

APPROVED BY
 BUREAU OF EXPLOSIVES
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 DATE 7/13/67

LOADING & BRACING (CL & LCL) IN BOX CARS OF CBU ITEMS PACKED IN THE CNU-85/E CONTAINER

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			U. S. ARMY MATERIEL COMMAND
			19 JULY 1967
			CLASS DIVISION DRAWING FILE
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DO NOT SCALE

GENERAL NOTES

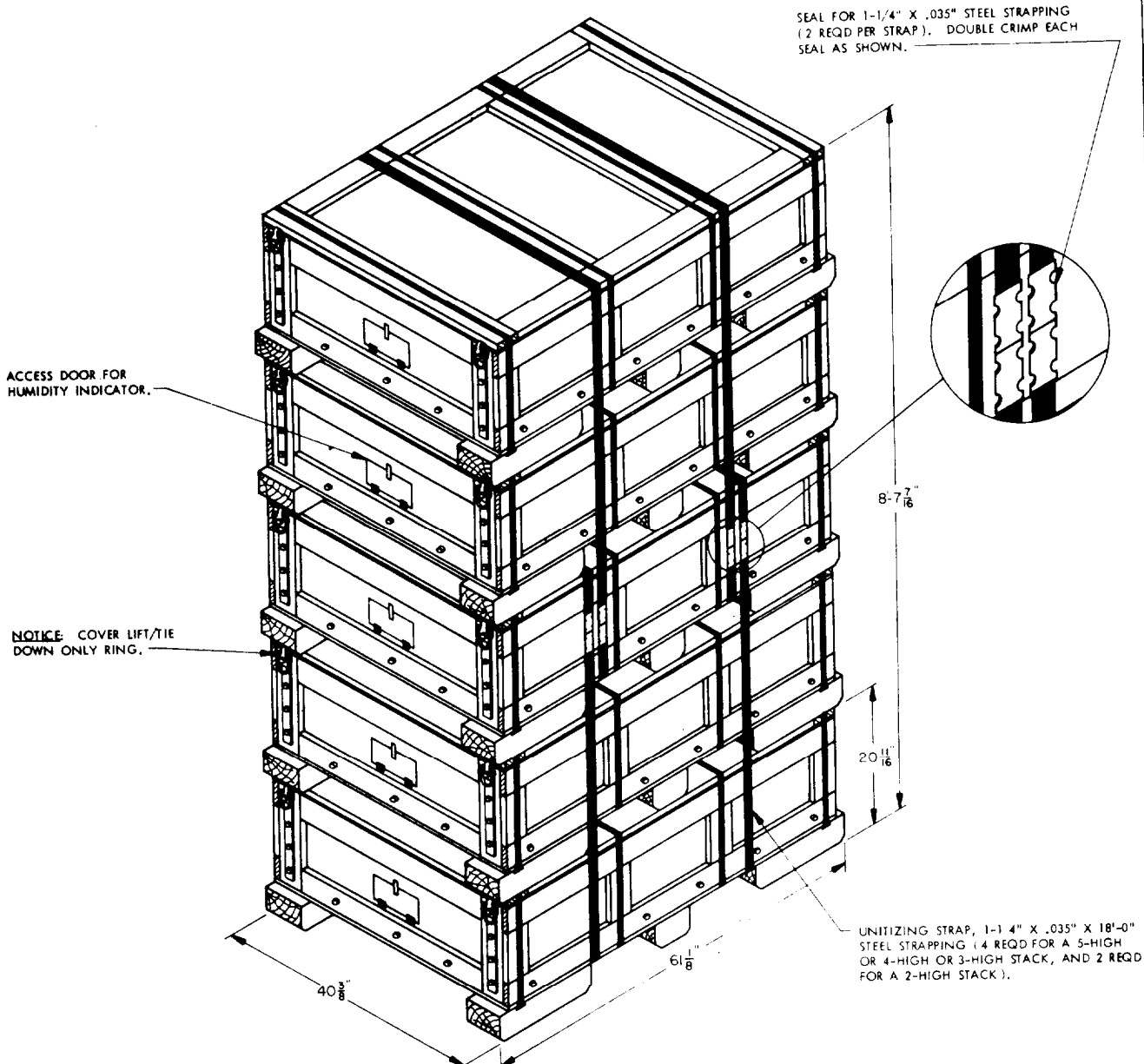
- A. THE OUTLOADING PROCEDURES SPECIFIED HEREIN ARE APPLICABLE TO CBU ITEMS WHEN THEY ARE PACKAGED IN THE CNU-85/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-85/E CONTAINER WITH CONTENTS.
- B. THE LOADS SHOWN HEREIN ARE BASED ON CONVENTIONAL BOX CARS WHICH HAVE 6'-0" WIDE DOOR OPENINGS; CARS WITH WIDER OR STAGGERED DOORS CAN BE USED.
- C. BOX CARS EQUIPPED WITH CONVENTIONAL SLIDING DOORS HAVE BEEN SHOWN. HOWEVER, THE DEPICTED OUTLOADING PROCEDURES ARE ALSO APPLICABLE FOR CARS EQUIPPED WITH PLUG DOORS. **CAUTION:** DUNNAGE MATERIAL MUST NOT BE NAILED TO ANY PLUG DOOR, WHETHER AUXILIARY OR MAIN.
- D. FOR DETAILS OF THE CNU-85/E CONTAINER SEE DRAWING NO. 9206179.
- CONTAINER DIMENSIONS --- 61-1/8" LONG X 40-3/8" WIDE X 20-11/16" HIGH.
GROSS WEIGHT ----- 1,025 POUNDS (APPROX).
TARE WEIGHT ----- 200 POUNDS (APPROX).
- E. THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE BOX CAR 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 ITEM.
- F. OTHER TYPES OF LADING ITEMS MAY BE LOADED IN BOX CARS WHICH ARE PARTIALLY LOADED WITH ITEMS PACKED IN CNU-85/E CONTAINERS, 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.
- G. 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. FOR THE SHIPMENT OF EMPTY CONTAINERS, ONLY ONE SET OF TWO UNITIZING STRAPS NEED BE USED ON EACH STACK. -INSTALL NEAR THE CENTER SKID AND SO THAT THE THIRD LAYER CONTAINER IS COMMON TO BOTH STRAPS.
- H. ONE AND ONE-QUARTER INCH (1-1/4") STEEL STRAPPING WILL BE USED TO UNITIZE STACKED CONTAINERS AS SHOWN ON PAGE 3, AND AS SPECIFIED BY THE APPLICABLE OUTLOADING METHODS DEPICTED HEREIN. IF THE CAPACITY OF THE MATERIAL HANDLING EQUIPMENT USED TO LOAD THE CONTAINERS ABOARD A CAR PERMITS, IT IS RECOMMENDED THAT THE CONTAINERS BE UNITIZED PRIOR TO PLACEMENT WITHIN THE CAR. **NOTICE:** IN SOME INSTANCES, CONTAINERS WILL ALREADY BE UNITIZED WHEN OFFERED FOR LOADING. THESE UNITIZED STACKS SHOULD BE INSPECTED AND AS REQUIRED, LOOSE UNITIZING STRAPS MUST BE REPLACED.
- J. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS WITH TWO (2) CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. **CAUTION:** WHEN APPLYING THE STACK UNITIZING STRAPS, EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO THE CONTAINERS; TENSIONING SHOULD ONLY BE SUFFICIENT TO CAUSE A STRAP TO CRUSH A SLIGHT AMOUNT INTO THE EDGES OF THE CONTAINERS.
- K. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DESIGNATED ITEM IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDE WALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE DESIGNATED FLOOR LINE BLOCKING. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED. ADDITIONALLY, THE LATERAL BRACE AND SIDE BLOCKING PIECES SHOULD BE INCREASED FROM 2" X 4" MATERIAL TO 2" X 6" MATERIAL TO RECEIVE THE LARGER SIZE NAILS.
- L. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE AND 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE.
- M. 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.
- N. FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND TO THE "SPECIAL NOTES" SECTION WHICH IS IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.

MATERIAL SPECIFICATIONS

LUMBER ----- : SEE TM 715-5500-1, DUNNAGE LUMBER;
FED SPEC MM-L-751.

NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED;
FED SPEC FF-N-105.

STRAPPING, STEEL: TYPE I OR IV, CLASS "A" OR "B";
FED SPEC QQ-5-781.



TYPICAL STACK DETAIL

(PROCEDURAL GUIDANCE CONTINUED)

UNITIZING AND HANDLING PROCEDURAL GUIDANCE

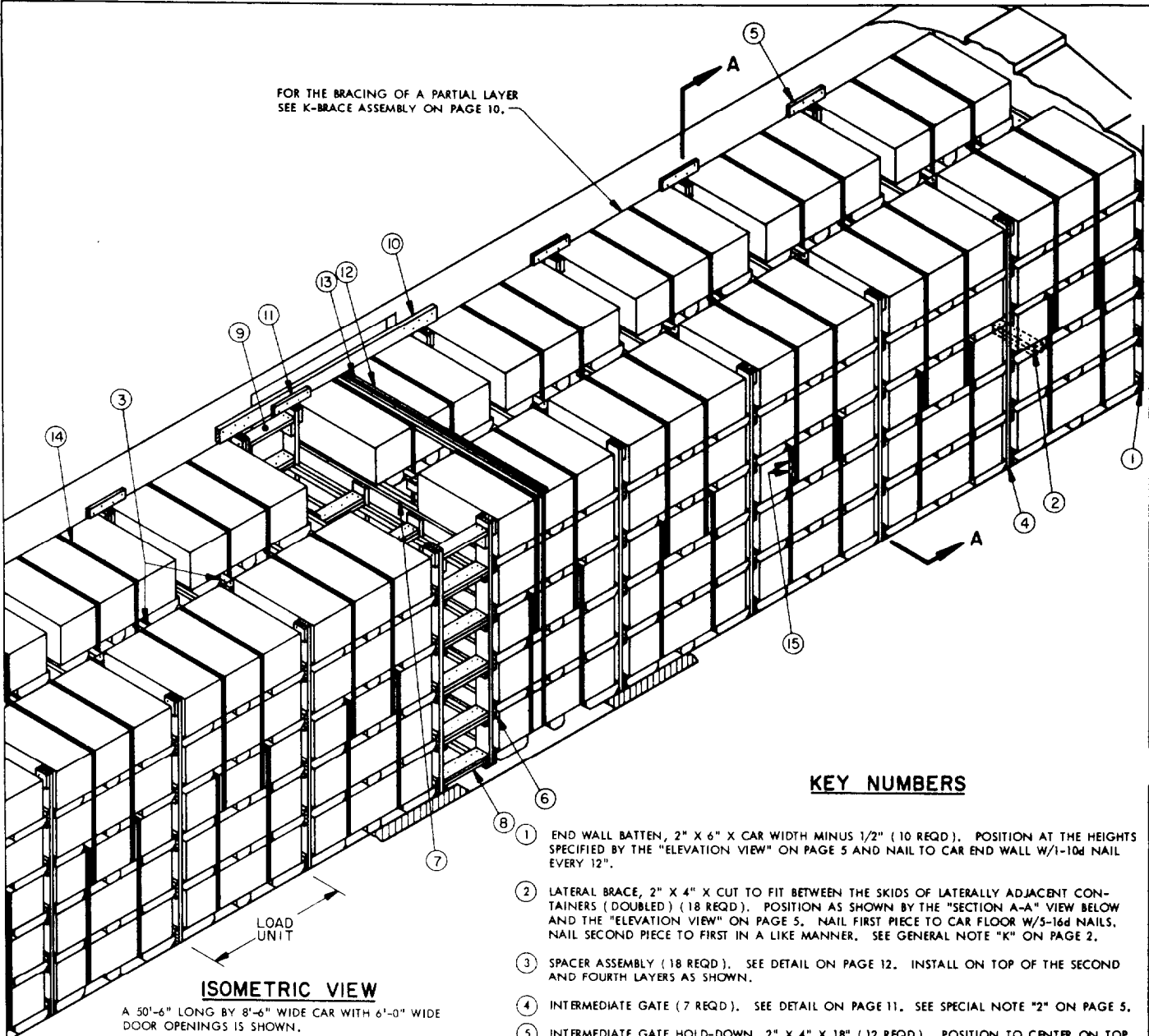
1. STACKING CONTAINERS FOR UNITIZING.
 - A. AN UPPER CONTAINER SHOULD BE PLACED AS CLOSE AS POSSIBLE IN VERTICAL ALIGNMENT WITH THE NEXT LOWER CONTAINER.
 - B. POSITION THE ACCESS DOOR END OF AN UPPER CONTAINER ABOVE THE ACCESS DOOR END OF THE NEXT LOWER CONTAINER.
2. INSTALLATION OF 1-1/4" X .035" UNITIZING STEEL STRAPPING. SEE GENERAL NOTE "H" ON PAGE 2.
 - A. EACH OF THE TWO SETS OF UNITIZING STRAPS SHOULD BE POSITIONED AROUND THE CONTAINERS AS SHOWN. PLACE STRAPPING NEAR THE INSIDE ENDS OF THE LONG CONTAINER SKIDS AND SO THAT THE STRAPPING LAYS FLAT AND STRAIGHT WITH THE BODY SURFACES OF THE CONTAINERS; I.E., VERTICAL ALONG SIDES AND STRAIGHT ACROSS THE TOP AND BOTTOM OF THE CONTAINERS.
 - B. STRAPPING WILL BE FIRMLY TENSIONED, AND EACH END-OVER-END LAP JOINT WILL BE SEALED WITH TWO DOUBLE CRIMPED STRAP SEALS AS SHOWN. SEE GENERAL NOTE "J" ON PAGE 2. THE LAP JOINTS WILL BE MADE ALONG THE SIDE OF THE STACK SO THAT THE SEALS WILL NOT BE IN CONTACT WITH THE CONTAINERS. EXCESS STRAPPING (STRAP ENDS) SHOULD BE CUT OFF OR BROKEN OFF NEAR THE JOINT SEALS.
3. CONTAINER OR CONTAINER STACK HANDLING.

NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.

(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 MAY BE HANDLED FROM AN END OR SIDE POSITION; THE LATTER BEING THE PREFERRED POSITION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CONTAINER, TO PREVENT DAMAGING A CONTAINER BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. FOR VERY SHORT "INCHING" SPEED MOVEMENTS, SUCH AS WILL BE EXPERIENCED DURING BOX CAR LOADING OPERATIONS, A UNITIZED STACK MAY BE HANDLED BY INSERTING THE FORKS OF A FORKLIFT TRUCK UNDER THE BODY OF AN UPPER CONTAINER.
 - C. EVEN IF ONLY ONE CONTAINER IS HANDLED BY SLINGING, THE SLING MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE CONTAINER. **CAUTION:** DO NOT ATTACH A SLING TO THE CONTAINER "COVER LIFT/TIEDOWN" DEVICES ON THE ENDS OF THE CONTAINERS. IF A UNITIZED STACK IS HANDLED BY SLINGING, THE SLING USED MUST BE OF SUCH A DESIGN THAT THE LIFTING IS DONE ON THE BOTTOM OF THE LOWEST CONTAINER.

FOR THE BRACING OF A PARTIAL LAYER
SEE K-BRACE ASSEMBLY ON PAGE 10.

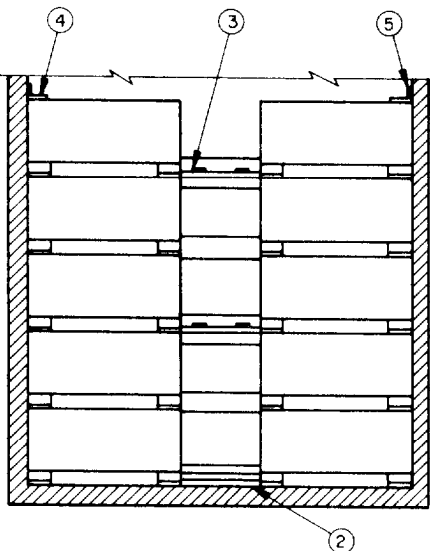


ISOMETRIC VIEW

A 50'-6" LONG BY 8'-6" WIDE CAR WITH 6'-0" WIDE DOOR OPENINGS IS SHOWN.

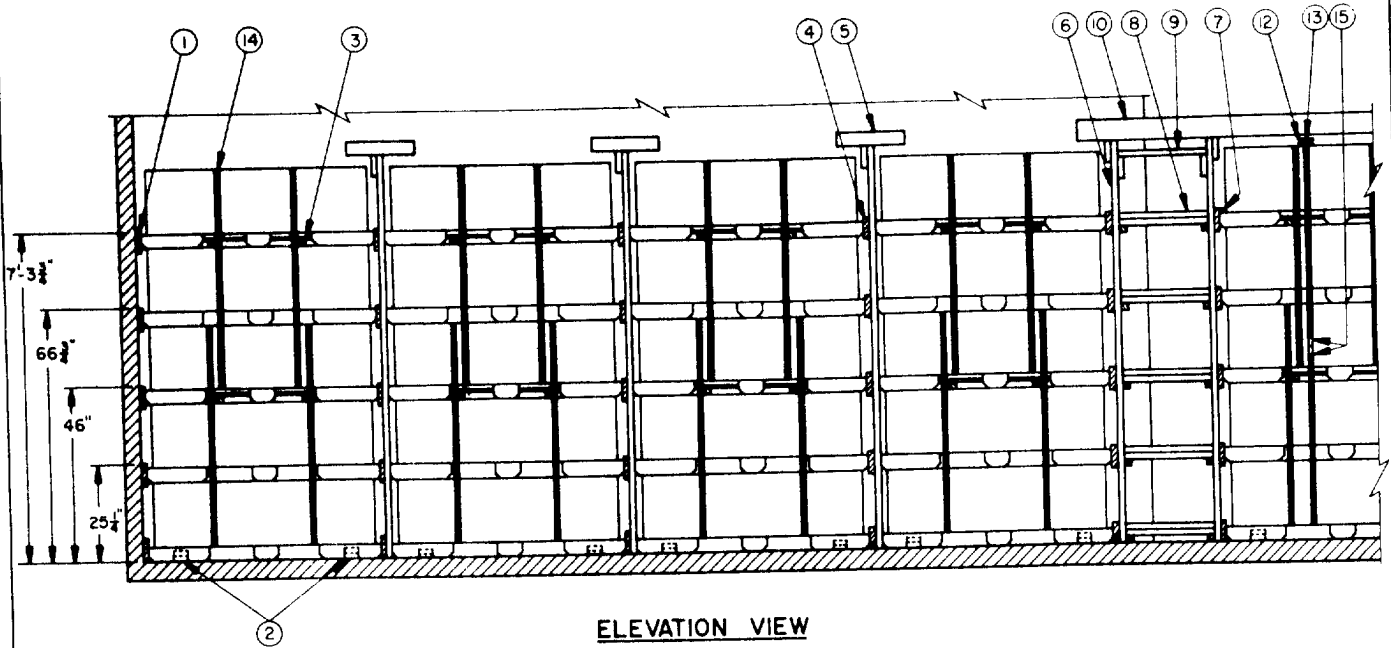
KEY NUMBERS

- 1 END WALL BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (10 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "ELEVATION VIEW" ON PAGE 5 AND NAIL TO CAR END WALL W/1-10d NAIL EVERY 12".
- 2 LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN THE SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (18 REQD). POSITION AS SHOWN BY THE "SECTION A-A" VIEW BELOW AND THE "ELEVATION VIEW" ON PAGE 5. NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE GENERAL NOTE "K" ON PAGE 2.
- 3 SPACER ASSEMBLY (18 REQD). SEE DETAIL ON PAGE 12. INSTALL ON TOP OF THE SECOND AND FOURTH LAYERS AS SHOWN.
- 4 INTERMEDIATE GATE (7 REQD). SEE DETAIL ON PAGE 11. SEE SPECIAL NOTE "2" ON PAGE 5.
- 5 INTERMEDIATE GATE HOLD-DOWN, 2" X 4" X 18" (12 REQD). POSITION TO CENTER ON TOP OF AN INTERMEDIATE GATE MARKED 4 AND NAIL TO CAR SIDE WALL W/4-12d NAILS.
- 6 CENTER GATE (2 REQD). SEE DETAIL ON PAGE 11.
- 7 CENTER GATE RETAINING CLEAT, 2" X 6" X CUT TO FIT BETWEEN SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (2 REQD). APPLY TO TOP AND BOTTOM HORIZONTAL PIECES OF CENTER GATE MARKED 6 PRIOR TO INSTALLING AGAINST THE LOAD. NAIL FIRST PIECE W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE SPECIAL NOTE "2" ON PAGE 5.
- 8 LOAD BLOCKING STRUT, 2" X 6" X CUT TO FIT (DOUBLED) (20 REQD). LAMINATE W/1-10d NAIL EVERY 6". TOENAIL TO VERTICAL PIECES OF CENTER GATE MARKED 6 W/2-12d NAILS AT EACH END. SEE "STRUT BRACING" DETAIL ON PAGE 12.
- 9 GATE BRACING STRUT, 2" X 6" X CUT TO FIT (2 REQD). TOENAIL TO VERTICAL PIECES OF CENTER GATE MARKED 6 W/2-12d NAILS AT EACH END.
- 10 CENTER GATE HOLD-DOWN, 2" X 6" X 9'-0" OR 2" X 6" X DOOR OPENING WIDTH PLUS 24", WHICHEVER IS GREATER (2 REQD). POSITION TO CENTER ACROSS WIDTH OF DOOR OPENING AND NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END.
- 11 GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). POSITION TO CENTER ON VERTICAL PIECE OF CENTER GATE MARKED 6 AND NAIL TO CENTER GATE HOLD-DOWN MARKED 10 W/4-10d NAILS. FOUR (4) PIECES WILL BE REQUIRED IF CAR DOOR OPENINGS ARE WIDER THAN IS SHOWN.
- 12 STRAPPING BOARD (1 REQD). SEE DETAIL ON PAGE 12. SEE SPECIAL NOTE "3" ON PAGE 5.
- 13 DOORWAY PROTECTION STEEL STRAPPING, 1-1/4" X .035" X 37'-0" (1 REQD). STAPLE TO STRAPPING BOARD MARKED 12 W/5 STAPLES. SEE GENERAL NOTE "J" ON PAGE 2.
- 14 UNITIZING STEEL STRAPPING, 1-1/4" X .035" X 18'-0" (72 REQD). SEE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTES "H" AND "J" ON PAGE 2.
- 15 SEAL FOR 1-1/4" STEEL STRAPPING (146 REQD).



SECTION A-A

90-UNIT LOAD IN A 50'-6" LONG BY 8'-6" WIDE BOX CAR



ELEVATION VIEW

BILL OF MATERIAL (9'-2" CAR)

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	90	30
2" X 2"	92	31
2" X 3"	106	53
2" X 4"	118	79
2" X 6"	911	911
3" X 4"	88	88
NAILS		POUNDS
6d (2")	216	1-1/2
10d (3")	867	13-1/2
12d (3-1/4")	336	5-3/4
16d (3-1/2")	180	4
STEEL STRAPPING, 1-1/4" X .035" -----		1,335' REQD -- 191 LBS
SEAL FOR 1-1/4" STRAPPING -----		146 REQD -- 8 LBS
STAPLE FOR 1-1/4" STRAPPING -----		5 REQD -- NIL

BILL OF MATERIAL (8'-6" CAR)

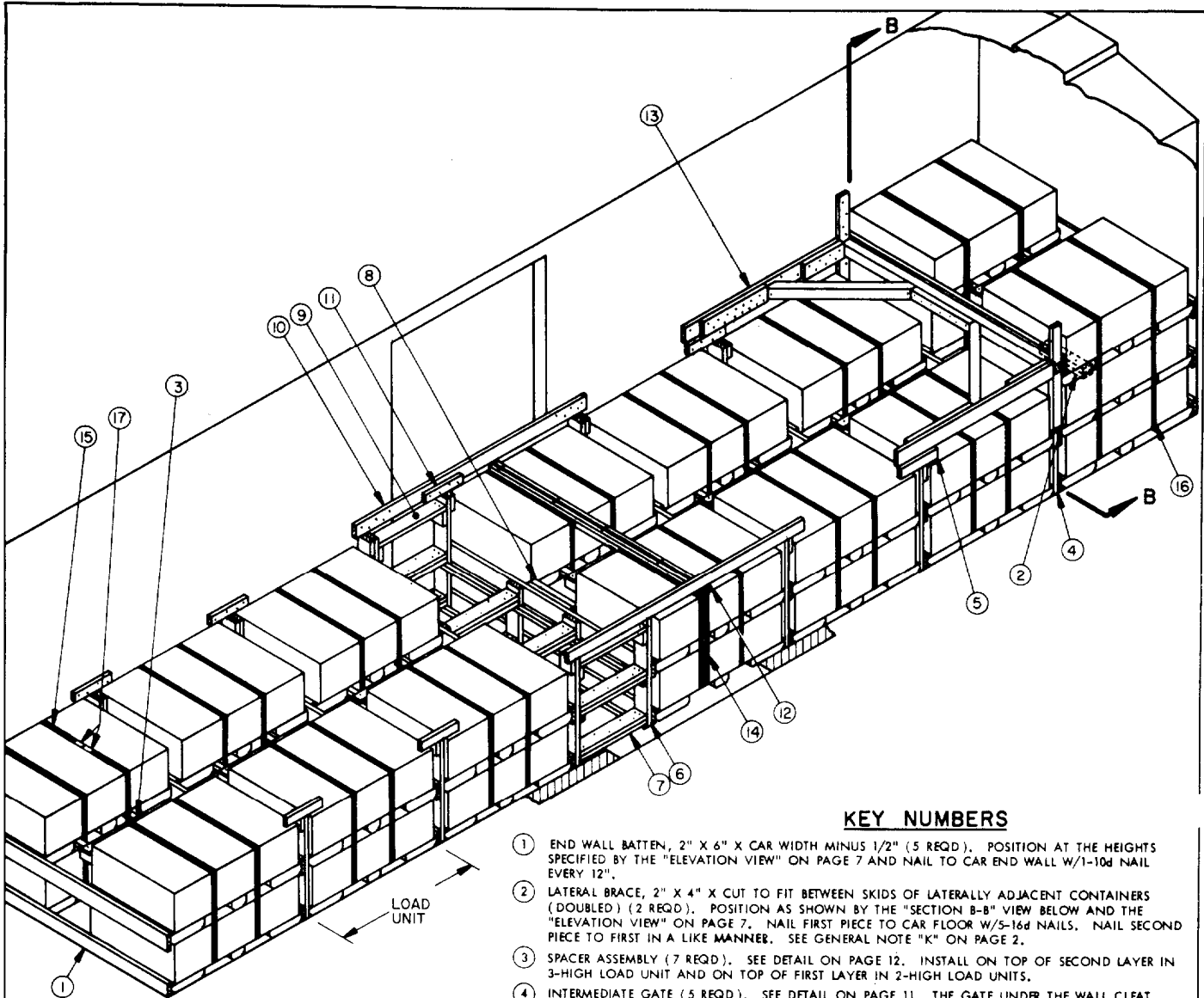
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	90	30
2" X 2"	85	29
2" X 3"	82	41
2" X 4"	93	62
2" X 6"	874	874
3" X 4"	64	64
NAILS		POUNDS
6d (2")	216	1-1/2
10d (3")	859	13-1/4
12d (3-1/4")	336	5-3/4
16d (3-1/2")	180	4
STEEL STRAPPING, 1-1/4" X .035" -----		1,333' REQD -- 191 LBS
SEAL FOR 1-1/4" STRAPPING -----		146 REQD -- 8 LBS
STAPLE FOR 1-1/4" STRAPPING -----		5 REQD -- NIL

SPECIAL NOTES

1. A 50'-6" LONG X 8'-6" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 6'-0" DOOR OPENINGS IS SHOWN. A WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. ALSO, A CAR WITH WIDER OR STAGGERED DOORS CAN BE USED.
2. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH WIDER DOORS THAN IS SHOWN IT WILL ALSO BE NECESSARY TO APPLY THE CENTER GATE RETAINING CLEATS MARKED (7) TO THE OTHER CENTER GATE. IN ADDITION, PIECES MARKED (7) MUST BE APPLIED TO THE TOP AND BOTTOM HORIZONTAL PIECES OF THE INTERMEDIATE GATE MARKED (4) WHICH IS BETWEEN THE FOURTH AND FIFTH LOAD UNITS. IF THE CAR IS EQUIPPED WITH STAGGERED DOORS, APPLY PIECES MARKED (7) TO EACH INTERMEDIATE GATE MARKED (4) WHICH IS IN THE DOORWAY ON EITHER SIDE OF THE CAR.
3. FOR DOORWAY PROTECTION, TWO (2) EACH OF PIECES MARKED (1) AND (12) ARE REQUIRED AROUND EACH LOAD UNIT IF THE UNIT IS NOT RETAINED AGAINST LATERAL MOVEMENT BY AT LEAST 6" OF CAR WALL ON BOTH SIDES.
4. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS A LOAD UNIT OF 1 OR 2 LESS CONTAINERS THAN IS SHOWN TO SATISFY A LESS-THAN-FULL-LOAD QUANTITY, IT WILL BE NECESSARY TO SUBSTITUTE A "FILLER ASSEMBLY" IN PLACE OF AN OMITTED CONTAINER. SEE "APPLICATION OF FILLER ASSEMBLY" DETAIL ON PAGE 9. FOR SOME LESS-THAN-FULL-LOAD QUANTITY LOADS, IT MAY BE MORE DESIRABLE TO USE K-BRACE TYPE BLOCKING AS DETAILED ON PAGE 10 AND AS DEPICTED WITHIN THE LOAD ON PAGE 6 IN LIEU OF USING FILLER ASSEMBLIES; OR IT MIGHT BE BEST TO OMIT A COMPLETE LOAD UNIT OR LAYER TO ADJUST THE QUANTITY TO BE SHIPPED. THE METHOD WHICH IS THE MOST PRACTICAL FOR THE SIZE OF THE LOAD BEING SHIPPED SHOULD BE USED.

LOAD AS SHOWN (8'-6" CAR)

ITEM	QUANTITY	WEIGHT (APPROX.)
CONTAINER -----	90	92,250 LBS
(W/CBU ITEM)		
DUNNAGE -----		2,979 LBS
TOTAL WEIGHT -----		95,229 LBS

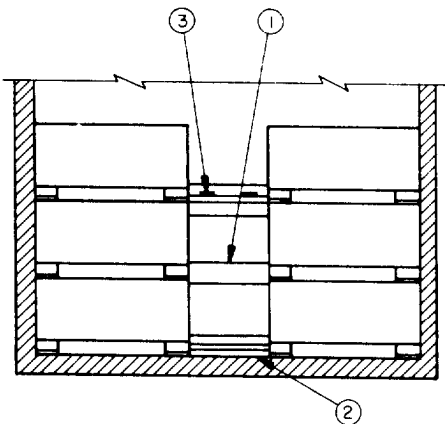


ISOMETRIC VIEW

A 40'-6" LONG BY 8'-6" WIDE CAR WITH 6'-0" DOOR OPENINGS IS SHOWN.

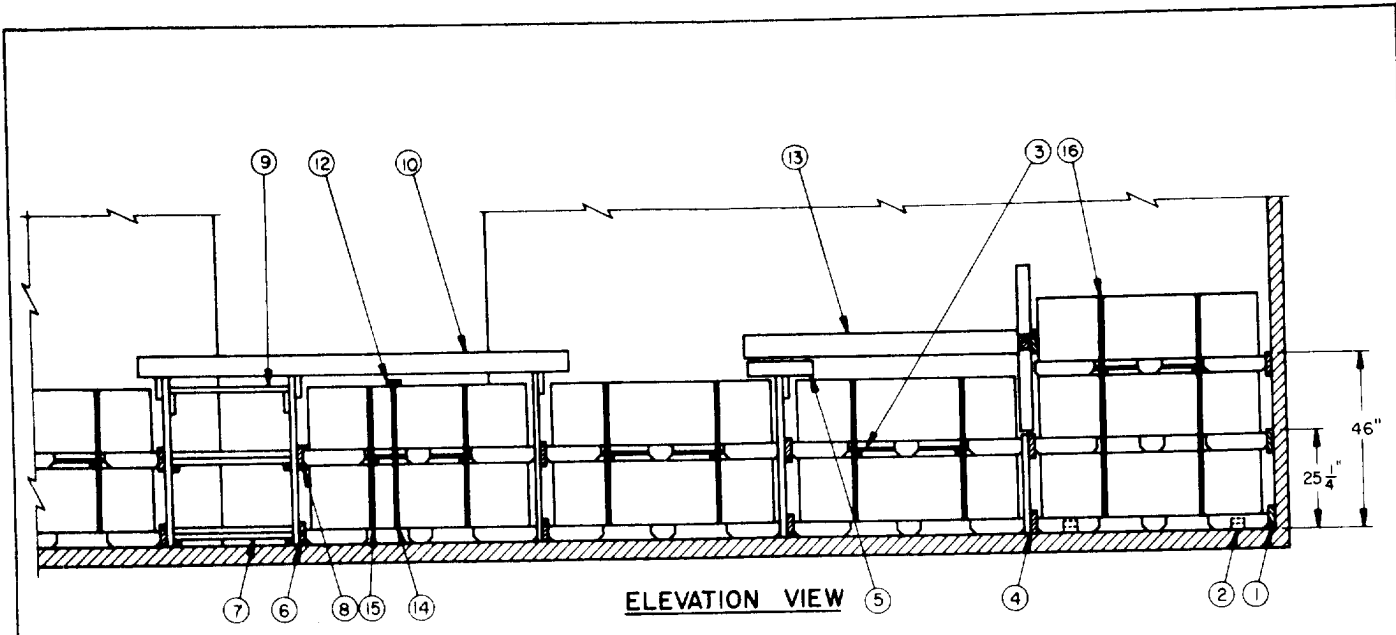
KEY NUMBERS

- ① END WALL BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (5 REQD). POSITION AT THE HEIGHTS SPECIFIED BY THE "ELEVATION VIEW" ON PAGE 7 AND NAIL TO CAR END WALL W/1-10d NAIL EVERY 12".
- ② LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (2 REQD). POSITION AS SHOWN BY THE "SECTION B-B" VIEW BELOW AND THE "ELEVATION VIEW" ON PAGE 7. NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE GENERAL NOTE "K" ON PAGE 2.
- ③ SPACER ASSEMBLY (7 REQD). SEE DETAIL ON PAGE 12. INSTALL ON TOP OF SECOND LAYER IN 3-HIGH LOAD UNIT AND ON TOP OF FIRST LAYER IN 2-HIGH LOAD UNITS.
- ④ INTERMEDIATE GATE (5 REQD). SEE DETAIL ON PAGE 11. THE GATE UNDER THE WALL CLEAT MARKED (A) OF THE K-BRACE SHOULD BE CONSTRUCTED WITH 25-1/4" VERTICAL PIECES.
- ⑤ INTERMEDIATE GATE HOLD-DOWN, 2" X 4" X 18" (6 REQD). POSITION TO CENTER ON TOP OF AN INTERMEDIATE GATE MARKED (4) AND NAIL TO CAR SIDE WALL W/4-12d NAILS.
- ⑥ CENTER GATE (2 REQD). SEE DETAIL ON PAGE 11.
- ⑦ LOAD BLOCKING STRUT, 2" X 6" X CUT TO FIT (DOUBLED) (8 REQD). LAMINATE W/1-10d NAIL EVERY 6". TOENAIL TO VERTICAL PIECES OF CENTER GATE MARKED (6) W/2-12d NAILS AT EACH END. SEE "STRUT BRACING" DETAIL ON PAGE 12.
- ⑧ CENTER GATE RETAINING CLEAT, 2" X 6" X CUT TO FIT BETWEEN SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (1 REQD). NAIL FIRST PIECE TO HORIZONTAL PIECE OF CENTER GATE MARKED (6) W/5-10d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- ⑨ GATE BRACING STRUT, 2" X 6" X CUT TO FIT (2 REQD). TOENAIL TO VERTICAL PIECES OF CENTER GATE MARKED (6) W/2-12d NAILS AT EACH END.
- ⑩ CENTER GATE HOLD-DOWN, 2" X 6" X 9'-6" OR 2" X 6" X DOOR OPENING WIDTH PLUS 24", WHICHEVER IS GREATER (2 REQD). POSITION TO CENTER ACROSS WIDTH OF DOOR OPENING AND NAIL TO CAR SIDE WALL W/5-12d NAILS AT EACH END.
- ⑪ GATE HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). POSITION TO CENTER ON VERTICAL PIECE OF CENTER GATE MARKED (4) AND NAIL TO CENTER GATE HOLD-DOWN MARKED (10) W/4-10d NAILS. FOUR (4) PIECES WILL BE REQUIRED IF CAR DOOR OPENINGS ARE GREATER THAN 8'-0" IN WIDTH.
- ⑫ STRAPPING BOARD (1 REQD). SEE DETAIL ON PAGE 12. SEE SPECIAL NOTE "2" ON PAGE 7.
- ⑬ K-BRACE ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 10.
- ⑭ DOORWAY PROTECTION STEEL STRAPPING, 1-1/4" X .035" X 25'-0" (1 REQD). STAPLE TO STRAPPING BOARD MARKED (12) W/5 STAPLES. SEE GENERAL NOTE "J" ON PAGE 2.
- ⑮ UNITIZING STEEL STRAPPING, 1-1/4" X .035" X 15'-0" (24 REQD). SEE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTES "H" AND "J" ON PAGE 2.
- ⑯ UNITIZING STEEL STRAPPING, 1-1/4" X .035" X 18'-0" (4 REQD). SEE "UNITIZATION AND HANDLING PROCEDURES" ON PAGE 3 AND GENERAL NOTES "H" AND "J" ON PAGE 2.
- ⑰ SEAL FOR 1-1/4" STRAPPING (58 REQD).



SECTION B-B

30-UNIT LOAD IN A 40'-6" LONG BY 8'-6" WIDE BOX CAR



SPECIAL NOTES

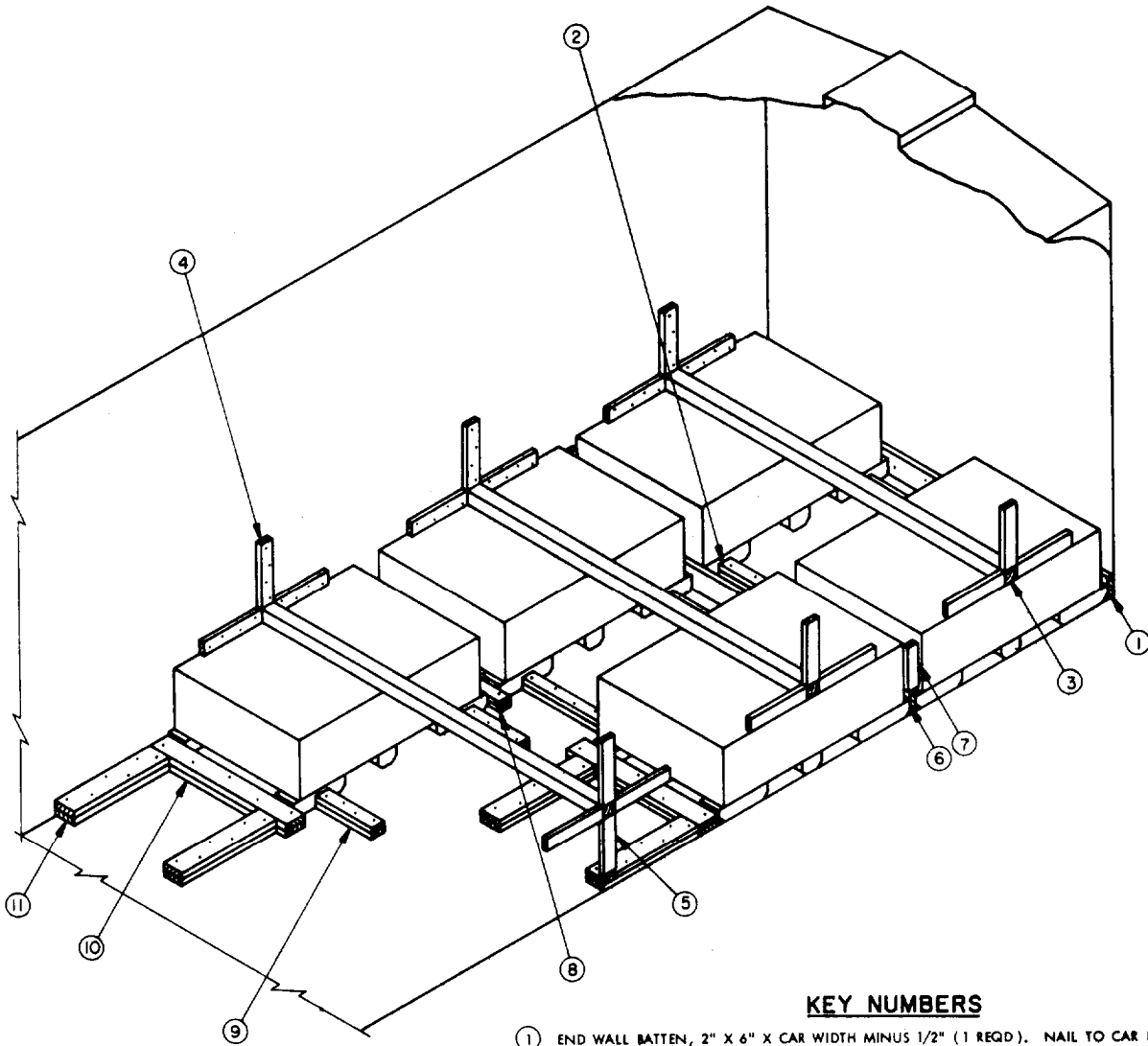
1. A 40'-6" LONG BY 8'-6" WIDE CONVENTIONAL BOX CAR EQUIPPED WITH 6'-0" DOOR OPENINGS IS SHOWN. A WIDER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD. ALSO, A CAR WITH WIDER DOORS CAN BE USED; HOWEVER, IF A CAR EQUIPPED WITH STAGGERED DOORS IS TO BE USED, THE SPECIAL PROVISIONS CONTAINED IN THE "CAUTION" NOTE ON PAGE 10 MUST BE APPLIED.
2. FOR DOORWAY PROTECTION, TWO (2) EACH OF PIECES MARKED (12) AND (13) ARE REQUIRED AROUND EACH LOAD UNIT IF THE UNIT IS NOT RETAINED AGAINST LATERAL MOVEMENT BY AT LEAST 6" OF CAR WALL ON BOTH SIDES.
3. IF THE DELINEATED OUTLOADING METHOD IS USED FOR THE SHIPMENT OF A LOAD WHICH CONTAINS ONE (1) LESS CONTAINER THAN SHOWN, OMIT THE TOP CONTAINER FROM ONE OF THE THREE-HIGH CONTAINER STACKS. INSTALL THE SPACER ASSEMBLY ON TOP OF THE FIRST LAYER OF CONTAINERS. IF SHIPPING TWO LESS CONTAINERS THAN AS SHOWN, OMIT BOTH PARTIAL LAYER ITEMS AND THEREWITH THE SPECIFIED K-BRACE BLOCKING MATERIAL; ALSO, INCREASE HEIGHT OF THE ADJACENT INTER-MEDIATE GATE MARKED (4) TO LOAD HEIGHT. FOR A FURTHER REDUCTION TO THE DEPICTED LOAD, REFER TO SPECIAL NOTE "4" ON PAGE 5 FOR APPLICABLE GUIDANCE.
4. THE SIZE OF THE DEPICTED LOAD IS MORE OR LESS TYPICAL. ADDITIONAL FULL LAYERS, UP THROUGH FIVE (5), OR A LARGER QUANTITY PARTIAL LAYER IN ONE OR BOTH ENDS OF THE CAR MAY BE LOADED FOR SHIPMENT WITHIN THE SPECIFIED CAR. ADJUST HEIGHTS AND QUANTITIES OF DUNNAGE ASSEMBLIES AS REQUIRED, REFERRING TO PAGES 4 AND 5 FOR APPLICABLE BLOCKING AND BRACING GUIDANCE.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	35	12
2" X 2"	34	12
2" X 3"	32	16
2" X 4"	38	26
2" X 6"	34.5	34.5
3" X 4"	25	25
4" X 4"	18	24
NAILS	NO. REQD	POUNDS
6d (2")	84	1/2
10d (3")	340	5-1/4
12d (3-1/4")	228	4
16d (3-1/2")	62	1-1/2
60d (6")	4	1/2
STEEL STRAPPING, 1-1/4" X .035" ----- 457' REQD ----- 66 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 58 REQD ----- 3 LBS		
STAPLE FOR 1-1/4" STRAPPING ----- 5 REQD ----- NIL		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CONTAINER	30	30,750 LBS
(W/CBU ITEM)		
DUNNAGE		1,231 LBS
TOTAL WEIGHT		31,981 LBS



TYPICAL LCL

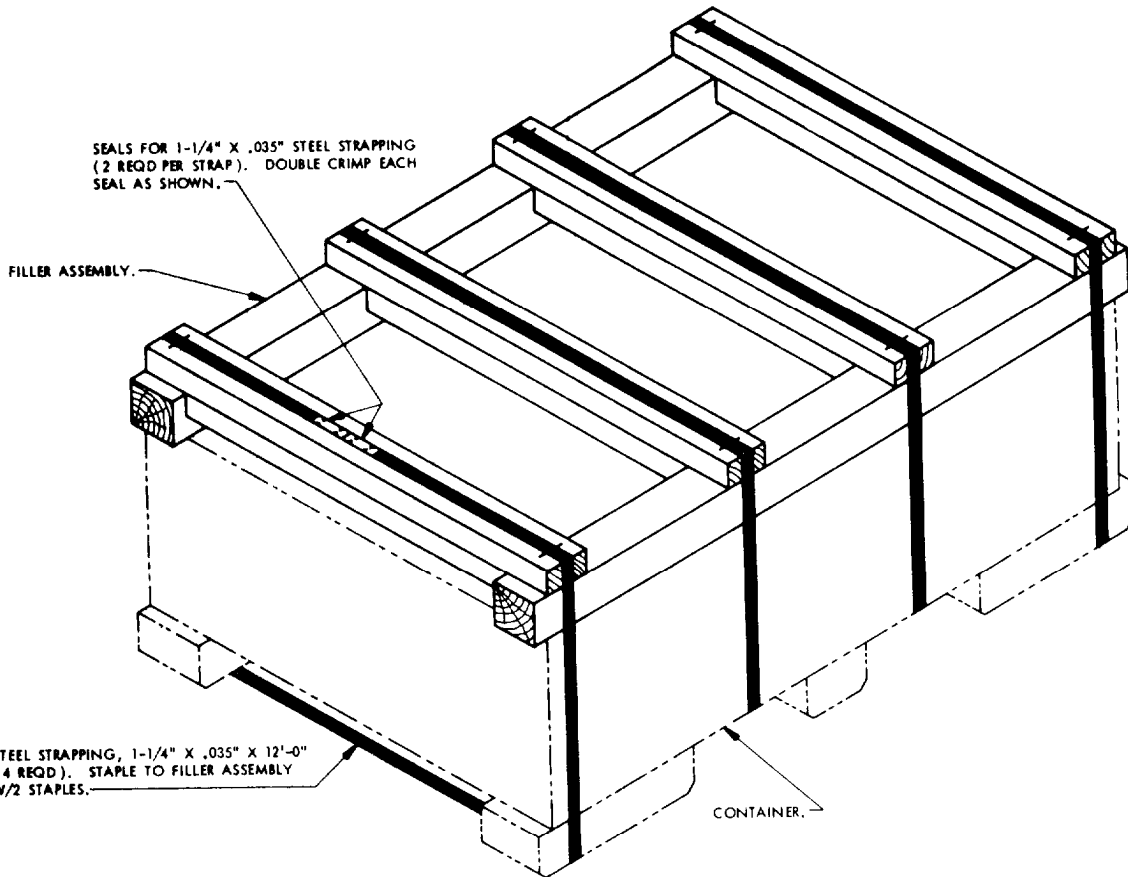
A 9'-2" WIDE CAR IS SHOWN.

SPECIAL NOTES

1. A 9'-2" WIDE CAR IS SHOWN. A WIDER OR A NARROWER CAR CAN BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD.
2. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR AND THE LOCATION OF PIECES MARKED (8) AND/OR (10) IS SUCH THAT PROPER NAILING INTO THE NAILING CHANNELS IN THE CAR FLOOR CANNOT BE ACHIEVED, THE WIDTH OF THESE PIECES MAY BE INCREASED AS NECESSARY.
3. TWO (2) BACK-UP CLEATS SHOWN AS PIECES MARKED (11) ARE ADEQUATE FOR RETAINING A MAXIMUM LCL LOAD OF 9,000 POUNDS.

KEY NUMBERS

- (1) END WALL BATTEN, 2" X 6" X CAR WIDTH MINUS 1/2" (1 REQD). NAIL TO CAR END WALL W/1-10d NAIL EVERY 12".
- (2) LATERAL BRACE, 2" X 4" X CUT TO FIT BETWEEN SKIDS OF LATERALLY ADJACENT CONTAINERS (DOUBLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER. SEE GENERAL NOTE "K" ON PAGE 2.
- (3) CONTAINER HOLD-DOWN, 4" X 4" X CAR WIDTH (CUT TO FIT) (3 REQD).
- (4) POCKET CLEAT, 2" X 4" X 18" (18 REQD). NAIL TO CAR SIDE WALL W/4-12d NAILS.
- (5) SUPPORT CLEAT, 2" X 4" X 17" (1 REQD). NAIL TO CAR SIDE WALL W/4-12d NAILS.
- (6) INTERMEDIATE HEADER, 2" X 6" X CAR WIDTH MINUS 1/2" (1 REQD). POSITION ON EDGE BETWEEN LOAD UNITS.
- (7) INTERMEDIATE HEADER HOLD-DOWN, 2" X 4" X 12" (2 REQD). NAIL TO CAR SIDE WALL W/3-12d NAILS.
- (8) SEPARATOR, 2" X 4" X 42" (DOUBLED) (1 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST W/5-40d NAILS. SEE SPECIAL NOTE "2".
- (9) SIDE BLOCKING, 2" X 4" X 18" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/4-16d NAILS. NAIL SECOND PIECE TO FIRST IN A LIKE MANNER.
- (10) HEADER, 2" X 6" X 42" (DOUBLED) (2 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-16d NAILS. NAIL SECOND PIECE TO FIRST W/5-40d NAILS. SEE SPECIAL NOTE "2".
- (11) BACK-UP CLEAT, 2" X 6" X 30" (DOUBLED) (4 REQD). ALIGN WITH CONTAINER SKID AND NAIL FIRST PIECE TO CAR FLOOR W/6-16d NAILS. NAIL SECOND PIECE TO FIRST W/6-40d NAILS. SEE SPECIAL NOTE "3".



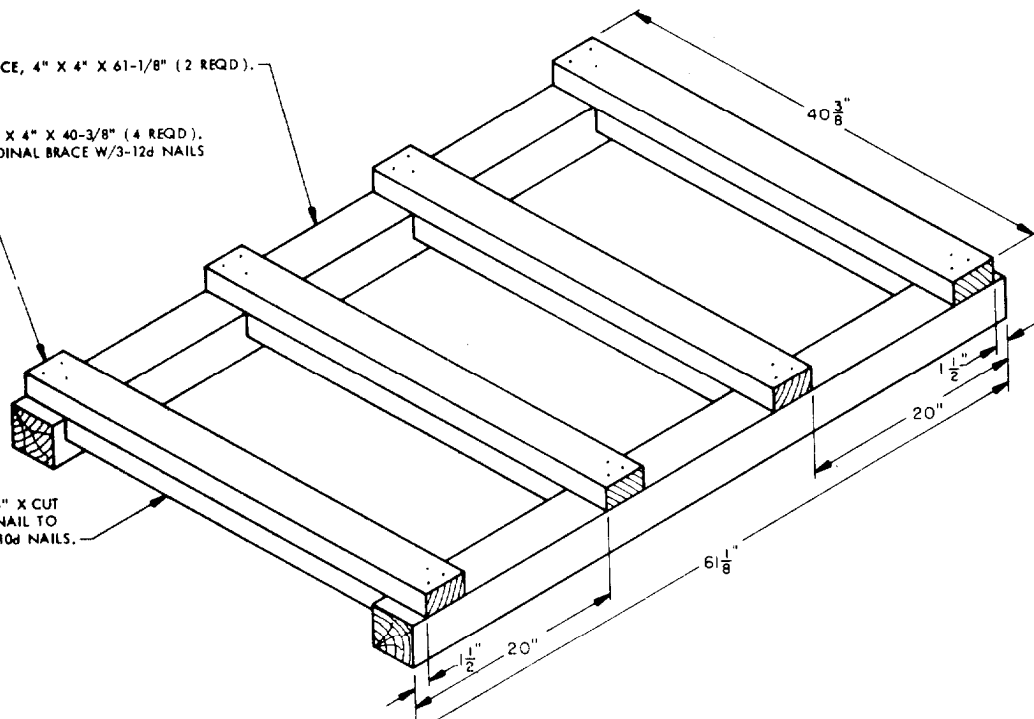
APPLICATION OF FILLER ASSEMBLY

THIS MAY BE USED IN THE LOADS SHOWN ON PAGES 4 AND 6 TO ADJUST LOAD QUANTITY.

LONGITUDINAL BRACE, 4" X 4" X 61-1/8" (2 REQD).

BRACE SUPPORT, 2" X 4" X 40-3/8" (4 REQD).
NAIL TO LONGITUDINAL BRACE W/3-12d NAILS AT EACH END.

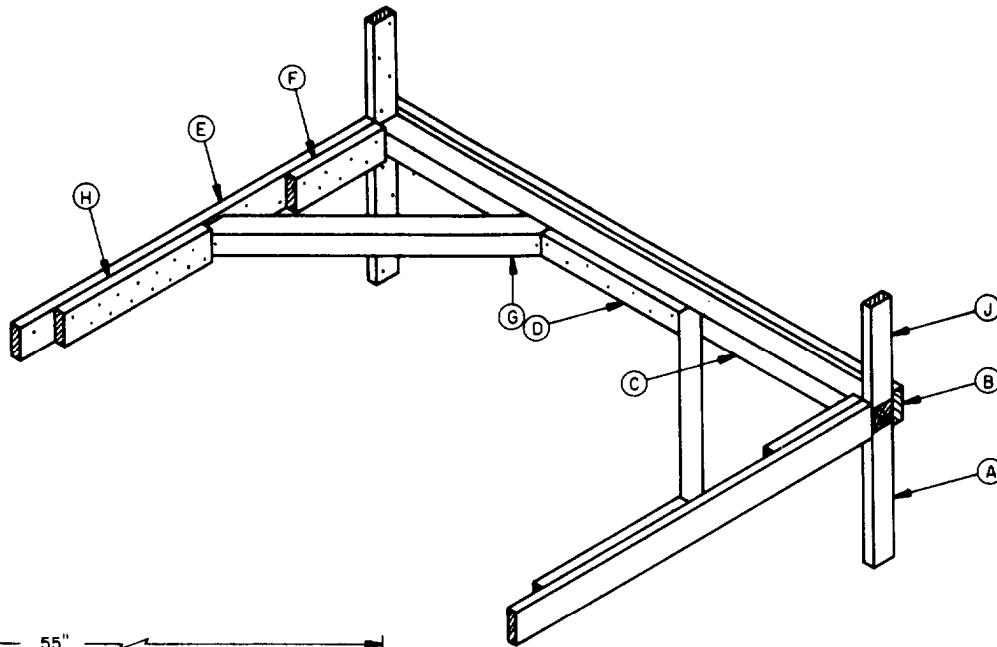
CROSS BRACE, 2" X 4" X CUT TO FIT (4 REQD). NAIL TO BRACE SUPPORT W/7-10d NAILS.



FILLER ASSEMBLY

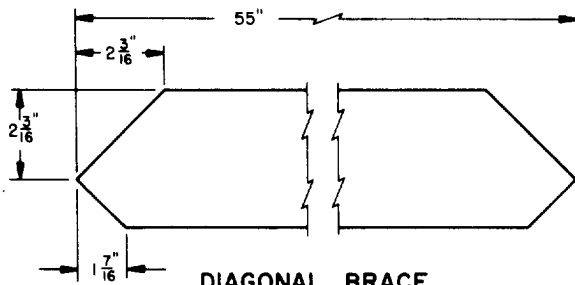
DETAILS

PAGE 9



K-BRACE ASSEMBLY

A K-BRACE ASSEMBLY AS SHOWN IS ADEQUATE FOR RETAINING A MAXIMUM PARTIAL LAYER LOAD OF 6,500 POUNDS. SEE "CAUTION" NOTE BELOW.

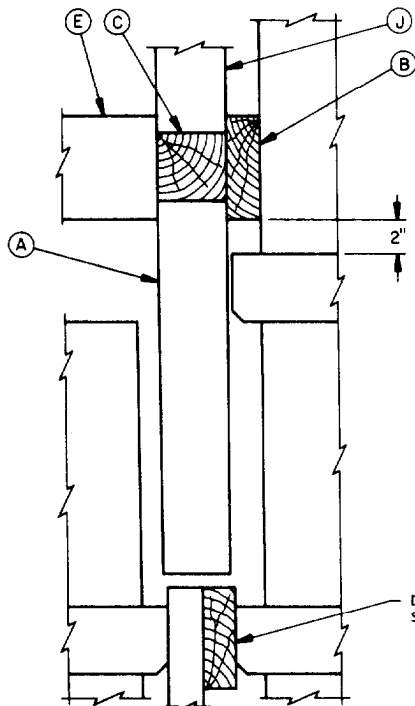


DIAGONAL BRACE

4" X 4" MATERIAL

KEY LETTERS

- (A) WALL CLEAT, 2" X 4" X 22" (2 REQD). NAIL TO CAR SIDE WALL W/5-12d NAILS. SEE "PLACEMENT OF K-BRACE" DETAIL ON THIS PAGE.
- (B) HORIZONTAL, 2" X 6" X CAR WIDTH (CUT TO FIT) (1 REQD). NAIL TO PIECE MARKED (C) W/1-12d NAIL EVERY 6".
- (C) CROSS CAR BRACE, 4" X 4" X CAR WIDTH (CUT TO FIT) (1 REQD).
- (D) CENTER CLEAT, 2" X 4" X 21" FOR AN 8'-6" WIDE CAR OR 2" X 4" X 29" FOR A 9'-2" WIDE CAR (1 REQD). NAIL TO PIECE MARKED (C) W/7-12d NAILS.
- (E) HORIZONTAL WALL CLEAT, 2" X 6" X 72" (2 REQD). NAIL TO CAR SIDE WALL W/16-12d NAILS.
- (F) POCKET CLEAT, 2" X 6" X 18" (2 REQD). NAIL TO PIECE MARKED (E) W/7-16d NAILS.
- (G) DIAGONAL BRACE, 4" X 4" X 55" (2 REQD). SEE "DIAGONAL BRACE" DETAIL ON THIS PAGE. TOENAIL TO PIECE MARKED (C) AND PIECE MARKED (E) W/1-60d NAIL AT EACH END.
- (H) BACK-UP CLEAT, 2" X 6" X 30" (2 REQD). NAIL TO PIECE MARKED (E) W/14-16d NAILS.
- (J) HOLD-DOWN CLEAT, 2" X 4" X 18" (2 REQD). NAIL TO CAR SIDE WALL W/4-12d NAILS.

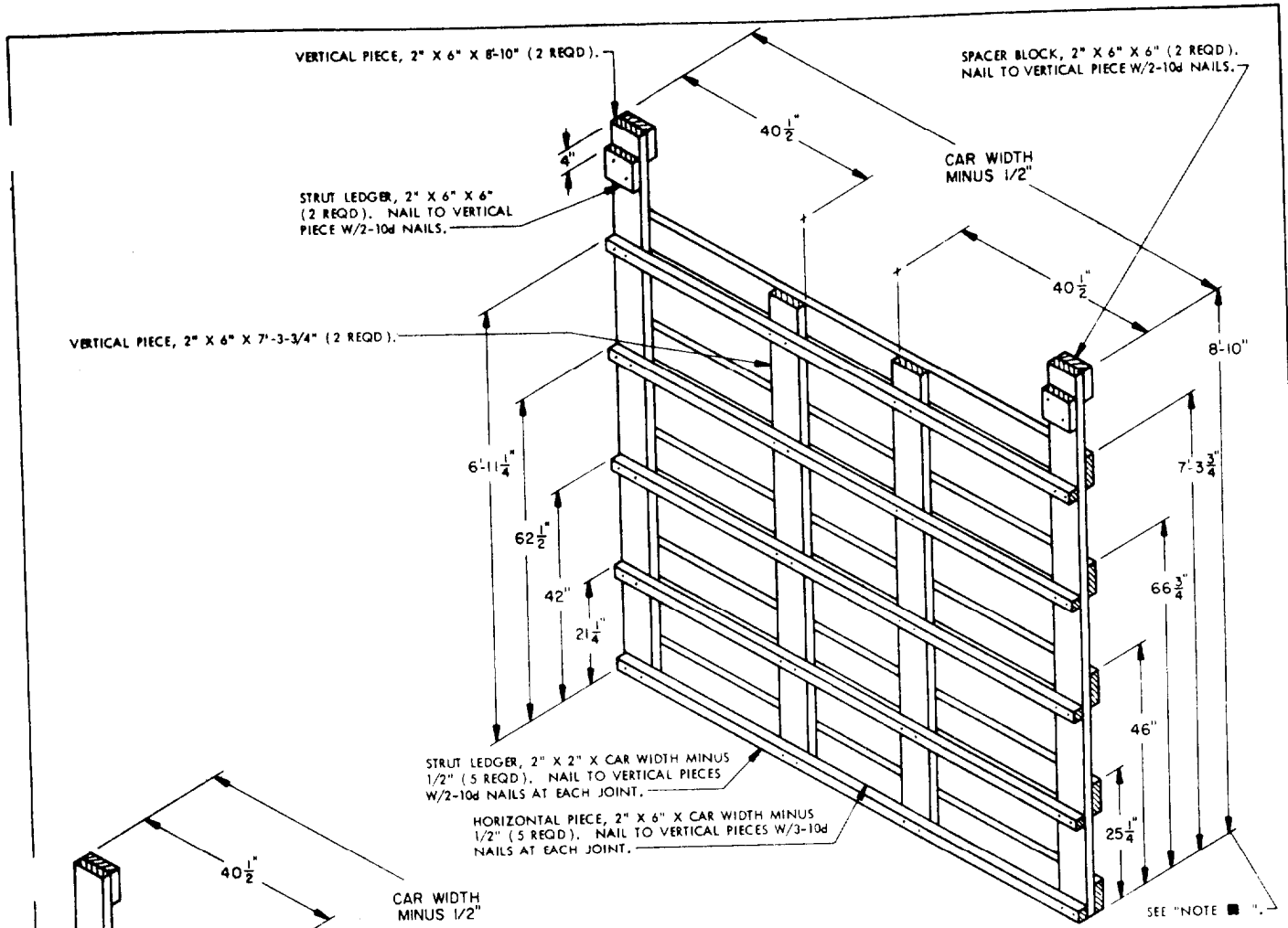


PLACEMENT OF K-BRACE

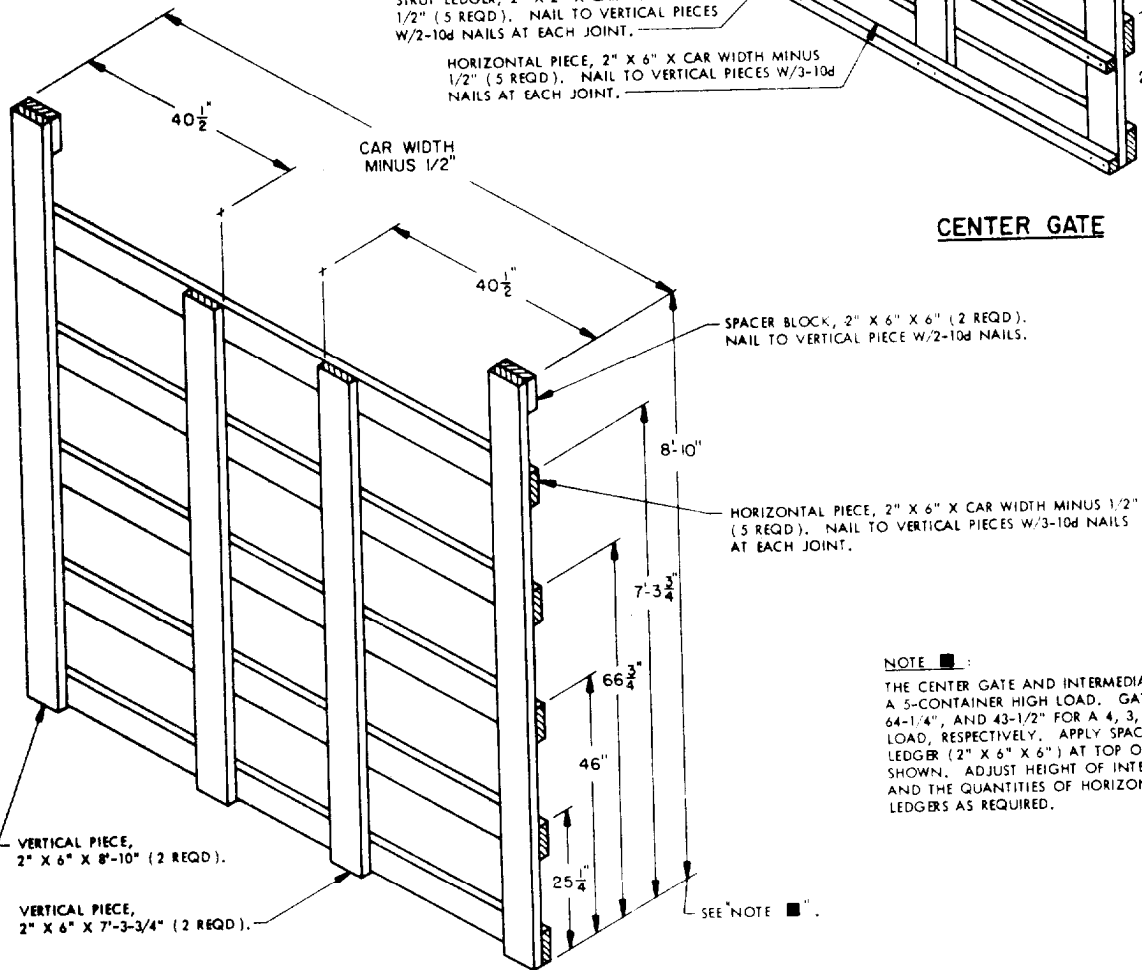
INTERMEDIATE GATE.
SEE PAGE 6.

CAUTION:

SOME CARS ARE NOT SUITED FOR THE APPLICATION OF "PARTIAL LAYER BRACING" BECAUSE THE LENGTH OF THE PARTIAL LAYER 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 (A), (B), (C), (F), AND (G) MUST BE SUPPORTED AT THE SIDES OF A CAR BY A CAR SIDE WALL. IT IS ALL-RIGHT FOR THE END OF A DIAGONAL BRACE TO BEAR IN FRONT OF A DOOR OPENING; HOWEVER, THE ADJACENT PIECE MARKED (E) MUST BE DOUBLED AND EXTENDED ACROSS AND FAR ENOUGH PAST THE DOOR OPENING TO PROVIDE FOR THE SPECIFIED NAILING OF EACH PIECE.



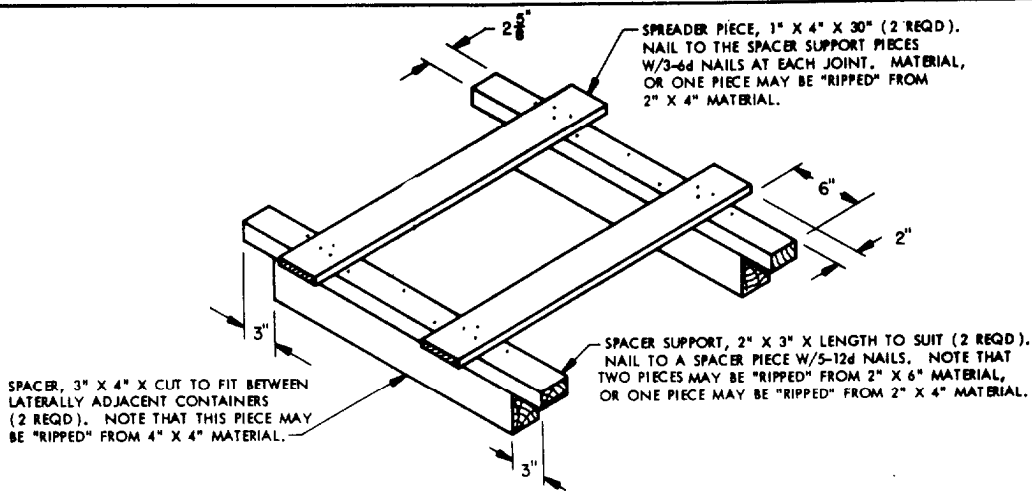
CENTER GATE



INTERMEDIATE GATE

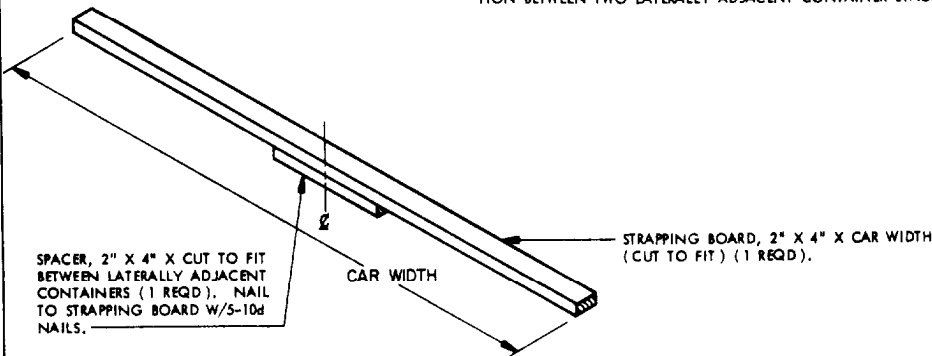
NOTE ■ :
 THE CENTER GATE AND INTERMEDIATE GATE ARE SHOWN FOR A 5-CONTAINER HIGH LOAD. GATE HEIGHTS WILL BE 7'-1", 64-1/4", AND 43-1/2" FOR A 4, 3, OR 2-CONTAINER HIGH LOAD, RESPECTIVELY. APPLY SPACER BLOCKS AND/OR STRUT LEDGER (2" X 6" X 6") AT TOP OF VERTICAL PIECES AS SHOWN. ADJUST HEIGHT OF INTERMEDIATE VERTICAL PIECES AND THE QUANTITIES OF HORIZONTAL PIECES AND STRUT LEDGERS AS REQUIRED.

DETAILS



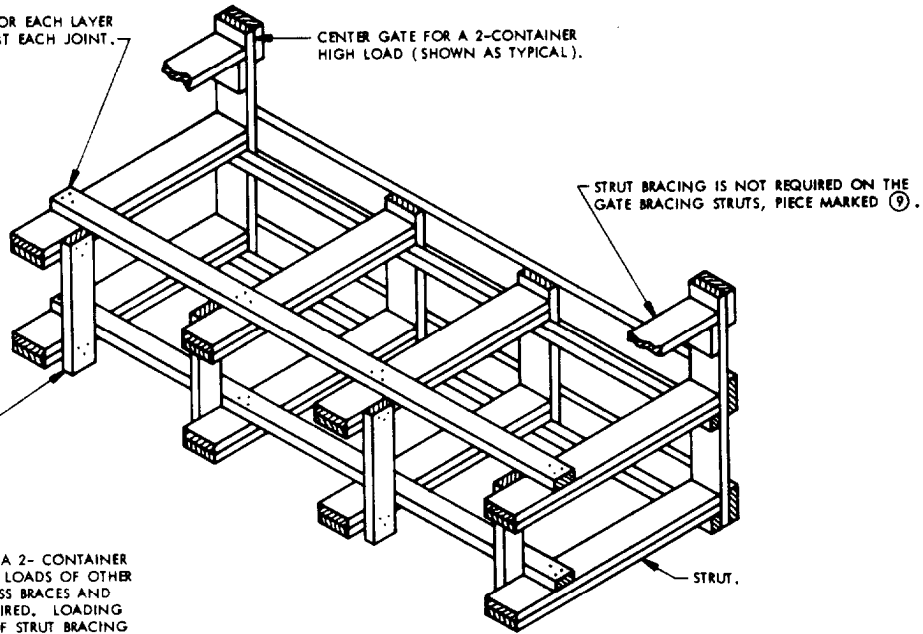
SPACER ASSEMBLY

NOTE: THIS ASSEMBLY CANNOT BE COMPLETELY ASSEMBLED PRIOR TO INSTALLING WITHIN A LOAD. AT LEAST ONE END OF THE SPREADER PIECES WILL HAVE TO BE NAILED AFTER THE OTHER ASSEMBLED PIECES ARE PLACED INTO A BLOCKING POSITION BETWEEN TWO LATERALLY ADJACENT CONTAINER STACKS.



STRAPPING BOARD

CROSS BRACE, 2" X 4" X CAR WIDTH (1 REQD FOR EACH LAYER OF STRUTS). NAIL TO STRUTS W/3-12d NAILS AT EACH JOINT.



VERTICAL BRACE, 2" X 4" X CUT TO FIT (4 REQD). POSITION BOTTOM END ON FLOOR AND NAIL TO STRUTS W/3-10d NAILS AT EACH JOINT.

NOTE ● :

THE STRUT BRACING AS SHOWN IS TYPICAL FOR A 2- CONTAINER HIGH LOAD. THE BRACING MAY BE APPLIED TO LOADS OF OTHER HEIGHTS BY ADJUSTING THE QUANTITY OF CROSS BRACES AND THE LENGTH OF THE VERTICAL BRACES, AS REQUIRED. LOADING SHOULD BE PLANNED SO THAT TWO (2) SETS OF STRUT BRACING (REQUIRED FOR STRUTS 8'-0" OR GREATER IN LENGTH) WOULD NOT BE NECESSARY.

STRUT BRACING

REQUIRED FOR STRUTS WHICH ARE 48" OR GREATER IN LENGTH. SEE "NOTE ● ".

DETAILS