

APPROVED BY
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D m Newb

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LOADING AND BRACING WITH WOODEN DUNNAGE IN SIDE OPENING ISO CONTAINERS OF BOMBS, BLU-109/B, IN CNU-416/E CONTAINER

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- LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING

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DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF BLU-109/B BOMBS IN THE CNU-416/E CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-416/E CONTAINER WITH BOMBS INSTALLED. CAUTION: REGARDLESS OF THE QUANTITY OF UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOADS AS SHOWN ARE BASED ON 6,050 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH SIDE OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89" WIDE BY 88" HIGH AND A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY MOTOR OR WATER CARRIERS. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN ALSO BE USED.
- D. WHEN LOADING THE UNITS, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD (TIGHT AGAINST THE DUNNAGE ASSEMBLIES). THE UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD BAY IS NOT TO EXCEED 1-1/2". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE SIDE FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE TO THE VERTICAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND QUANTITY OF THE DUNNAGE LUMBER USED MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE CONTAINER.
- E. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- F. A STAGGERED NAILING PATTERN WILL BE USED WHENEVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES OR WHEN LAMINATING DUNNAGE. 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.
- G. IN SOME CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE ENDWALLS. A PIECE OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES OF THE END BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE 2' X 4' BUFFER PIECES. A PIECE OF 2" X 4", 2" X 3", OR A SPECIAL WIDTH PIECE CUT-TO-FIT CAN BE USED. THIS FILL PIECE WILL BE NAILED WITH ONE APPROPRIATELY SIZED NAIL EVERY 12". THIS PIECE IS NOT REQUIRED WHEN THE ENDWALL OF THE CONTAINER IS SMOOTH AND FLAT.
- H. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- J. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.
- K. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4 MM AND ONE POUND EQUALS 0.454 KG.

(CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

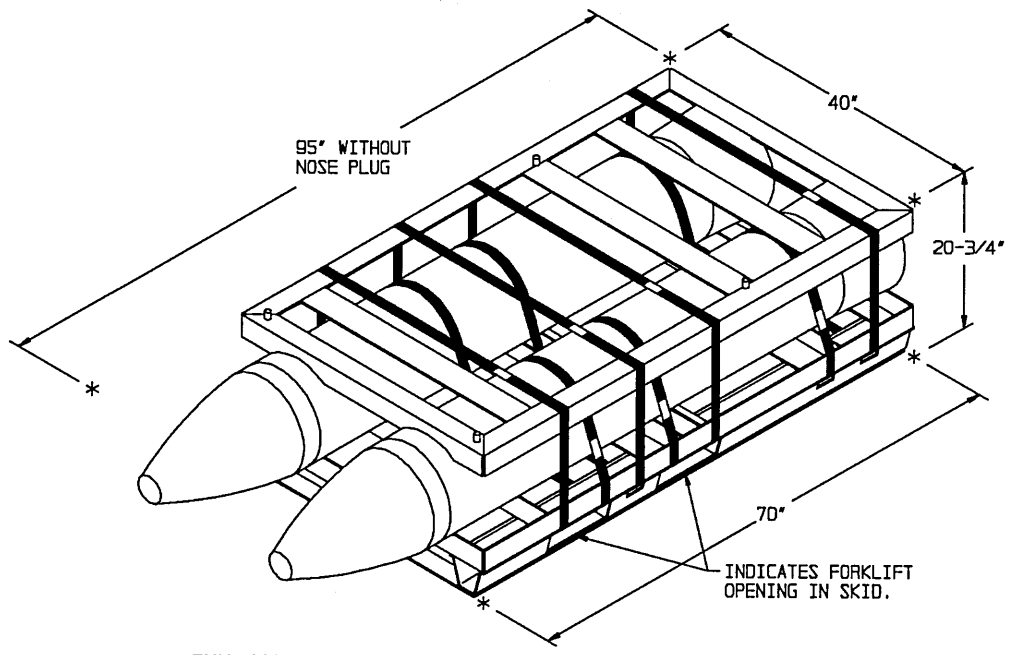
- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- NAILS - - - - - : FED SPEC FF-N-105; COMMON.
- PLYWOOD - - - - - : COMMERCIAL ITEM DESCRIPTION
A-A-55057, TYPE A, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR WITH EXTERIOR GLUE, GRADE C-D. IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN EXTERIOR GRADE MAY BE SUBSTITUTED.
- WIRE, CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, .0800" DIA, GRADE 1006 OR BETTER.

L. MAXIMUM LOAD WEIGHT CRITERIA:

THE MAXIMUM LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALTHOUGH THE HEAVIEST MAXIMUM LOADS ARE DELINEATED IN THE LOAD VIEWS, PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS. DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE INTERMODAL CONTAINER SYSTEM.

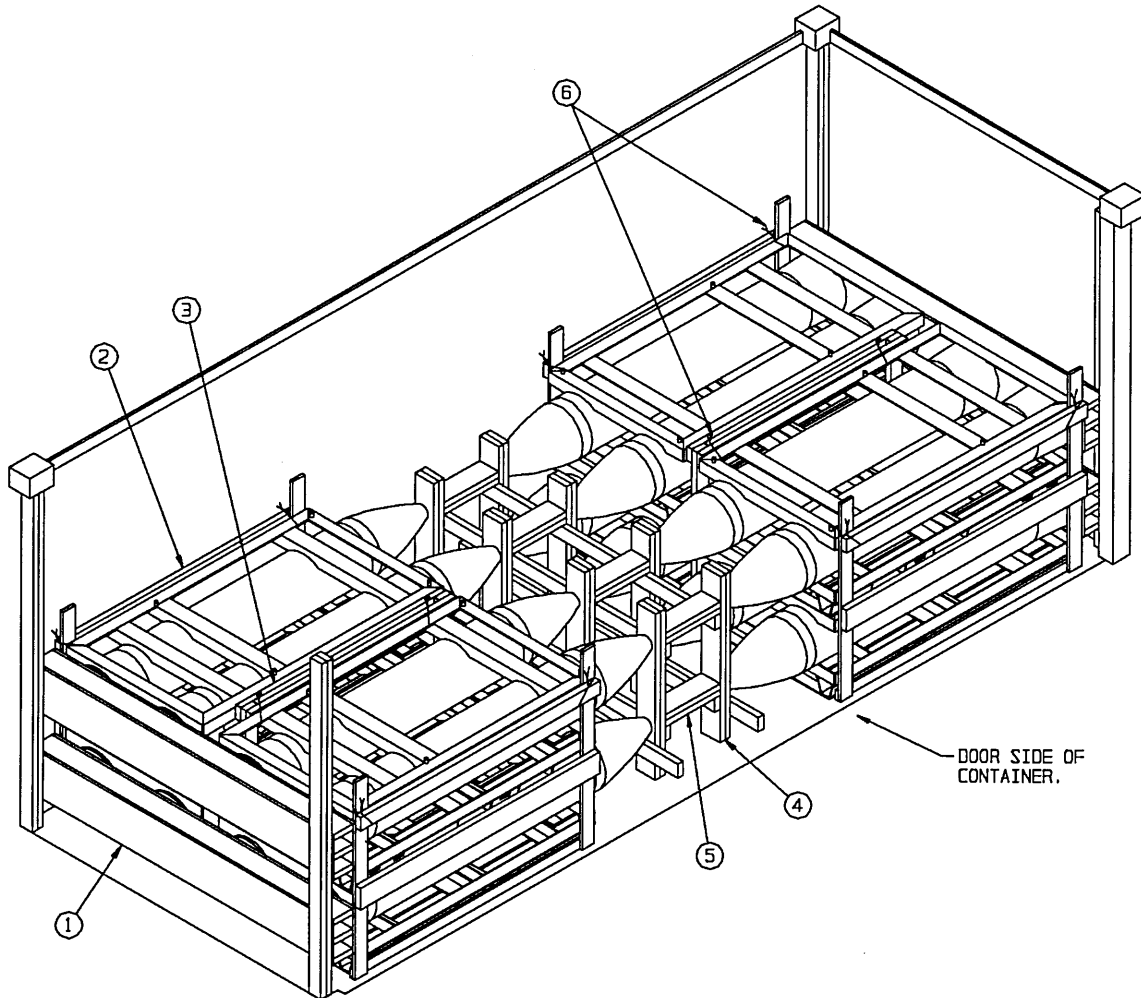
M. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC). SPECIAL T/COFC NOTES FOLLOW:

- 1. A LOADED CONTAINER MUST BE ON A CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE.
- 2. THE LOAD LIMIT OF A T/COFC RAILCAR MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCK UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.
- N. DURING INTRASTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLATBED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.
- O. THE QUANTITY OF CONTAINERS SHOWN IN THE LOAD ON PAGE 4 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "OMITTED CONTAINER PROCEDURES" DETAIL ON PAGE 8. WHEN A CONTAINER IS TO BE LOADED WITH A REDUCED QUANTITY OF LADING UNITS, THE LENGTHWISE CENTER OF GRAVITY OF THE LOAD MUST BE WITHIN 12", IN EITHER DIRECTION, OF THE MID-POINT OF THE CONTAINER.



CNU-416/E CONTAINER

UNIT WEIGHT ----- 4,337 LBS (APPROX)
 CUBE ----- 45.6 CUBIC FEET



ISOMETRIC VIEW

KEY NUMBERS

- ① END BLOCKING ASSEMBLY (2 REOD). SEE THE DETAIL ON PAGE 6.
- ② SIDE FILL ASSEMBLY (4 REOD). SEE THE DETAIL ON PAGE 6. WIRE TIE TO THE CONTAINER FRAME AS SHOWN.
- ③ CENTER FILL ASSEMBLY (2 REOD). SEE THE DETAIL ON PAGE 7. WIRE TIE TO THE CONTAINER FRAME AS SHOWN.
- ④ LOAD BEARING GATE (2 REOD). SEE THE DETAIL ON PAGE 7 AND SPECIAL NOTE 2 ON PAGE 5.
- ⑤ STRUT, 2" X 6" X CUT-TO-FIT (REF: 16") (DOUBLED) (8 REOD). LAMINATE W/4-10d NAILS. TOENAIL TO THE TIE PIECES W/2-10d NAILS AT EACH END.
- ⑥ TIE WIRE, NO. 14 GAGE WIRE 36" LONG (12 REOD).

RECOMMENDED SEQUENTIAL LOADING PROCEDURES

1. PREFABRICATE TWO END BLOCKING ASSEMBLIES, FOUR SIDE FILL ASSEMBLIES, TWO CENTER FILL ASSEMBLIES AND TWO LOAD BEARING GATES.
2. INSTALL ONE END BLOCKING ASSEMBLY.
3. INSTALL ONE SIDE FILL ASSEMBLY, LOAD TWO CONTAINERS AND ONE CENTER FILL ASSEMBLY. INSTALL TIE WIRES.
4. LOAD TWO CONTAINERS AND INSTALL ON SIDE FILL ASSEMBLY WITH TIE WIRE.
5. REPEAT STEPS 2 THRU 4.
6. INSTALL THE TWO LOAD BEARING GATES WITH STRUTS.

SPECIAL NOTES:

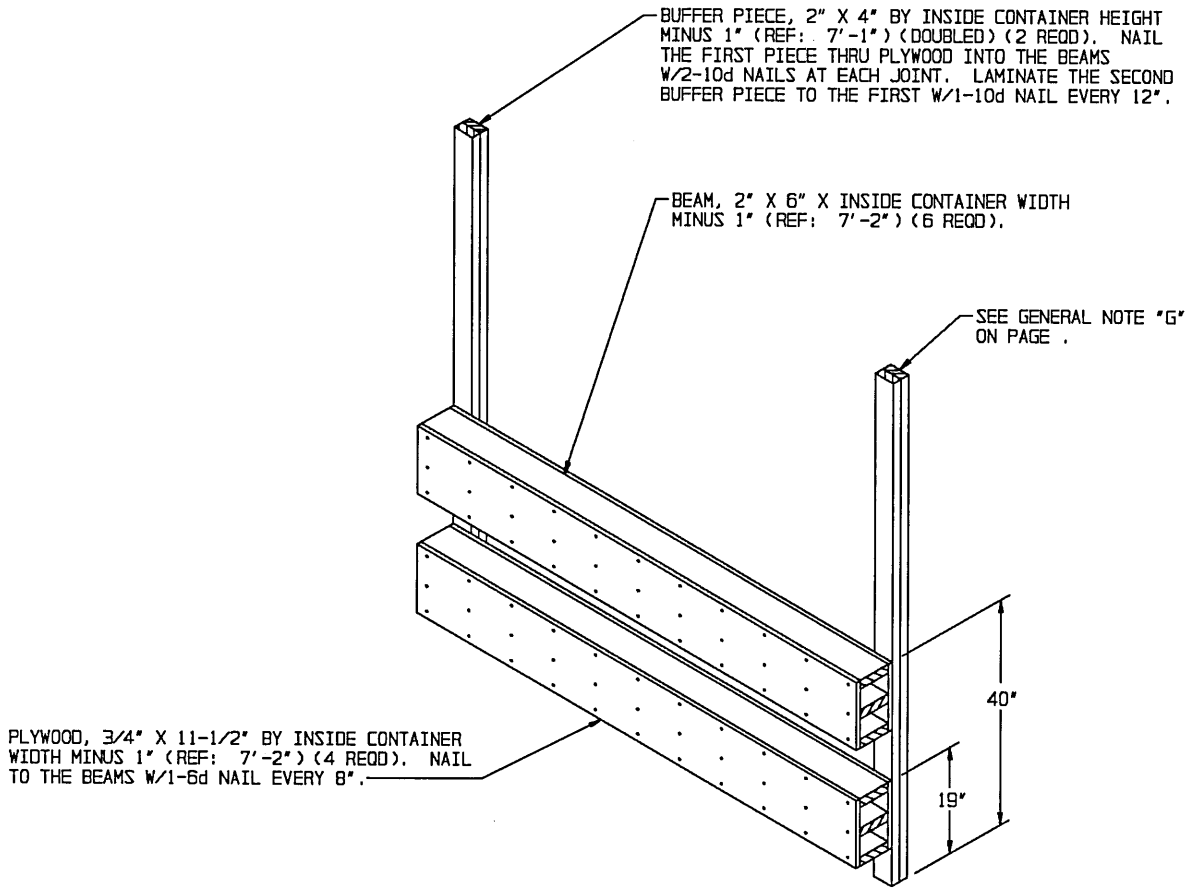
1. IF A CONTAINER IS TO BE LOADED WITH A REDUCED QUANTITY OF CNU-416/E CONTAINERS, SEE THE "OMITTED CONTAINER PROCEDURE" DETAILS ON PAGES 8 AND 9.
2. THE BEARING PIECES OF THE LOAD BEARING GATE, PIECE MARKED ④ ON PAGE 4, ARE DIMENSIONED TO BE CENTERED ON THE NOSE END OF THE BOMBS. AFTER THE CNU-416/E CONTAINERS WITH BOMBS ARE LOADED, A FIELD CHECK FOR THE LOCATIONS OF THE BEARING PIECES SHOULD BE MADE PRIOR TO FABRICATION OF THE LOAD BEARING GATE.

BILL OF MATERIAL

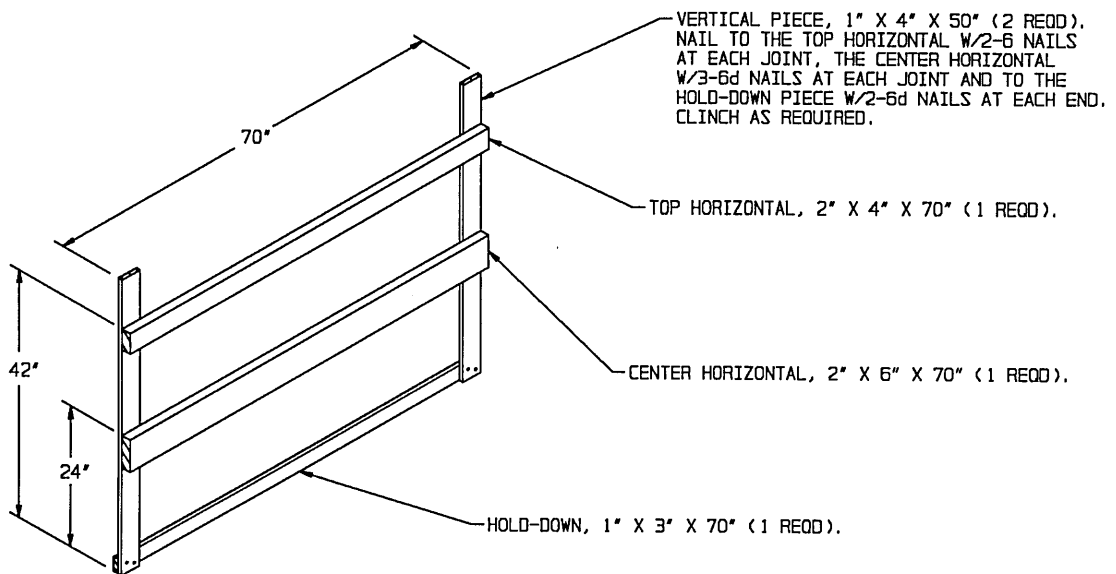
LUMBER	LINEAR FEET	BOARD FEET
1" X 3"	21	5
1" X 4"	33	11
2" X 4"	154	103
2" X 6"	227	227
NAILS	NO. REQD	POUNDS
6d (2")	304	1-3/4
10d (3")	298	4-3/4
PLYWOOD, 3/4"	54.90 SQ FT REQD	113.23 LBS
WIRE, NO. 14 GAGE	36' REQD	1 LB

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-416/E	8	34,696 LBS
DUNNAGE		813 LBS
CONTAINER		6,050 LBS
TOTAL WEIGHT		41,559 LBS (APPROX)



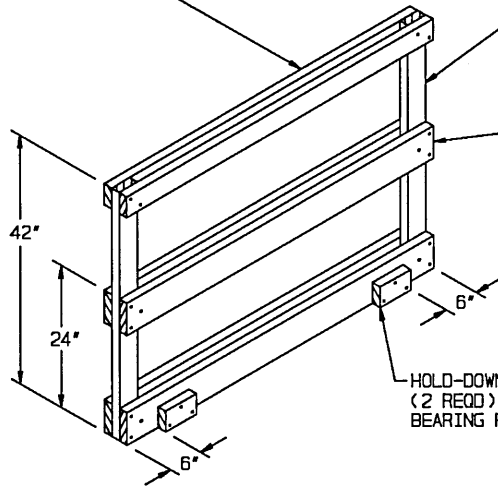
END BLOCKING ASSEMBLY



SIDE FILL ASSEMBLY

HORIZONTAL PIECE, 2" X 4" X 60" (2 REQD).
NAIL TO THE VERTICAL PIECES W/2-10d NAILS
AT EACH END.

VERTICAL PIECE, 2" X 4" X 42" (2 REQD).

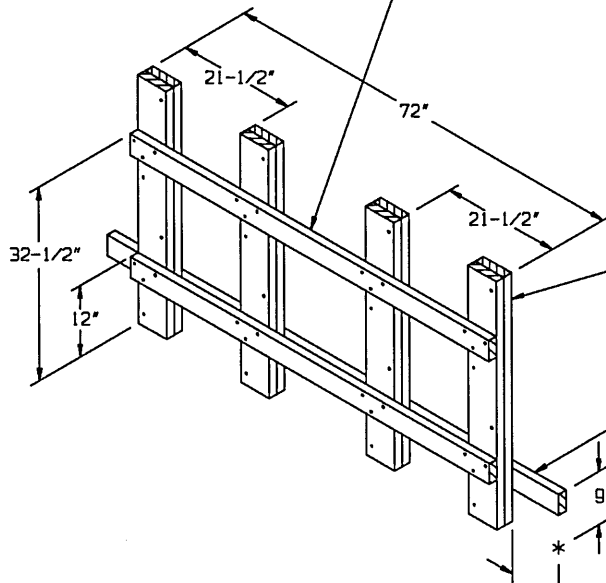


BEARING PIECE, 2" X 6" X 60" (4 REQD).
NAIL TO THE VERTICAL PIECES W/3-10d
NAILS AT EACH END.

HOLD-DOWN PIECE, 2" X 4" X 6"
(2 REQD). NAIL TO THE BOTTOM
BEARING PIECE W/3-10d NAILS.

CENTER FILL ASSEMBLY

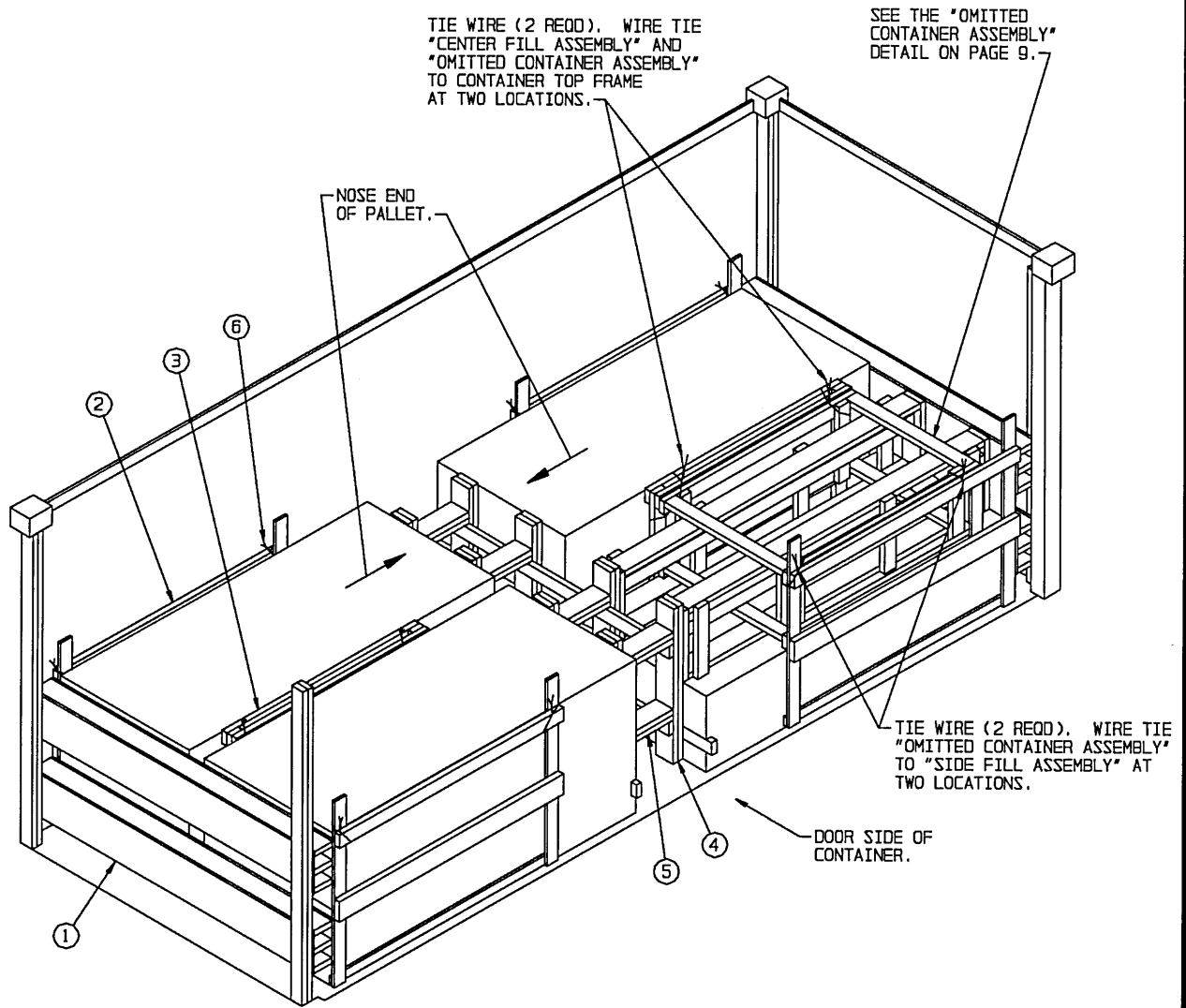
TIE PIECE, 2" X 4" X 72" (2 REQD).
NAIL TO THE BEARING PIECES W/3-10d
NAILS AT EACH JOINT.



BEARING PIECE, 2" X 6" X 42"
(DOUBLED) (4 REQD). LAMINATE
THE SECOND PIECE TO THE FIRST
W/4-10d NAILS.

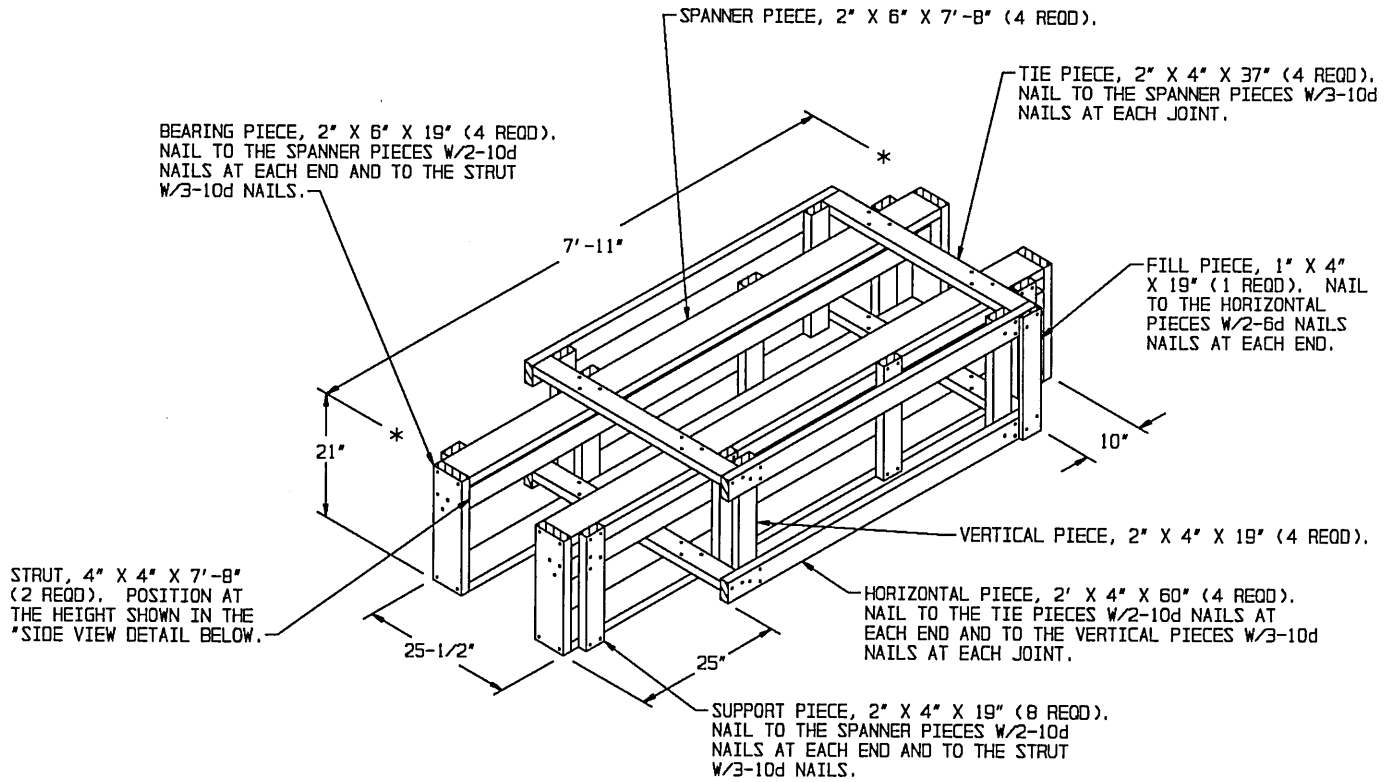
HOLD-DOWN PIECE, 2" X 4" BY INSIDE
CONTAINER WIDTH MINUS 1" (REF:
7'-4") (1 REQD). NAIL TO THE
BEARING PIECES W/2-10d NAILS AT
EACH JOINT.

LOAD BEARING GATE

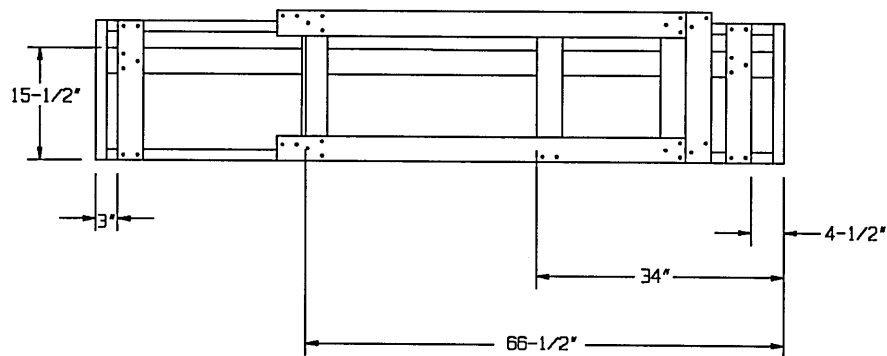


ISOMETRIC VIEW

FOR KEY NUMBERS REFER TO PAGE 4.



OMITTED CONTAINER ASSEMBLY



SIDE VIEW

OMITTED CONTAINER DETAILS

