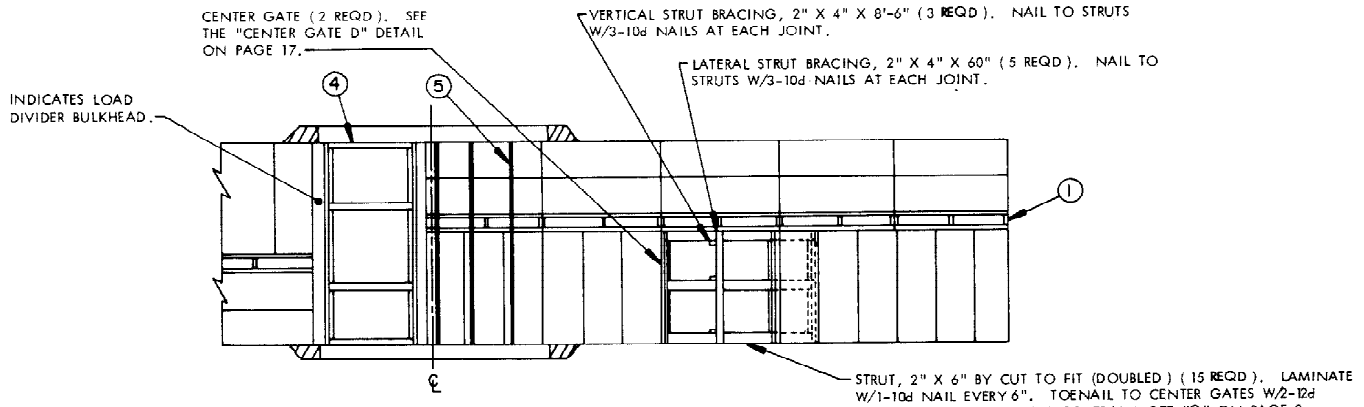
METHOD FOR OMITTING 1 STACK

(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 32).



METHOD FOR OMITTING 2 STACKS

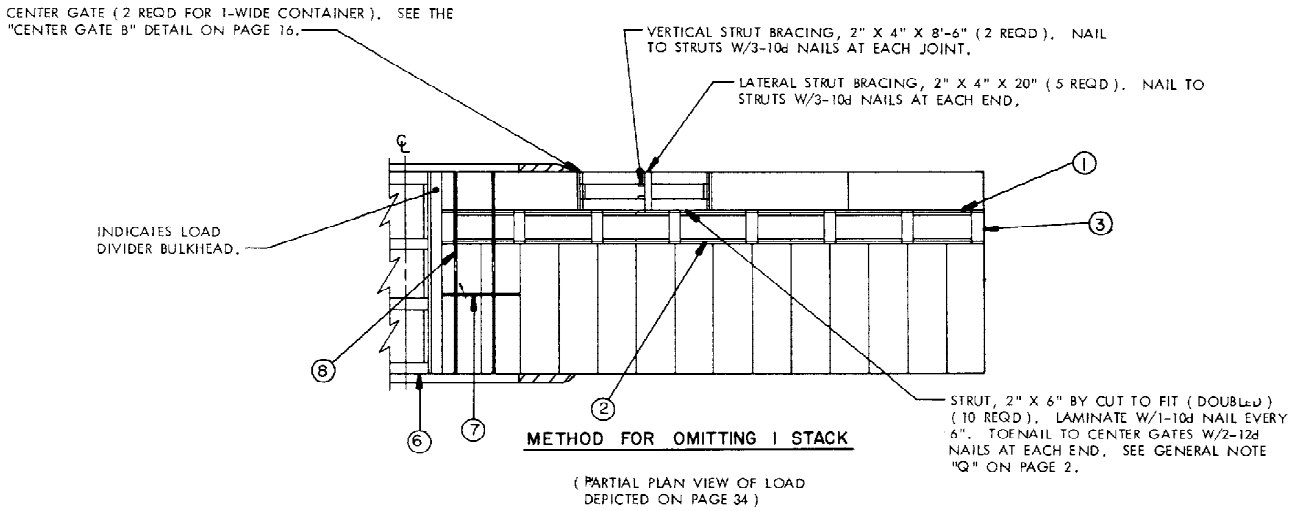
(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 32)



METHOD FOR OMITTING 3 OR 4 STACKS

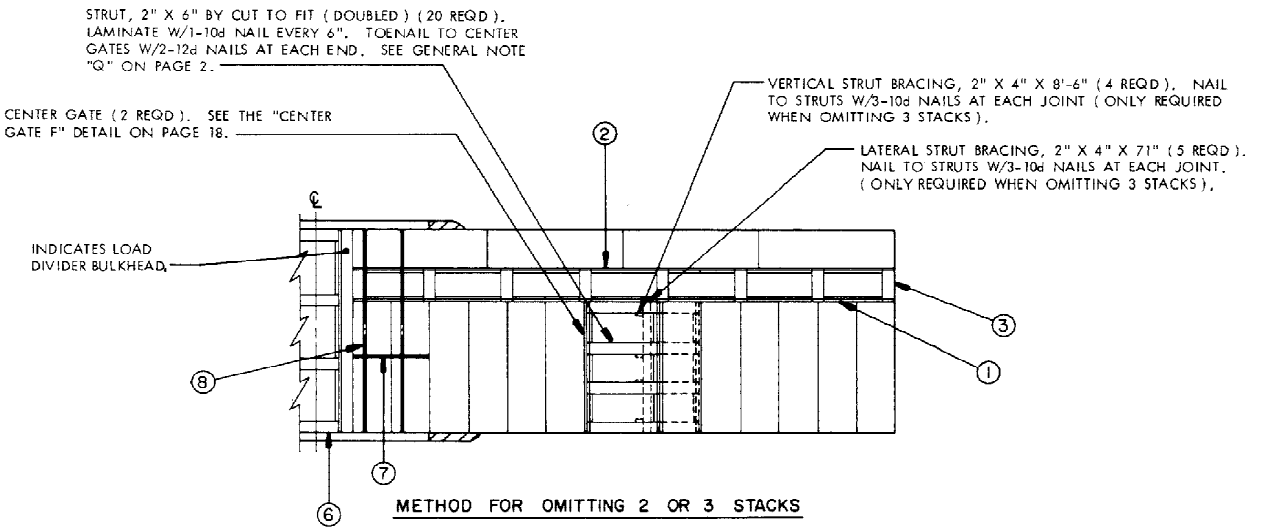
(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 32).

TYPICAL METHODS FOR REDUCING LOAD QUANTITIES IN CARS WITH LOAD DIVIDERS (SMALL CONTAINER)



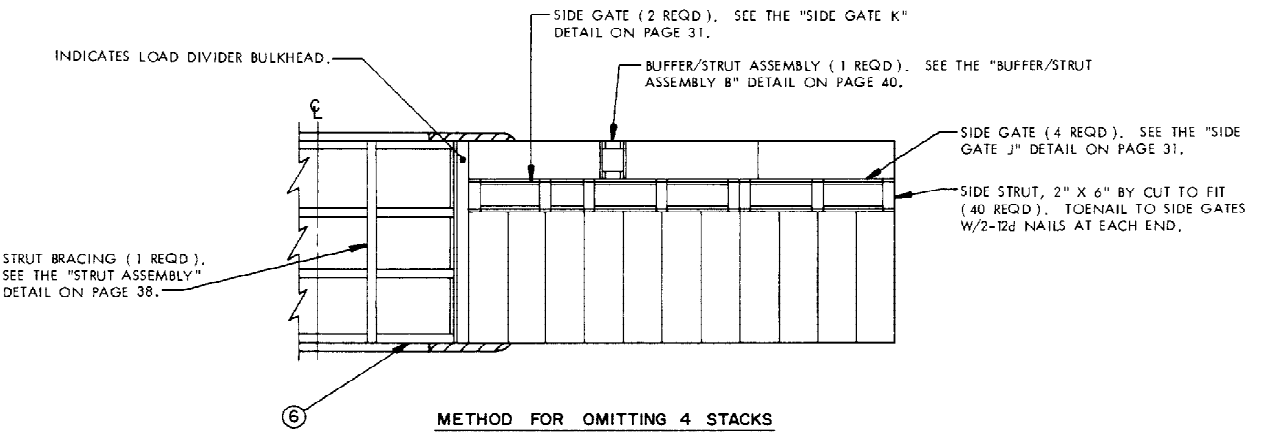
METHOD FOR OMITTING 1 STACK

(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 34)



METHOD FOR OMITTING 2 OR 3 STACKS

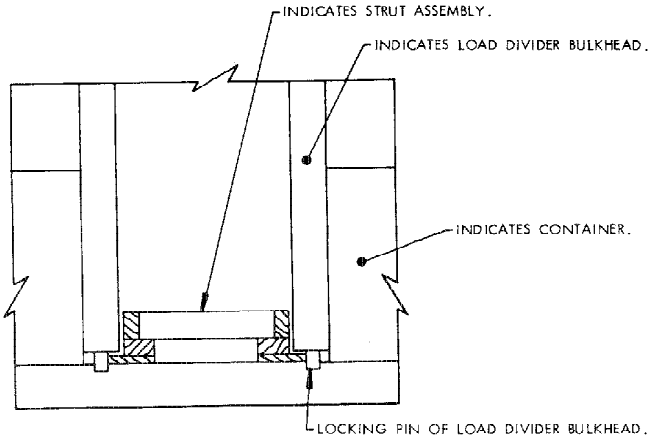
(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 34).



METHOD FOR OMITTING 4 STACKS

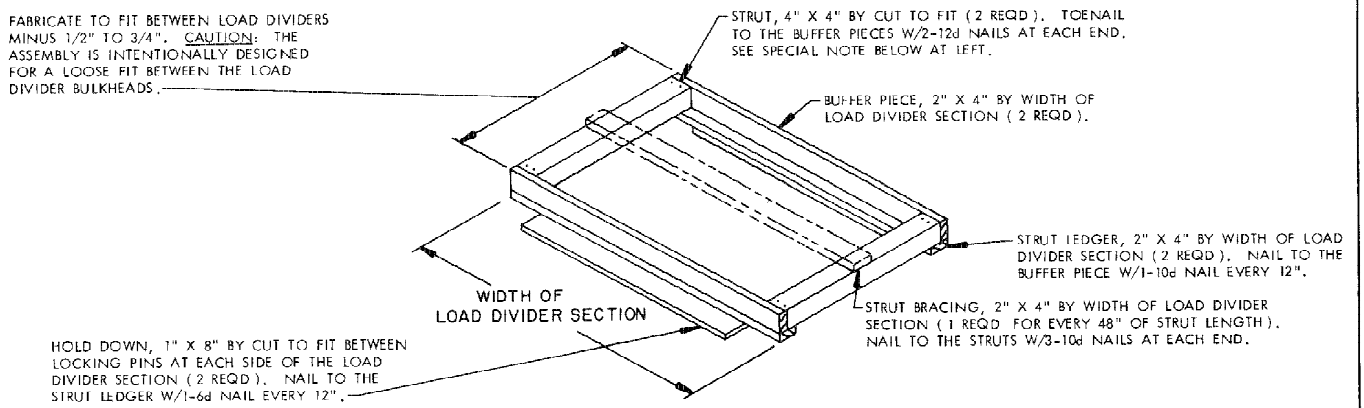
(PARTIAL PLAN VIEW OF LOAD DEPICTED ON PAGE 34)

TYPICAL METHODS FOR REDUCING LOAD QUANTITIES IN CARS WITH LOAD DIVIDERS (LARGE CONTAINER)



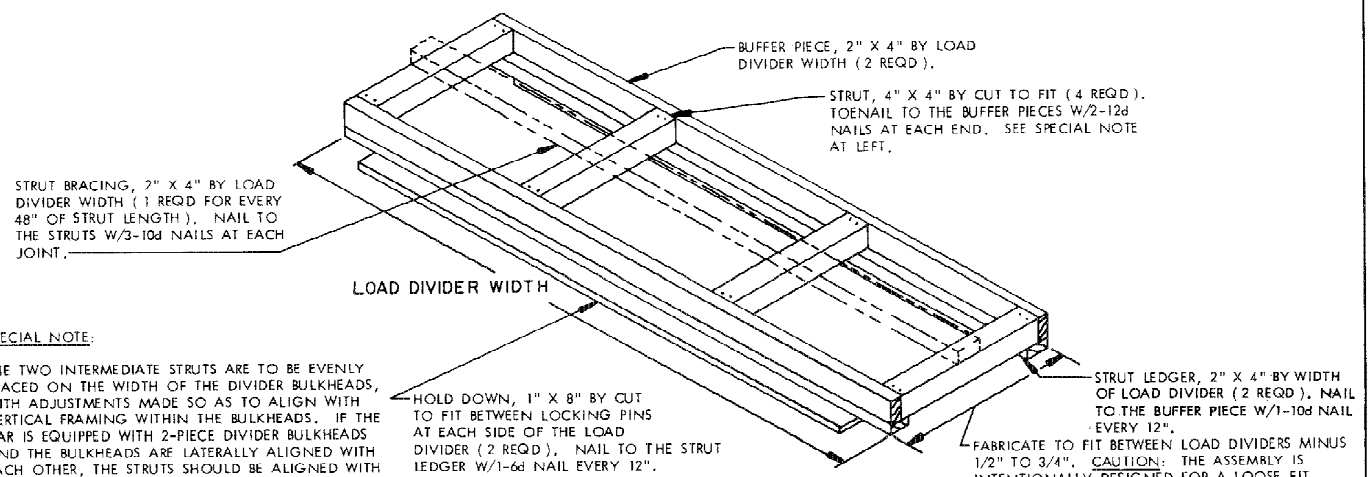
INSTALLATION OF STRUT ASSEMBLY

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



STRUT ASSEMBLY FOR 2-PIECE BULKHEADS

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS. IF A STRUT ASSEMBLY IS LONGER THAN 12'-0", THE ASSEMBLY MUST BE HELD DOWN IN THE CENTER. SEE THE DETAILS ON PAGE 39 FOR GUIDANCE. NOTE: TWO (2) ASSEMBLIES AS SHOWN ARE REQUIRED FOR A 2-PIECE BULKHEAD IF NOT LATERALLY ALIGNED.

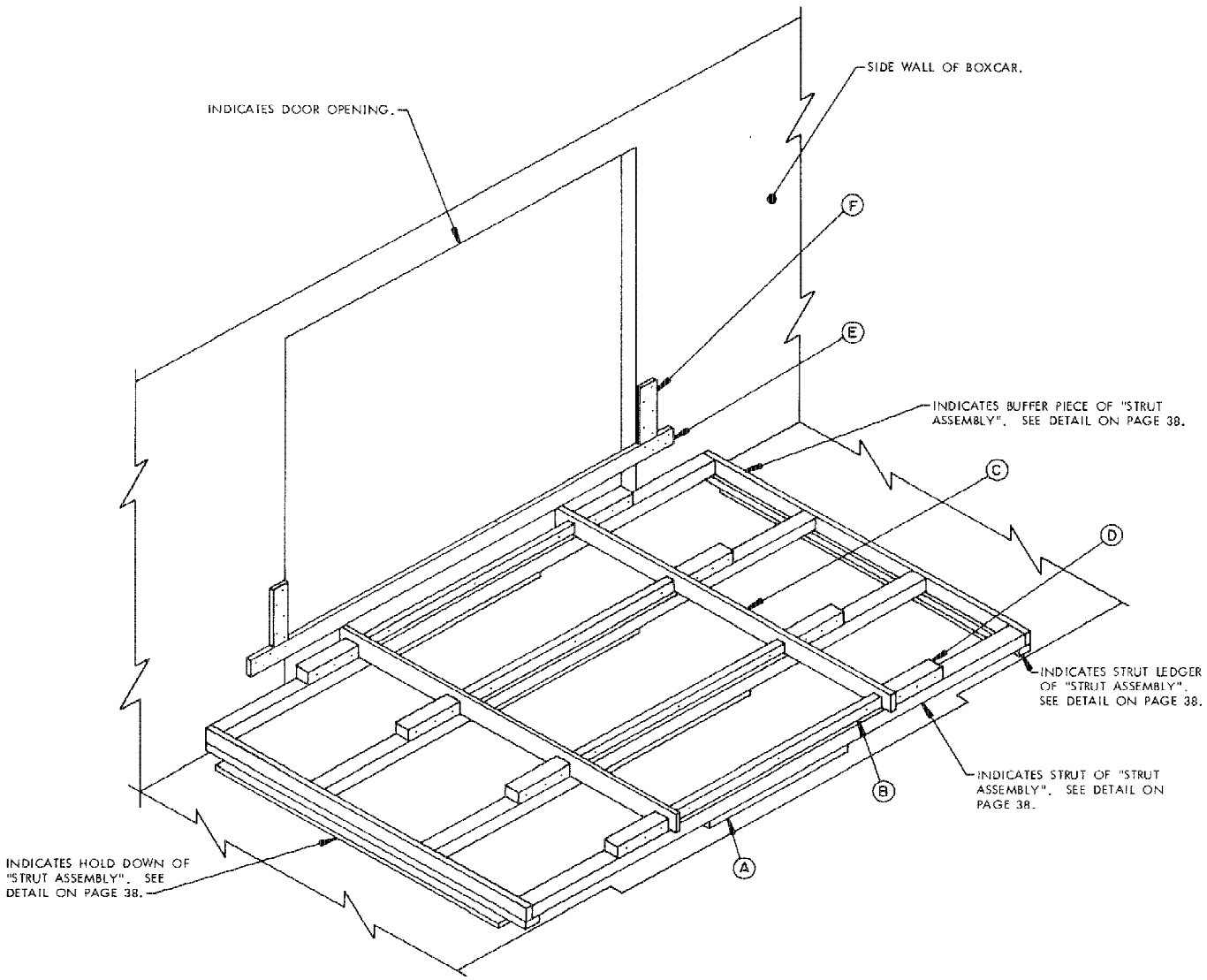


SPECIAL NOTE:

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

A STRUT ASSEMBLY IS REQUIRED WHEN THE LOAD BEHIND EITHER LOAD DIVIDER BULKHEAD EXCEEDS 50,000 POUNDS. IF A STRUT ASSEMBLY IS 12'-0" LONG OR GREATER, THE ASSEMBLY MUST BE HELD DOWN IN THE CENTER. SEE THE DETAILS ON PAGE 39 FOR GUIDANCE.



STRUT ASSEMBLY HOLD-DOWN

THIS ISOMETRIC VIEW DEPICTS THE HOLD-DOWN BLOCKING WHICH IS REQUIRED WHEN THE STRUTS OF THE "STRUT ASSEMBLY" USED IN A LOAD DIVIDER CAR ARE LONGER THAN 12'-0". NOTE THAT THE SPECIAL STRUT HOLD-DOWN AND THE STRUT ASSEMBLY ARE ONLY REQUIRED IF THE LOAD BEHIND EITHER BULKHEAD IS MORE THAN 50,000 POUNDS.

KEY LETTERS

(A) FILLER PIECE, 2" X 4" X 48" (4 REQD). POSITION SO AS TO BE CENTERED ON THE DOORWAY AREA AND NAIL TO THE BOTTOM SURFACE OF A STRUT W/4-10d NAILS.

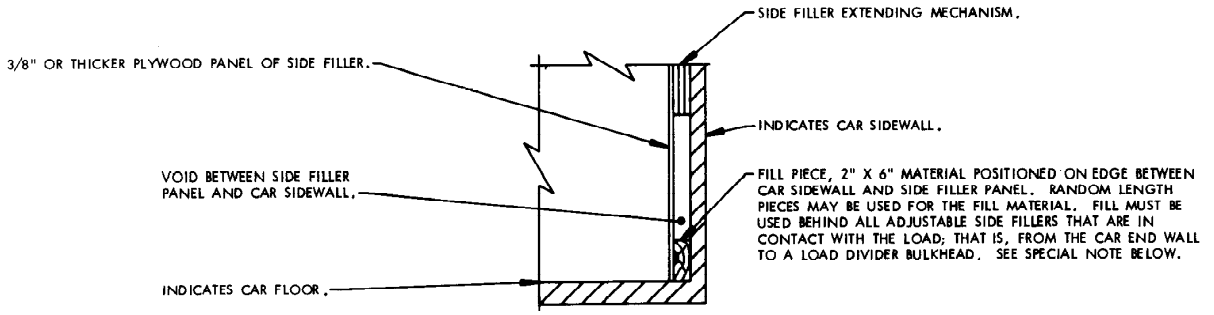
(B) SPACER PIECE, 2" X 4" X 72" (4 REQD). POSITION ON EDGE AND SO AS TO BE CENTERED IN THE DOORWAY AREA AND TOENAIL TO A STRUT W/3-12d NAILS ON EACH SIDE.

(C) HOLD-DOWN PIECE, 2" X 6" BY CAR WIDTH (CUT TO FIT IF THE CAR HAS PLUG DOORS, OR 2" X 6" BY CAR WIDTH PLUS 4" IF THE CAR HAS CONVENTIONAL SLIDING DOORS) (2 REQD). NAIL TO PIECE MARKED (B) W/2-12d NAILS AND TOENAIL TO THE STRUTS W/2-12d NAILS AT EACH JOINT.

(D) BRACE PIECE, 4" X 4" X 18" (8 REQD). POSITION AGAINST A PIECE MARKED (C) AND TOENAIL TO A STRUT W/3-12d NAILS ON EACH SIDE.

(E) DOOR SPANNER PIECE, 2" X 6" BY DOOR OPENING WIDTH PLUS 24" (2 REQD). NAIL TO A CAR DOOR POST/SIDE WALL OR TO A NAILING STRIP W/5-12d NAILS AT EACH END. NOTE: PRIOR TO NAILING THESE PIECES IN PLACE, THE STRUTS OF THE STRUT ASSEMBLY ARE TO BE PRESSED DOWNWARD UNTIL THE PIECES MARKED (A) ARE TOUCHING OR ARE ALMOST TOUCHING THE FLOOR OF THE CAR.

(F) HOLD-DOWN CLEAT, 2" X 6" X 18" (4 REQD). NAIL TO A CAR DOOR POST/SIDE WALL OR TO A NAILING STRIP W/5-12d NAILS.

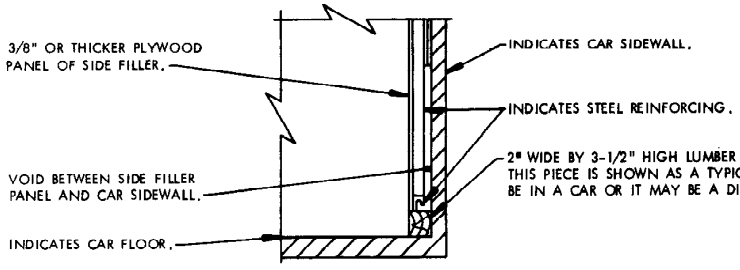


TYPICAL TYPE A

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

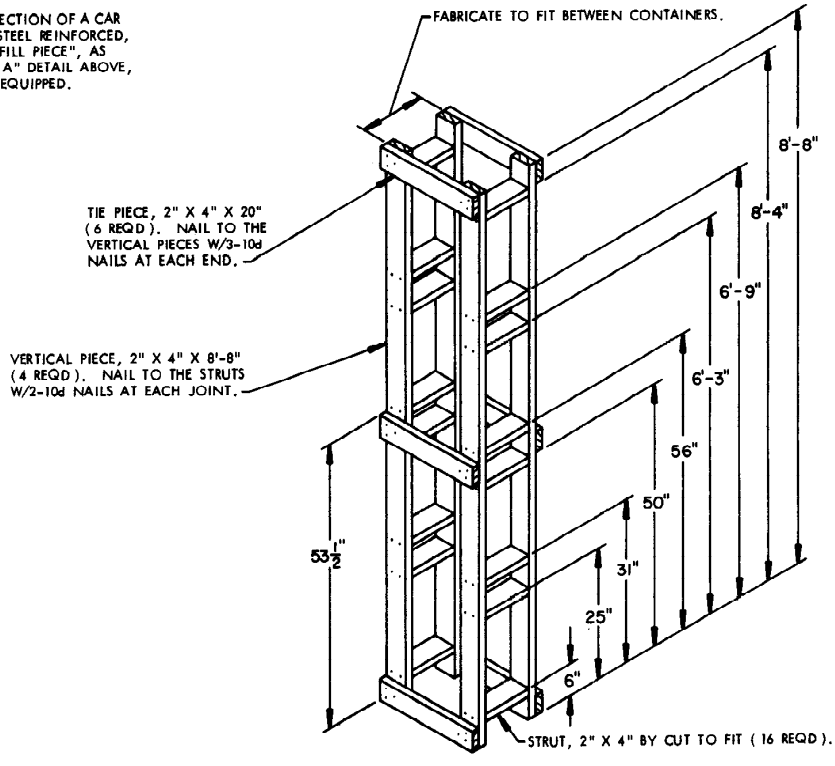
SPECIAL NOTE:

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".



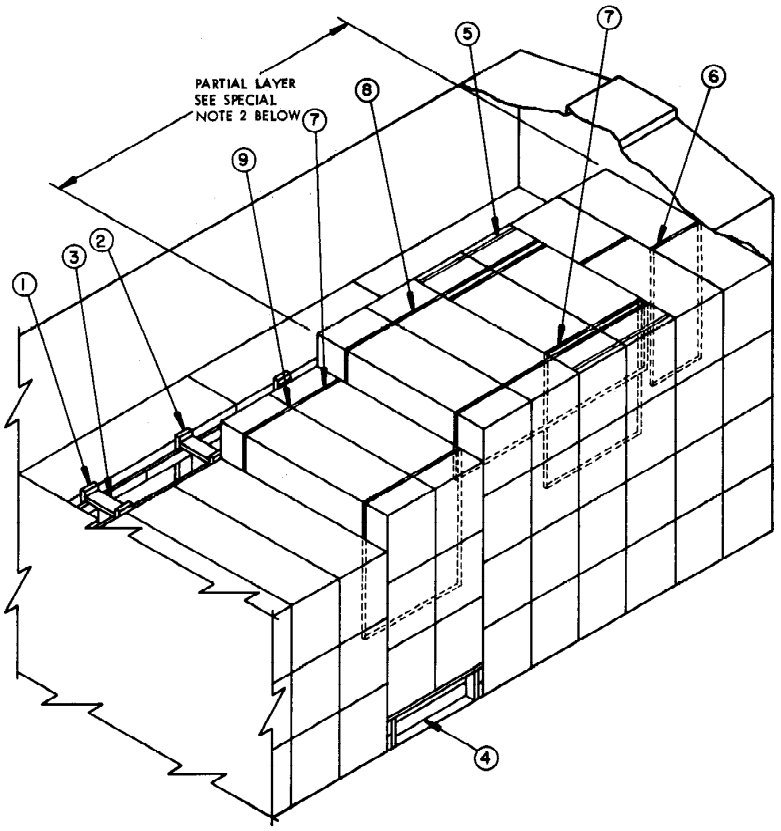
TYPICAL TYPE B

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.



BUFFER/STRUT ASSEMBLY B

FOR A 4 - LAYER LOAD.



ISOMETRIC VIEW

KEY NUMBERS

SPECIAL NOTES:

1. A LOAD OF LARGE CONTAINERS IS SHOWN IN A 9'-2" WIDE CAR AND DEPICTS THE "RISER METHOD" OF PARTIAL-LAYER BRACING WHICH CAN BE USED IN ALL-METAL OR WOOD-LINED CONVENTIONAL BOXCARS OF ANY WIDTH OR BOXCARS EQUIPPED WITH LOAD DIVIDER BULKHEADS. THE PROCEDURES ALSO APPLY TO A SHIPMENT OF SMALL CONTAINERS.

2. THE "RISER METHOD" OF PARTIAL-LAYER BRACING MAY ONLY BE USED TO RETAIN A PARTIAL-LAYER OF NOT MORE THAN 8,000 POUNDS OF LADING, THAT IS, A MAXIMUM OF TEN (10) SMALL CONTAINERS OR EIGHT (8) LARGE CONTAINERS. A SIX (6) CONTAINER PARTIAL-LAYER IS SHOWN IN THE ISOMETRIC VIEW. THE PROCEDURES CAN BE USED IN EITHER END OR IN BOTH ENDS OF A CAR. THE RISER ASSEMBLY MARKED (4) MUST ALWAYS BE POSITIONED ON THE CAR FLOOR AND IS DESIGNED FOR USE ONLY UNDER CONTAINERS WHICH ARE POSITIONED LATERALLY IN THE CAR.

3. LATERAL BRACING STRAPS, PIECES MARKED (6) , ARE ONLY REQUIRED WHEN THE PARTIAL LAYER CONSISTS OF FIVE (5) OR MORE CONTAINERS.

4. LONGITUDINAL BUNDLING STRAPS, PIECES MARKED (8), ARE ONLY REQUIRED WHEN THE PARTIAL LAYER CONSISTS OF THREE (3) OR MORE CONTAINERS.

(1) SIDE GATE (AS REQD). SEE THE "SIDE GATE C" DETAIL ON PAGE 20. SEE GENERAL NOTE "R" ON PAGE 3.

(2) SIDE GATE (AS REQD). SEE THE "SIDE GATE D" DETAIL ON PAGE 20.

(3) SIDE STRUT, 2" X 6" BY CUT TO FIT (AS REQD). TOENAIL TO SIDE GATES MARKED (1) OR (2) W/2-12d NAILS AT EACH END.

(4) RISER (1 REQD). SEE THE DETAIL ON PAGE 42. SEE SPECIAL NOTE 2 AT LEFT.

(5) UNITIZING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (AS REQD, 2 PER UNIT OF 2 CONTAINERS). SEE GENERAL NOTE "E" ON PAGE 2 AND THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3.

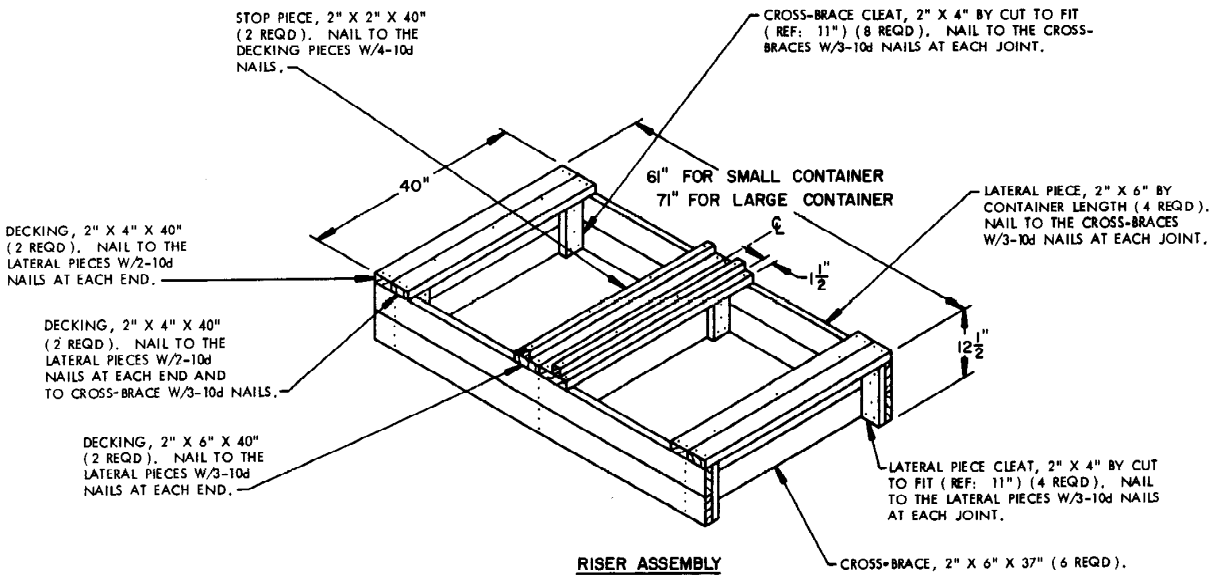
(6) LATERAL BRACING STRAP, 1-1/4" X .035" X 13'-0" LONG STEEL STRAPPING (1 REQD FOR EACH STACK OF CONTAINERS LOCATED BETWEEN THE RISER ASSEMBLY MARKED (4) AND THE CAR END WALL AND NOT BUNDLED WITH STRAPS MARKED (7) AND/OR (8). FOR EACH STACK, INSTALL TO ENCIRCLE THE CONTAINER IN THE PARTIAL LAYER AND THE CONTAINER IN THE LAYER IMMEDIATELY BELOW, AS SHOWN, PRIOR TO FINAL POSITIONING OF THE CONTAINERS IN THE LOAD. SEE SPECIAL NOTE 3 AT LEFT.

(7) VERTICAL BUNDLING STRAP, 1-1/4" X .035" X 17'-0" LONG STEEL STRAPPING (4 REQD, 2 PER UNIT OF 4 CONTAINERS). INSTALL TO ENCIRCLE FOUR CONTAINERS, AS SHOWN, PRIOR TO FINAL POSITIONING OF THE CONTAINERS IN THE LOAD.

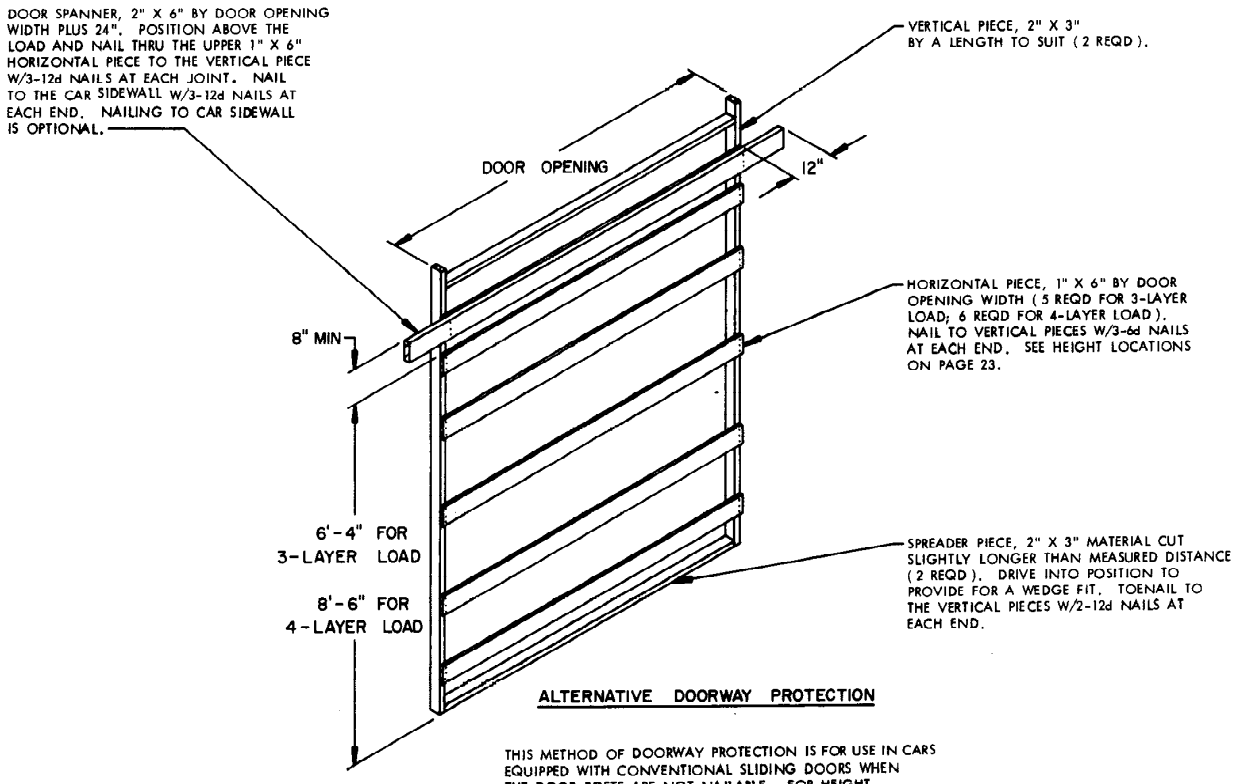
(8) LONGITUDINAL BUNDLING STRAP, 1-1/4" X .035" X 19'-0" LONG STEEL STRAPPING (2 REQD). INSTALL TO ENCIRCLE THE FOUR LONGITUDINALLY ADJACENT CONTAINERS, WITHIN THE PARTIAL LAYER, WHICH ARE ADJACENT TO THE STACKS POSITIONED ON THE RISER ASSEMBLY AS SHOWN. SEE SPECIAL NOTE 4 AT LEFT.

(9) SEAL FOR 1-1/4" STRAPPING (AS REQD; 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "S" ON PAGE 3.

TYPICAL APPLICATION OF RISER ASSEMBLY



RISER ASSEMBLY



ALTERNATIVE DOORWAY PROTECTION

THIS METHOD OF DOORWAY PROTECTION IS FOR USE IN CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS WHEN THE DOOR POSTS ARE NOT NAILABLE. FOR HEIGHT LOCATIONS OF THE HORIZONTAL PIECES, SEE THE APPLICABLE DETAIL ON PAGE 23.