APPROVED BY
BUREAU OF EXPLOSIVES

DATE 8/19/91

LOADING AND BRACING● WITH WOODEN DUNNAGE IN SIDE OPENING COMMERIAL CONTAINERS OF CBU-52, CBU-58, OR CBU-71 IN CNU-126/E, CNU-180/E OR CNU-180B/E SHIPPING AND STORAGE CONTAINERS

INDEX

● LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLAT CAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS. SEE GENERAL NOTE "M" ON PAGE 3.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND

APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND

U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL

DRAFTSMAN	TECHNICIAN	ENGINEER
S. WILSON		G. WILLIS

VALIDATION ENGINEERING DIVISION	TRANSPORTATION ENGINEERING DIVISION	LOGISTICS ENGINEERING OFFICE

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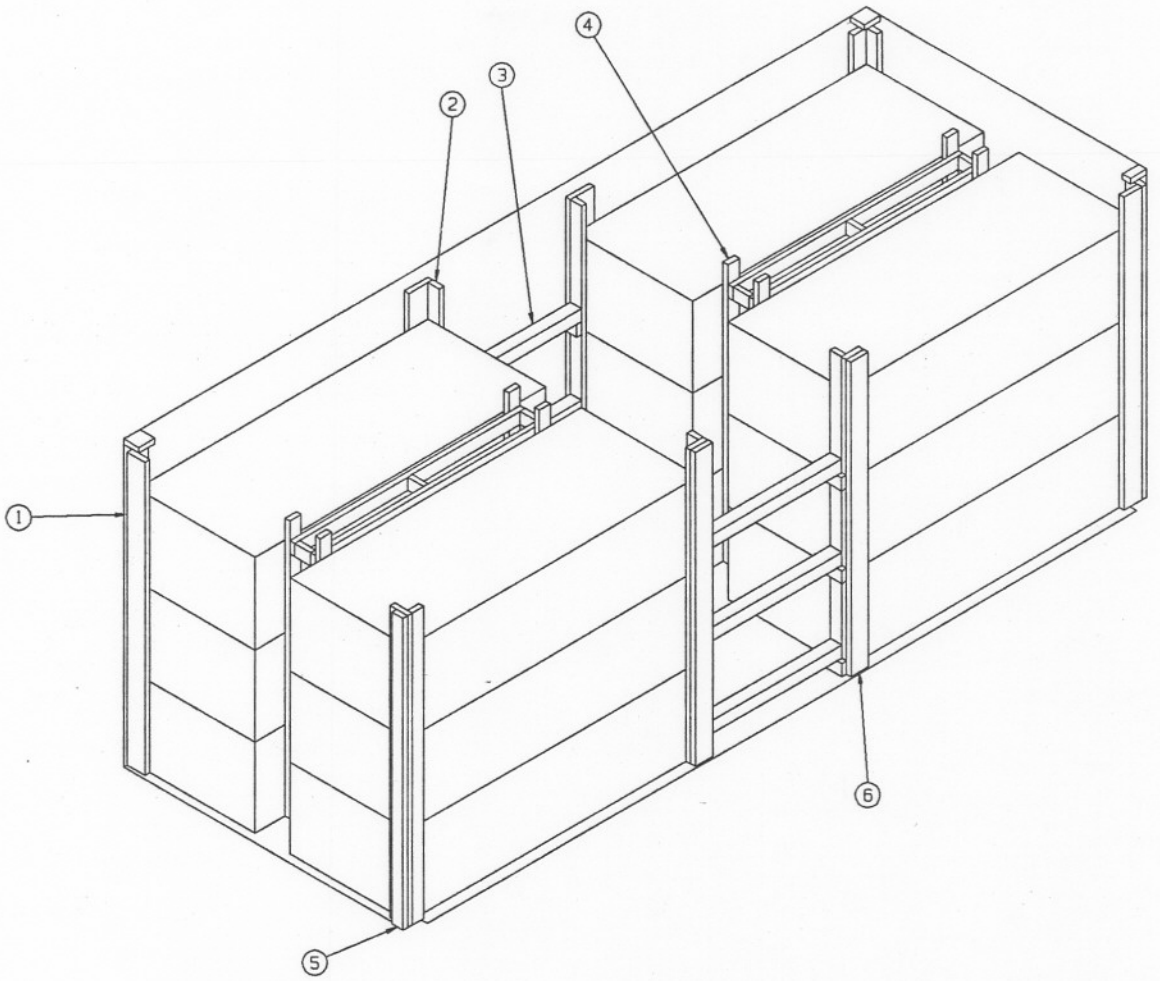
19	48	7110	SP15J11

DO NOT SCALE

PROJECT SP 158-88



ISOMETRIC VIEW

KEY NUMBERS

(1) CORNER ASSEMBLY (4 REQD). SEE THE "CORNER ASSEMBLY" DETAIL ON PAGE 5 AND GENERAL NOTES "F", "G", "H", "J" AND "K" ON PAGE 3.

(2) SIDEWALL CENTER ASSEMBLY (2 REQD, ONE RIGHT HAND AND ONE LEFT HAND). SEE THE "SIDEWALL CENTER ASSEMBLY" DETAIL ON PAGE 5 AND GENERAL NOTES "F", "H", "J" AND "K" ON PAGE 3.

(3) STRUT, 4" X 4" BY CUT-TO-FIT (REF: 46") (6 REQD). TOENAIL TO PIECES MARKED (2) AND (6) W/2-10d NAILS AT EACH END. SEE GENERAL NOTES "F", "H", "J" AND "K" ON PAGE 3.

(4) CENTER FILL ASSEMBLY (2 REQD). SEE THE "CENTER FILL ASSEMBLY" ON PAGE 6 AND GENERAL NOTES "F", "H", "J" AND "K" ON PAGE 3.

(5) CORNER FILL PIECE, 2" X 4" X 7'-0" (2 REQD). NAIL TO CORNER ASSEMBLY W/7-10d NAILS. SEE GENERAL NOTES "G", "H", "J" AND "K" ON PAGE 3.

(6) DOORWALL CENTER ASSEMBLY (2 REQD, ONE RIGHT HAND AND ONE LEFT HAND). SEE THE "DOORWALL CENTER ASSEMBLY" DETAIL ON PAGE 5 AND GENERAL NOTES "F", "H", "J" AND "K" ON PAGE 3.

PROJECT SP 158-88

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. ALL LOADS SHIPPED BY THE PROCEDURES DEPICTED IN THIS DRAWING MUST BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN TITLE 49, THE UNITED STATES CODE OF FEDERAL REGULATIONS; AR 55-355/AFM 75-2; DOD 4500-32-R; DOD 5100.76-M; DOD 6055.9-STD; AS WELL AS ANY AND ALL OTHER APPLICABLE SERVICE REGULATIONS.

C. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO THE CBU-52, CBU-58, OR CBU-71 BOMB UNITS PACKED IN A CNU126/E, CNU-180/E, OR CNU-180B/E SHIPPING AND STORAGE CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS THE CNU-126/E, CNU-180/E, OR CNU-180B/E CONTAINER WITH BOMBS INSTALLED. SEE PAGE 4 FOR DETAILS OF THE CONTAINER. CAUTION: REGARDLESS OF THE QUANTITY OF CONTAINERS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SIDE OPENING CONTAINER MUST NOT BE EXCEEDED.

D. THE OUTLOADING PROCEDURES SPECIFIED HEREIN CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE DEPICTED CNU-126/E, CBU180/E, OR CNU-180B/E CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM DESIGNATED WITHIN THE DRAWING TITLE, PROVIDED THE GROSS WEIGHT OF THE CONTAINER DOES NOT EXCEED 2,500 POUNDS.

E. THE LOAD AS SHOWN IS BASED ON A 6,050 POUND 20'-0" LONG BY 8'-0" WIDE BY 8'-6" HIGH SIDE OPENING INTERMODAL COMMERCIAL CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 89-1/2" WIDE BY 88" HIGH. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC) SHIPMENT, HOWEVER, THE LOAD AS DESIGNED CAN ALSO BE MOVED BY OTHER SURFACE MODES OF TRANSPORT. NOTICE: OTHER CONTAINERS OF THE SAME DESIGN CONFIGURATION CAN ALSO BE USED.

F. WHEN LOADING THE CNU-126/E, CNU-180/E, OR CNU-180B/E CONTAINERS, THEY ARE TO BE POSITIONED TIGHTLY AGAINST THE CORNER ASSEMBLY AND THE CENTER FILL ASSEMBLY. LONGITUDINAL VOIDS WITHIN THE LOAD ARE TO BE HELD TO A MINIMUM, NOT EXCEEDING ONE-HALF INCH (1/2"). ALTHOUGH A TOTAL OF ONE AND ONE-HALF INCHES (1-1/2") OF UNBLOCKED SPACE ACROSS THE WIDTH OF A LOAD IS PERMITTED, LATERAL VOIDS SHOULD ALSO BE HELD TO A MINIMUM. EXCESSIVE LONGITUDINAL VOIDS CAN BE ELIMINATED BY POSITIONING THE CONTAINERS TIGHTLY AGAINST THE CORNER ASSEMBLIES AND THE CENTER FILL ASSEMBLIES AND BY INSTALLING STRUTS TO FIT TIGHTLY BETWEEN THE CONTAINERS. EXCESSIVE LATERAL VOIDS CAN BE ELIMINATED FROM A LOAD BY ADJUSTING THE LENGTH OF THE SPACER PIECES IN THE CENTER FILL ASSEMBLIES OR BY LAMINATING ADDITIONAL PIECES OF APPROPRIATE THICKNESS TO THE BEARING PIECES OF THE CENTER FILL ASSEMBLIES. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS OR QUANTITY OF DOORWAY FILL PIECES ON THE DOORWALL CENTER ASSEMBLIES MAY BE ADJUSTED (EITHER INCREASED OR DECREASED) AS REQUIRED TO ACCOUNT FOR ANY VARIANCE IN THE ACTUAL CONTAINER DIMENSIONS AND TO ENSURE THAT THE VOID BETWEEN THE LOAD AND THE DOORS IS MINIMIZED.

G. WHEN INSTALLING THE CORNER BLOCKING ASSEMBLIES, THE ASSEMBLIES MUST BE POSITIONED SO AS TO BE SUPPORTED AND IN LINE WITH THE STRONG POINTS AT THE CORNERS OF THE CONTAINER ENDWALLS. NOTE: ADJUST QUANTITY AND/OR DIMENSIONS OF FILL PIECES TO BE INSTALLED ON THE END PIECES OF THE CORNER BLOCKING ASSEMBLIES IN ORDER TO PROVIDE A UNIFORM LOAD BEARING SURFACE AGAINST THE CORNERS OF THE CONTAINER ENDWALLS. NAIL THESE FILL PIECES TO THE PREVIOUS PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12" INCHES.

H. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" BY 5-1/2" WIDE.

J. 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.

(CONTINUED AT LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
CNU-180/E	12	25,008 LBS
DUNNAGE		472 LBS
SIDE OPENING CONTAINER		6,050 LBS
TOTAL WEIGHT		31,530 LBS (APPROX)

(GENERAL NOTES CONTINUED)

K. CAUTION: DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.

L. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE DOORS, HAVE NOT BEEN SHOWN IN THE LOAD VIEW FOR CLARITY PURPOSES.

M. REQUIREMENTS CITED WITHIN THE BUREAU OF EXPLOSIVES PAMPHLET 6C APPLY WHEN THE SHIPMENT MOVES BY TRAILER/CONTAINER-ON-FLAT-CAR (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 INTERSTATE AND/OR INTERSTATE MOVES BY MOTOR CARRIER, A PROPER CHASSIS OR MODIFIED FLAT BED TRAILER MUST BE USED TO PRECLUDE VIOLATION OF ONE OR MORE "WEIGHT LAWS" APPLICABLE TO THE STATE OR STATES INVOLVED.

O. 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 25.4MM AND ONE POUND EQUALS 0.454KG.

P. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE FOUR CORNER ASSEMBLIES, TWO SIDEWALL CENTER ASSEMBLIES (ONE RIGHT HAND AND ONE LEFT HAND), TWO CENTER FILL ASSEMBLIES, AND TWO DOORWALL CENTER ASSEMBLIES (ONE RIGHT HAND AND ONE LEFT HAND).
2. INSTALL TWO CORNER ASSEMBLIES.
3. LOAD EITHER SIX CNU-180/E, CNU-180B/E OR CNU-126/E CONTAINERS.
4. INSTALL BOTH SIDEWALL CENTER ASSEMBLIES.
5. INSTALL BOTH CENTER FILL ASSEMBLIES.
6. REPEAT STEP 2.
7. REPEAT STEP 3.
8. INSTALL BOTH DOORWALL CENTER ASSEMBLIES.
9. INSTALL STRUTS.

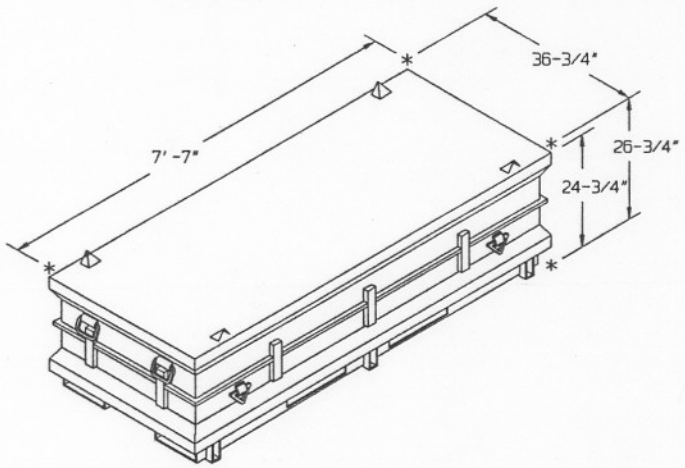
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 3"	4	2
2" X 4"	189	126
2" X 6"	56	56
2" X 8"	14	19
4" X 4"	23	31
NAILS	**NO. REQD**	**POUNDS**
10d (3")	264	4

MATERIAL SPECIFICATIONS

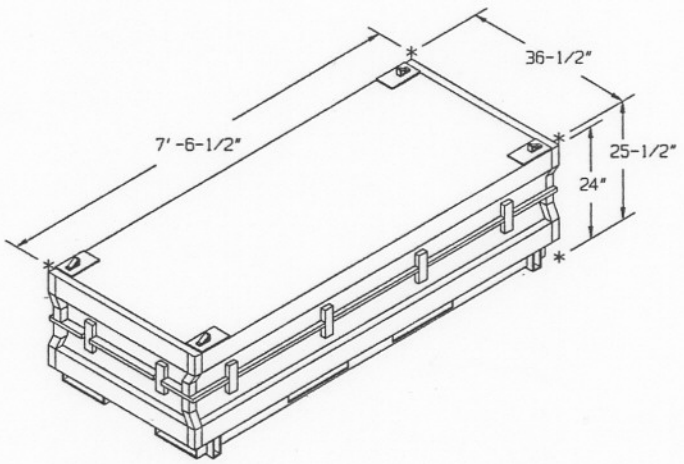
LUMBER - - - - : TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.

NAILS - - - - : FED SPEC FF-N-105; COMMON.



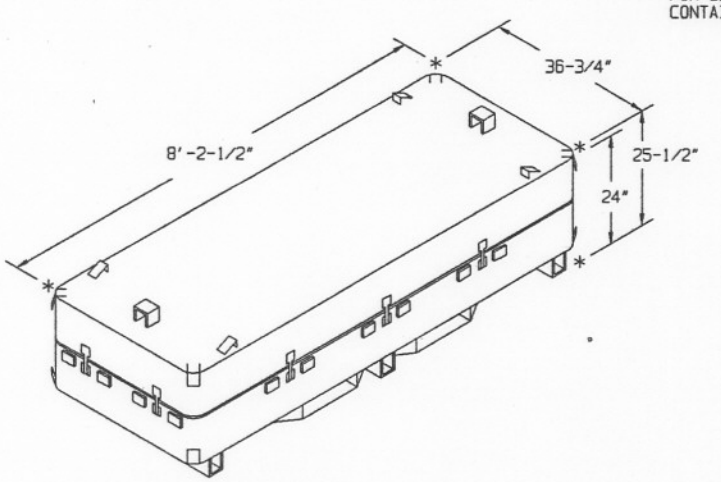
CNU-180/E CONTAINER

CONTAINER WEIGHT
FOR CBU-58 - - - - - - - - 2,084 LBS (APPROX)
FOR CBU-71 - - - - - - - - 2,064 LBS (APPROX)
CONTAINER CUBE - - - - - 47.9 CU FT (APPROX)



CNU-180B/E CONTAINER

CONTAINER WEIGHT
FOR CBU-58 - - - - - - - - 2,084 LBS (APPROX)
FOR CBU-71 - - - - - - - - 2,064 LBS (APPROX)
CONTAINER CUBE - - - - - 45.9 CU FT (APPROX)

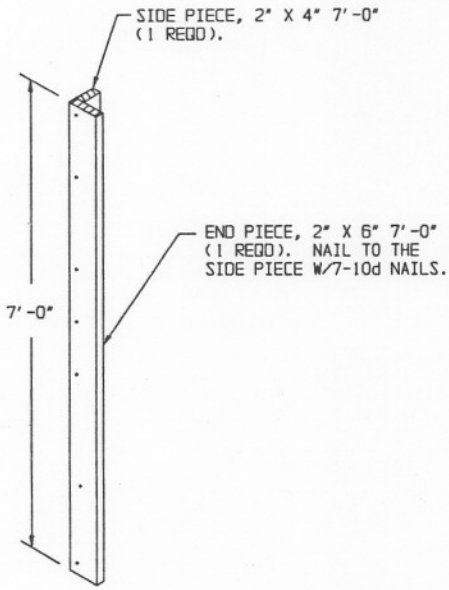


CNU-126/E CONTAINER

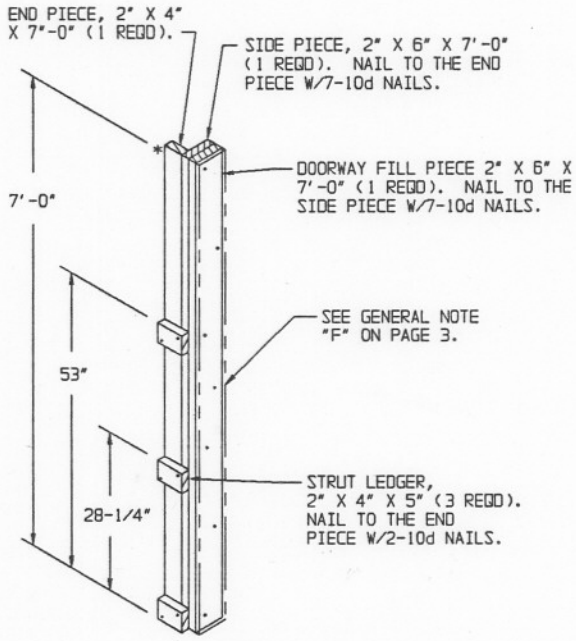
CONTAINER WEIGHT
FOR CBU-52 - - - - - - - - 2,032 LBS (APPROX)
FOR CBU-58 - - - - - - - - 2,160 LBS (APPROX)
CONTAINER CUBE - - - - - 49.3 CU FT (APPROX)

CONTAINER DETAILS

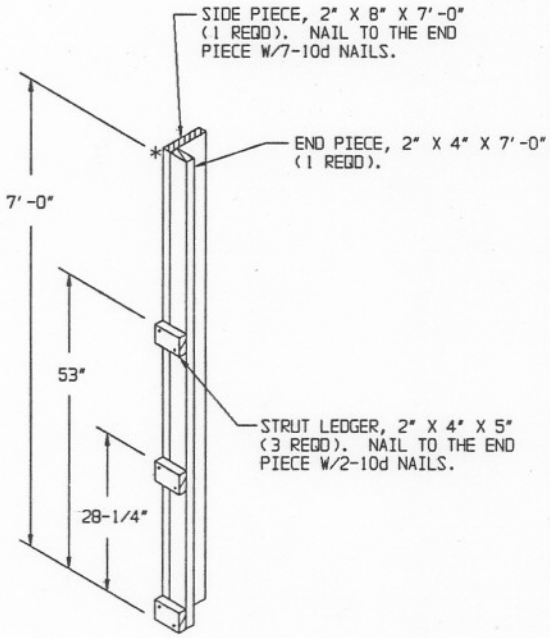
PROJECT SP 158-88



CORNER ASSEMBLY

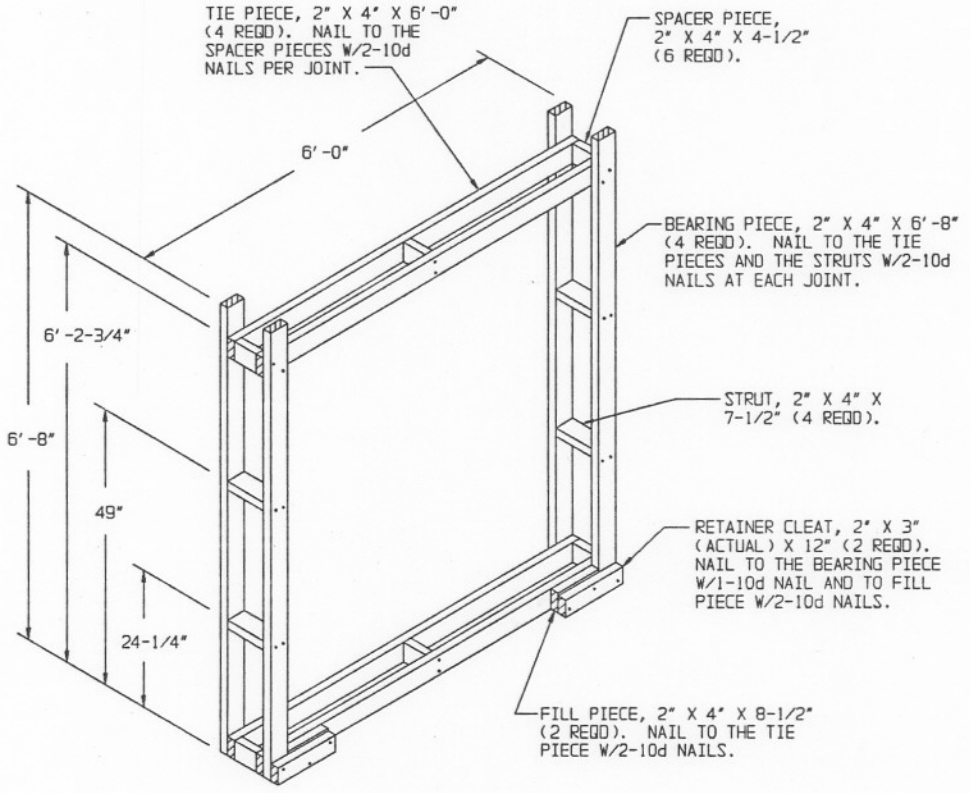


DOORWALL CENTER ASSEMBLY *



SIDEWALL CENTER ASSEMBLY *

* NOTE: ONE "RIGHT HAND" AND ONE "LEFT HAND" ASSEMBLY ARE REQUIRED.



CENTER FILL ASSEMBLY

DETAIL