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HONEST JOHN

LOADING AND BRACING⊕ IN END OPENING ISO CONTAINERS OF ROCKET MOTOR, 762MM, M66A1, PACKED IN PLYWOOD CRATE

INDEX

⊕ THE PROCEDURES SHOWN HEREIN ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL, MOTOR, OR WATER CARRIERS.

U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY
AVIATION ANDMISSILE COMMAND

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DO NOT SCALE

OCTOBER 2009

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CLASS	DIVISION	DRAWING	FILE
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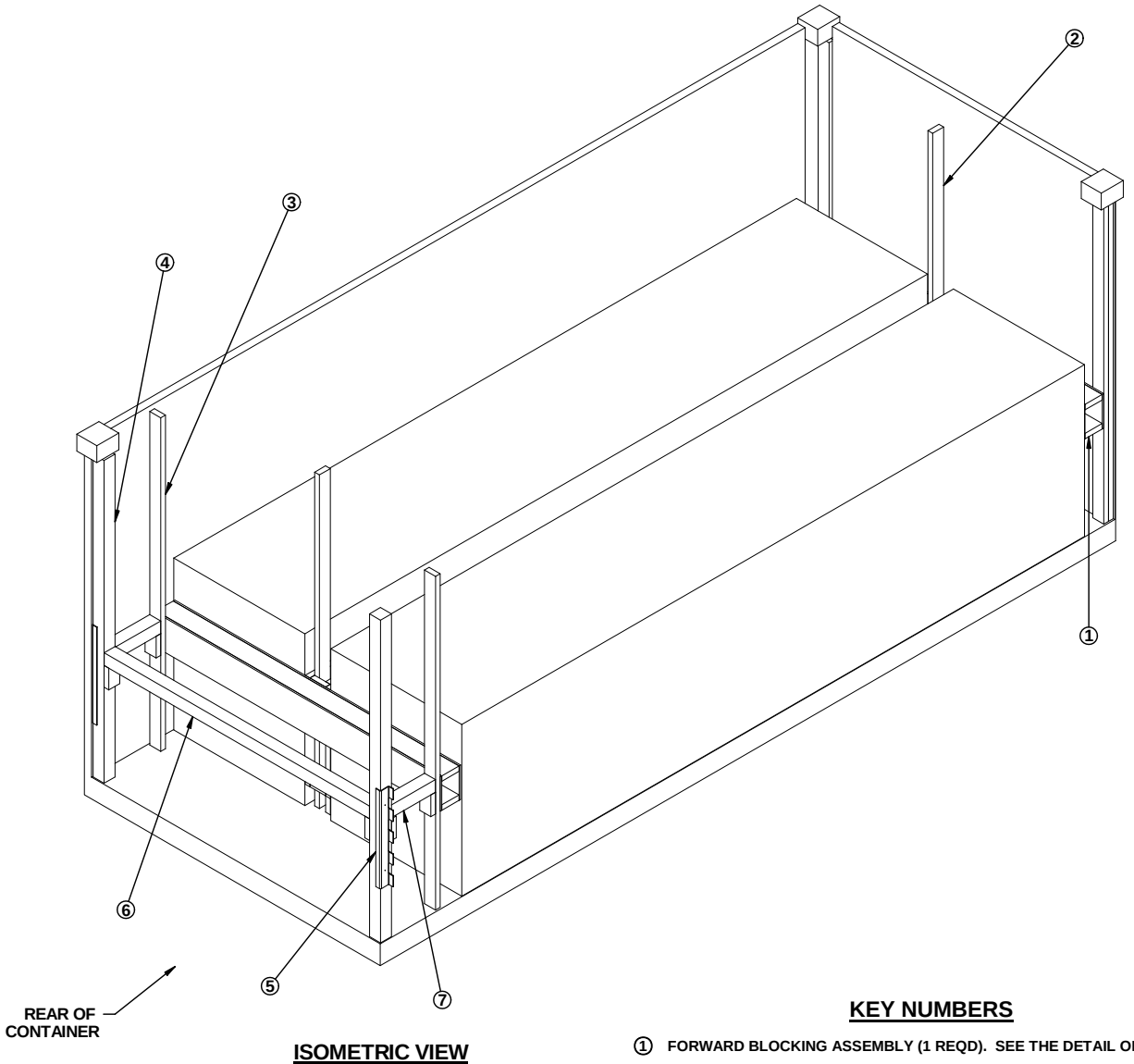
PROJECT GM 917-09



ISOMETRIC VIEW

KEY NUMBERS

① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 5.

② CENTER FILL/FILLER ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 7.

③ REAR BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6.

④ DOOR POST VERTICAL (2 REQD). SEE THE DETAIL ON PAGE 6, "DETAIL A" ON PAGE 7, AND GENERAL NOTE "R" ON PAGE 3.

⑤ UNIVERSAL LOAD RETAINER (2 REQD, 1 PER SIDE). NAIL THROUGH THE HOLES INTO THE DOOR POST VERTICAL W/2-10d NAILS. SEE DEPARTMENT OF ARMY DRAWING DA-116, "DETAIL A" ON PAGE 7, AND GENERAL NOTE "R" ON PAGE 3.

⑥ DOOR SPANNER, 4" X 4" MATERIAL CUT TO A LENGTH THAT WILL PROVIDE A DRIVE FIT (REF: 7'-1-1/4") (1 REQD). TOENAIL TO THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 5.

⑦ STRUT, 4" X 4" BY CUT-TO-FIT (REF: 14-1/4") (2 REQD). TOENAIL TO THE BUFFER PIECES OF THE REAR BLOCKING ASSEMBLY AND TO THE DOOR POST VERTICAL W/2-12d NAILS AT EACH END. SEE THE "BEVEL-CUT" DETAIL ON PAGE 5.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	125	83
2" X 6"	31	31
4" X 4"	25	33
NAILS	NO. REQD	POUNDS
6d (2")	96	3/4
10d (3")	68	1-1/4
12d (3-1/4")	12	1/4
PLYWOOD, 3/4" - - 24.01 SQ FT REQD - - 33.02 LBS		
UNIVERSAL LOAD RETAINER - - 2 REQD - - - 13 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PLYWOOD CRATE	2	9,900 LBS
DUNNAGE		342 LBS
CONTAINER		4,700 LBS
TOTAL WEIGHT		14,942 LBS (APPROX)

PROJECT GM 917-09

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 SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF ROCKET MOTOR, 762MM, M66A1, PACKED IN SKIDDED PLYWOOD CRATES. SUBSEQUENT REFERENCE TO PLYWOOD CRATE HEREIN MEANS THE PLYWOOD CRATE WITH AMMUNITION ITEMS. SEE PAGE 4 AND DRAWING 10048370 FOR DETAILS OF THE PLYWOOD CRATE. CAUTION: REGARDLESS OF THE QUANTITY OF CRATES TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CONTAINER MUST NOT BE EXCEEDED.

C. THE LOAD AS SHOWN IS BASED ON A 4,700 POUND 20' LONG BY 8' WIDE BY 8'-6" HIGH END OPENING ISO CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 93" HIGH, WITH A MAXIMUM GROSS WEIGHT OF 52,910 POUNDS. OLDER/OTHER CONTAINERS MAY HAVE A TOTAL INSIDE HEIGHT OF 95", BUT A CLEAR HEIGHT UNDER THE ROOF BOWS OF 93", VERIFY INSIDE CONTAINER HEIGHT PRIOR TO FABRICATING DUNNAGE. THE LOAD IS DESIGNED FOR TRAILER/CONTAINER-ON-FLATCAR (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 BE USED.

D. WHEN LOADING PLYWOOD CRATES, 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 INCREASING THE LENGTH OF LATERAL PIECES ON THE CENTER FILL ASSEMBLIES.

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 FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES ON THE FORWARD BLOCKING ASSEMBLY TO PROVIDE A FLAT SURFACE FOR THE 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". NOTE THAT SOME CONTAINERS ARE EQUIPPED WITH "TIE-BARS" IN THE CORNER SLOT, WHICH PRECLUDE THE USE OF A FULL HEIGHT FILL PIECE. WHEN "TIE-BARS" ARE PRESENT, THE FILL PIECE MUST BE INSTALLED IN SEGMENTS DESIGNED TO FIT BETWEEN THE "TIE-BARS" VERTICALLY. THE FILL PIECE(S) IS NOT REQUIRED WHEN THE CORNER PORTIONS OF THE CONTAINER FORWARD WALL ARE SMOOTH AND FLAT. DO NOT ALLOW ANY DUNNAGE ASSEMBLY TO CONTACT THE CONTAINER FORWARD WALL, ONLY THE CORNER POSTS OF THE CONTAINER SHOULD BE USED FOR FORWARD LONGITUDINAL BLOCKING.

H. WHETHER A CONTAINER IS FULL OR IS 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.

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

K. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDEWALL, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.

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 ASSOCIATION OF AMERICAN RAILROADS (AAR) INTERMODAL LOADING GUIDE 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.

(CONTINUED AT RIGHT)

(GENERAL NOTES CONTINUED)

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. 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 0.454 KG.

P. THE QUANTITY OF CRATES SHOWN IN THE LOAD ON PAGE 2 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE “LESS-THAN-FULL-LOAD PROCEDURES” ON PAGE 8.

Q. TWO UNIVERSAL LOAD RETAINERS, AS DEPICTED IN THE LOADS ON PAGES 2 AND 8, ARE REQUIRED WHEN LOADING TWO OR ONE PLYWOOD CRATES. THIS IS AN EXCEPTION TO THE ESTABLISHED PROCEDURES; HOWEVER, THE EXCEPTION IS PERMITTED FOR THE AMMUNITION PACK COVERED BY THIS DRAWING. REFER TO DAC DRAWING ACV00682 FOR DETAILS OF THE UNIVERSAL LOAD RETAINER CONSTRUCTION, AND TO DEPARTMENT OF THE ARMY DRAWING DA-116 FOR DETAILS FOR INSTALLATION TO THE DOOR POST VERTICAL, PLACEMENT INTO THE CONTAINER, AND FOR OTHER METHODS OF REAR-OF-LOAD RESTRAINT.

R. RECOMMENDED SEQUENTIAL LOADING PROCEDURES:

1. PREFABRICATE ONE FORWARD AND ONE REAR BLOCKING ASSEMBLY, ONE CENTER FILL ASSEMBLY, TWO DOOR POST VERTICALS, AND NAIL ONE UNIVERSAL LOAD RETAINER TO EACH DOOR POST VERTICAL, ONE RIGHT HAND AND ONE LEFT HAND.

2. INSTALL THE FORWARD BLOCKING ASSEMBLY.

3. LOAD TWO PLYWOOD CRATES.

4. INSTALL THE CENTER FILL ASSEMBLY.

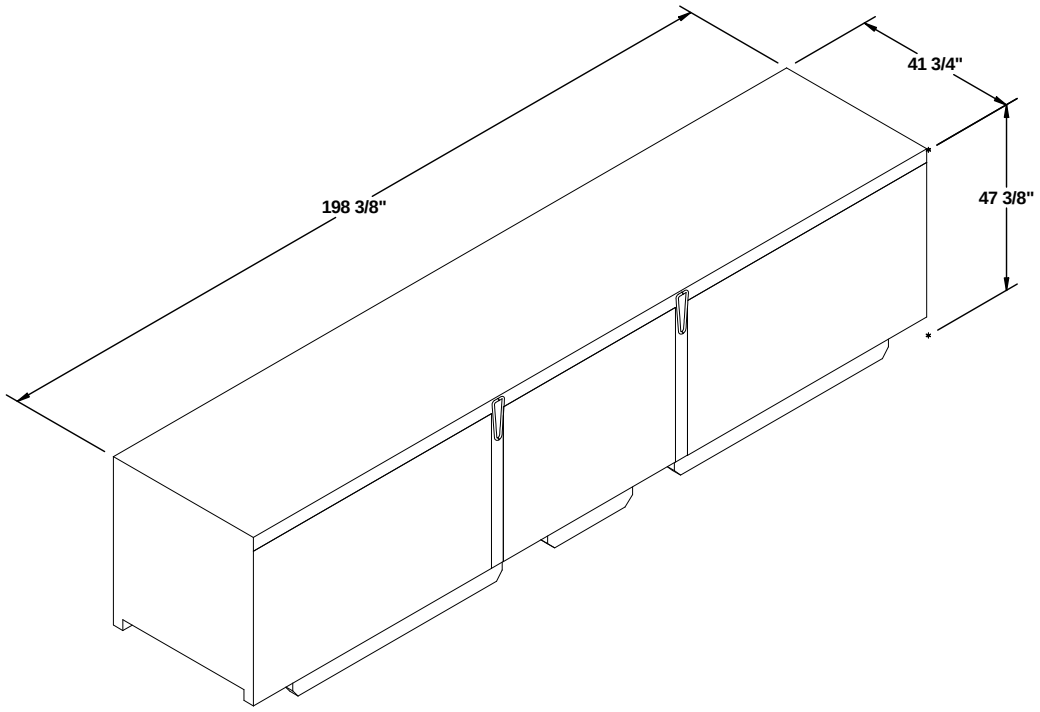
5. INSTALL THE REAR BLOCKING ASSEMBLY.

6. INSTALL TWO DOOR POST VERTICAL ASSEMBLIES.

7. INSTALL THE DOOR SPANNER AND TWO STRUTS.

MATERIAL SPECIFICATIONS

LUMBER - - - - - - - -:	SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
NAILS - - - - - - - -:	ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).
PLYWOOD - - - - - - -:	COMMERCIAL ITEM DESCRIPTION A-A-55057, 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.
STEEL, STRUCTURAL - - - - -:	ASTM A36; 36,000 PSI MINIMUM YIELD OR BETTER.



PLYWOOD CRATE DATA

GROSS WEIGHT - - - - - - - - - - - - - 4,950 LBS (APPROX)
CUBE - - - - - - - - - - - - - - - - - 227.1 CU FT (APPROX)

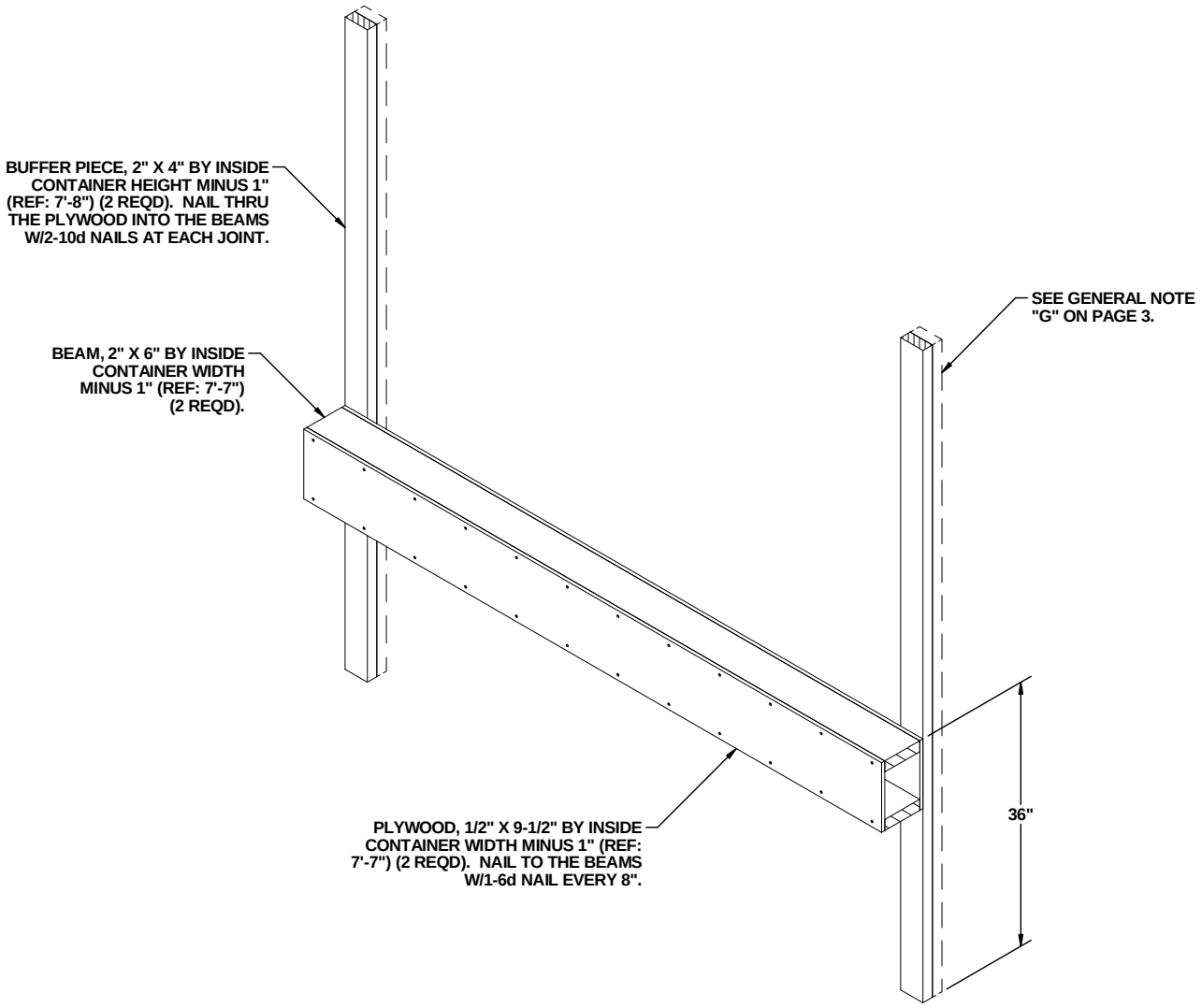
CRATE HANDLING GUIDANCE

A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIAL HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED CRATES. APPROVED MATERIAL HANDLING EQUIPMENT (FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS, SPREADER BARS, ETC.) IS SPECIFIED ELSEWHERE.

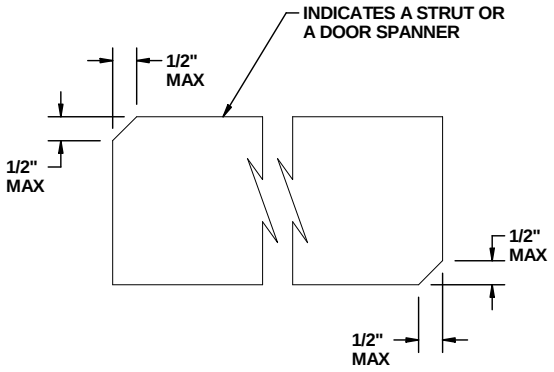
B. PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

C. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE CRATES SHOULD BE HANDLED FROM A SIDE POSITION AS MUCH AS POSSIBLE. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER A CRATE, TO PREVENT DAMAGE TO THE CRATE BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. IF ONE CRATE IS HANDLED BY SLINGING, THE SLING MAY BE ATTACHED TO THE LIFTING POINTS ON THE CRATE. DO NOT HANDLE STACKED CRATES WITH A SLING.

D. WHEN UNLOADING CRATES, REMOVE THE REAR AND LATERAL DUNNAGE, AND SHIFT THE NEAR END OF A CRATE STACK TOWARDS THE CENTER OF THE END OPENING CRATE. ATTACH A CHAIN FROM THE CRATE LIFTING CLEVIS ON ONE SIDE OF THE CRATE, AROUND THE FORKLIFT MAST, TO THE CRATE LIFTING CLEVIS ON THE OPPOSITE SIDE OF THE CRATE. SLIGHTLY ELEVATE AND INSERT THE FORK TINES UNDER THE END OF THE CRATE AND SLOWLY DRAG THE CRATE REARWARD UNTIL IT CAN BE HANDLED FROM THE SIDE, TAKING CARE NOT TO DAMAGE THE CRATES.

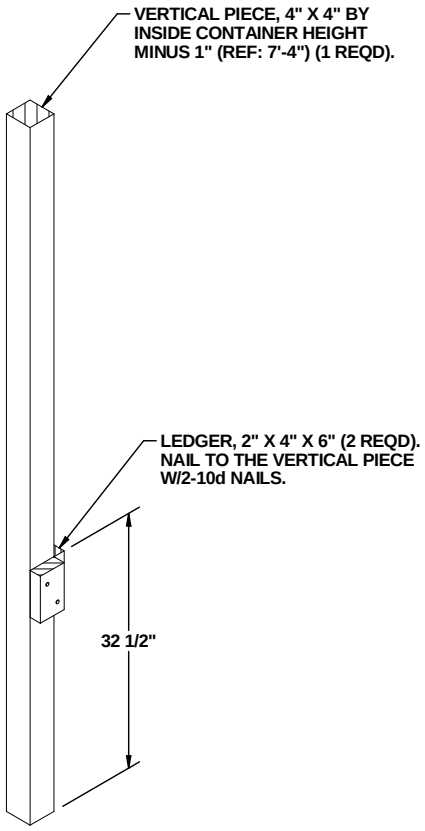


FORWARD BLOCKING ASSEMBLY

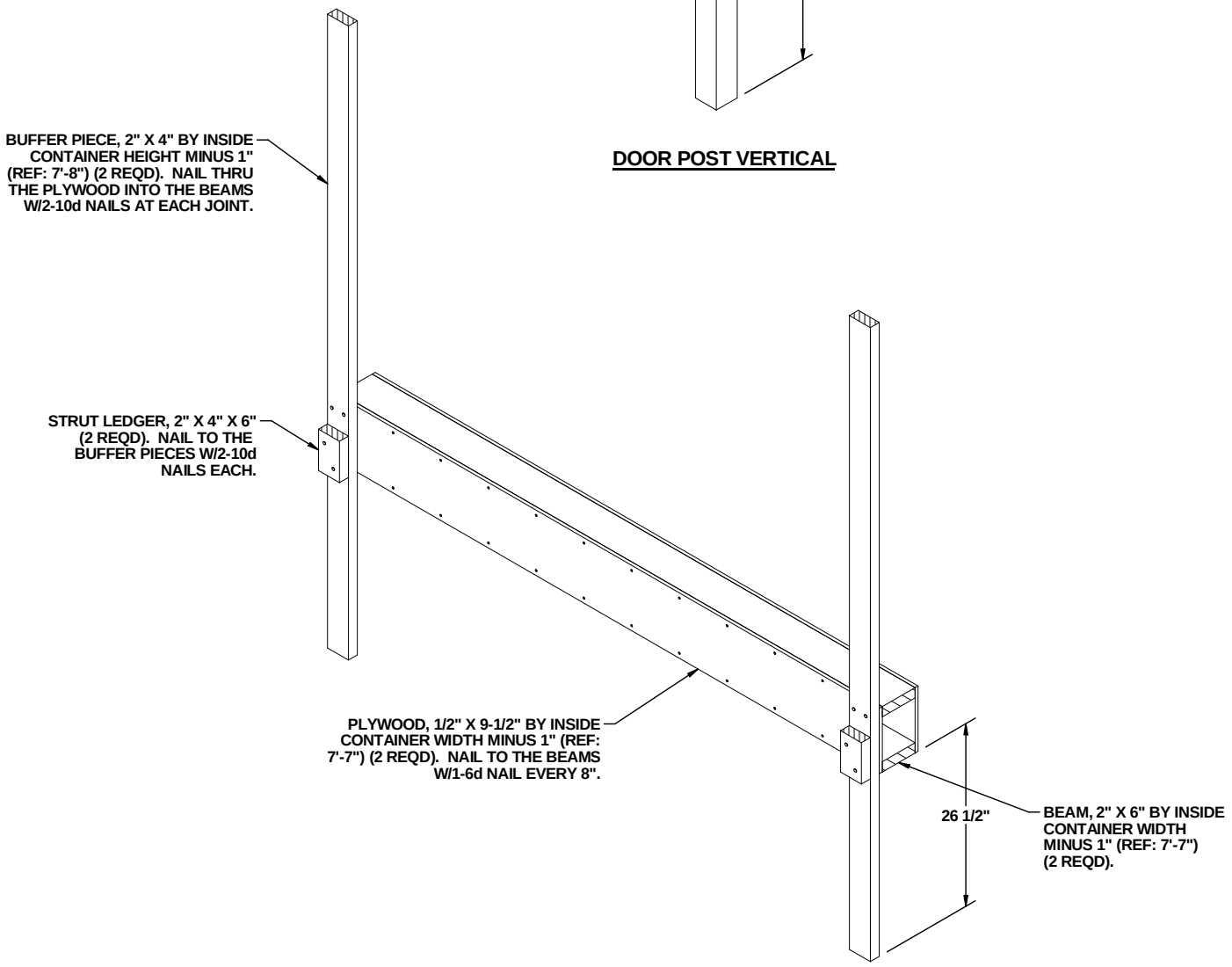


BEVEL CUT

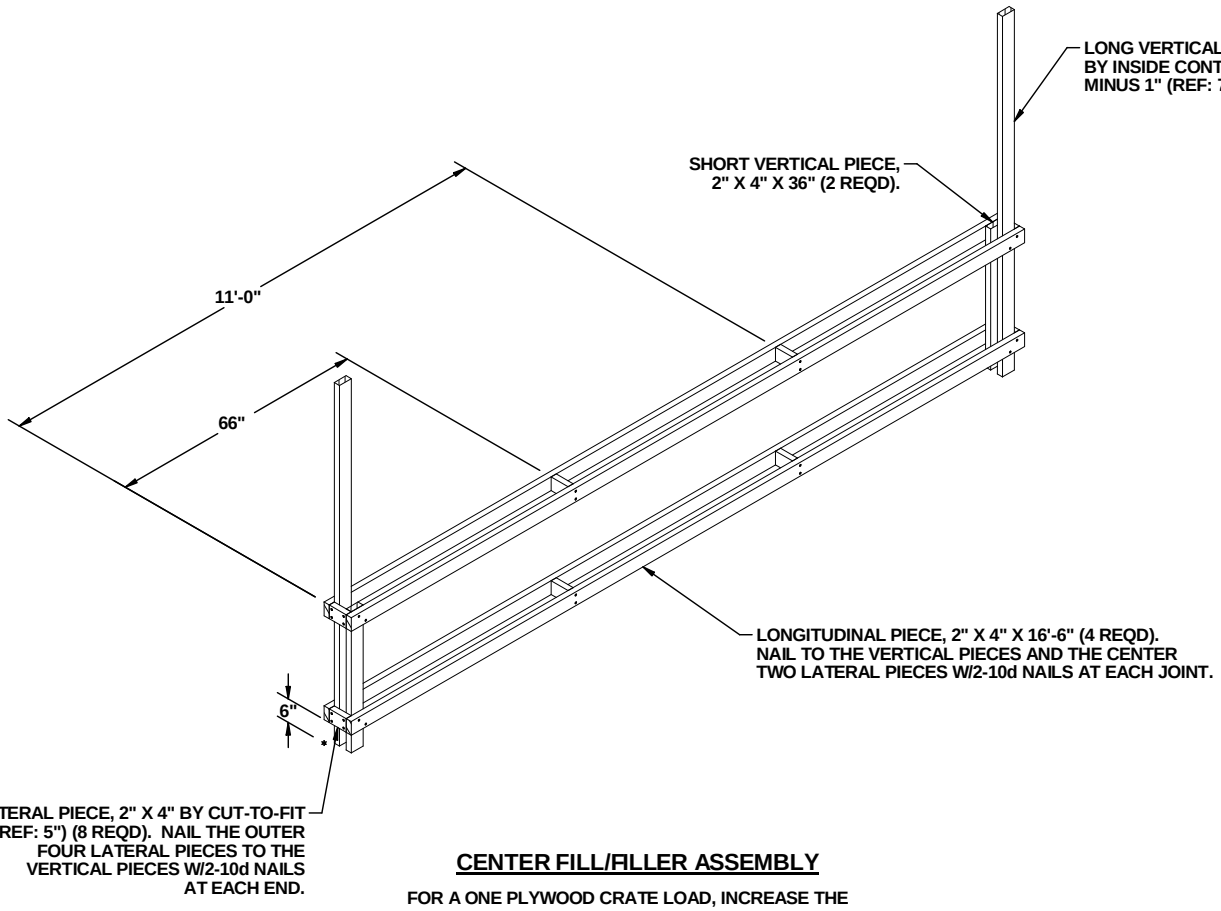
IF DESIRED, EACH END OF A STRUT OR DOOR SPANNER MAY BE BEVEL-CUT AS SHOWN ABOVE TO FACILITATE THE ACHIEVMENT OF A TIGHT END OF LOAD FIT.



DOOR POST VERTICAL

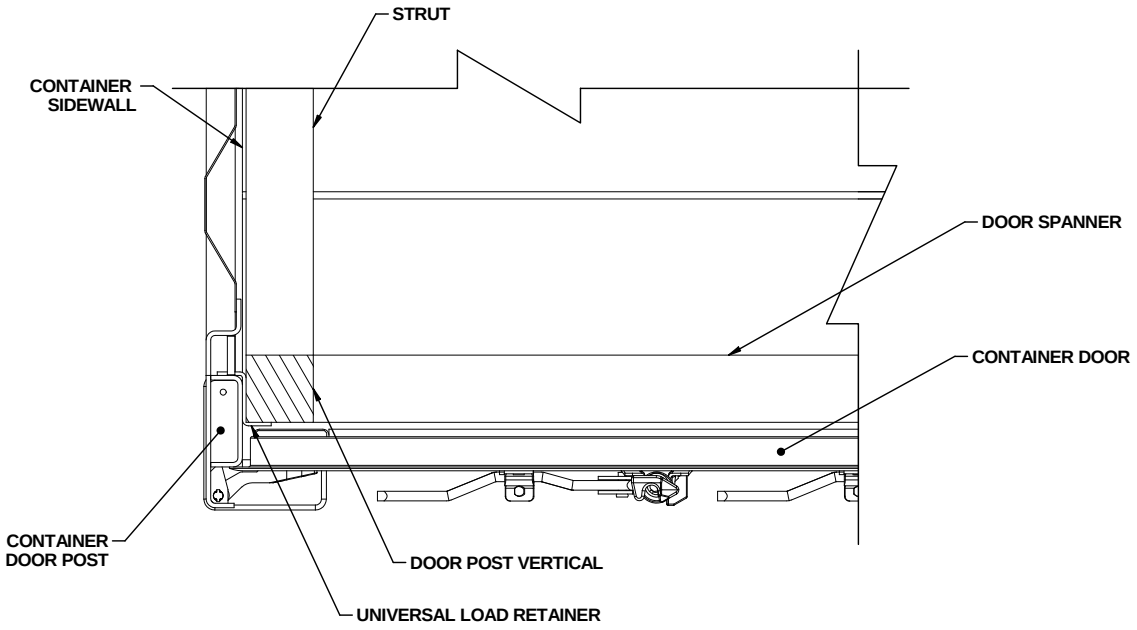


REAR BLOCKING ASSEMBLY



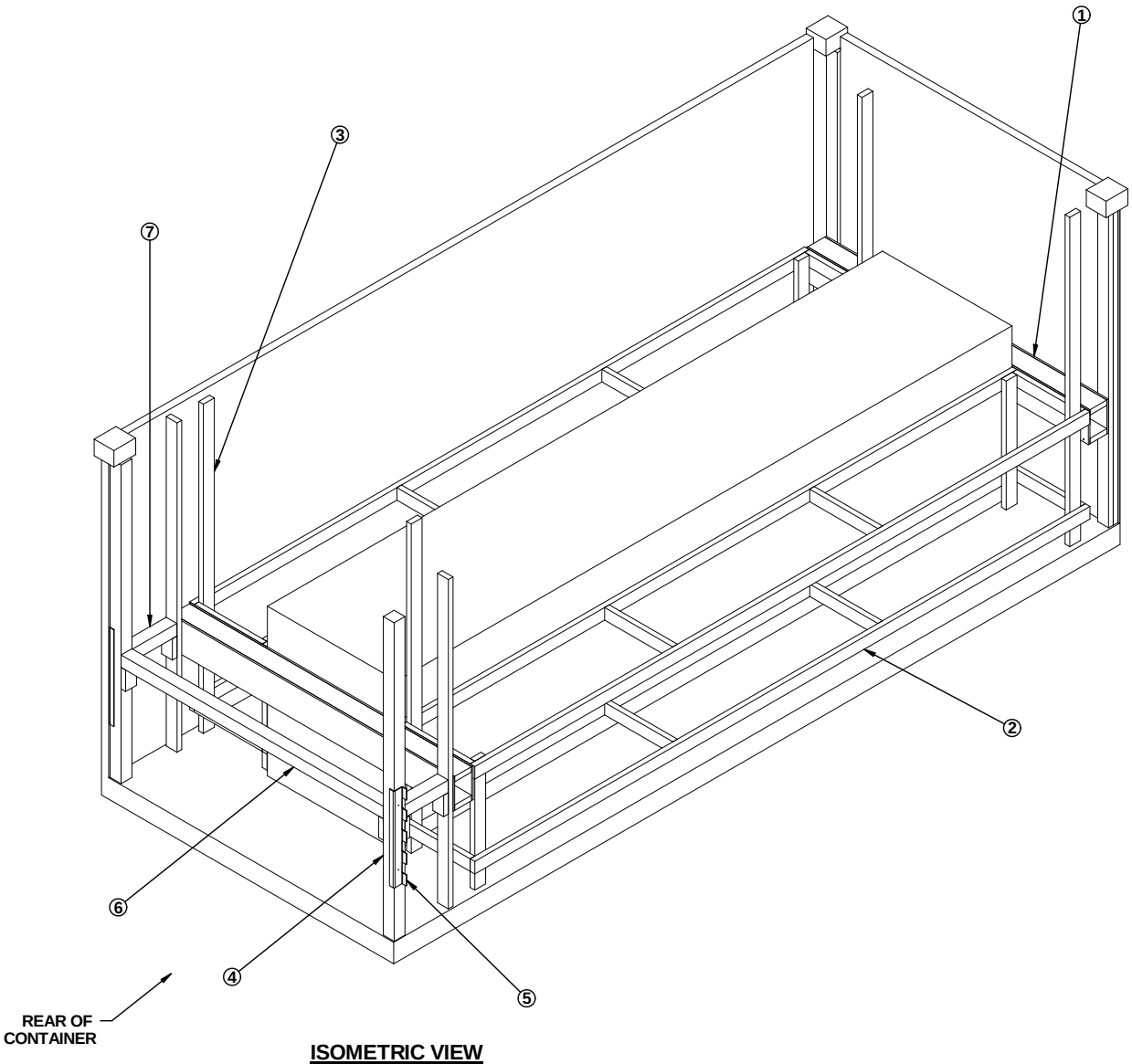
CENTER FILL/FILLER ASSEMBLY

FOR A ONE PLYWOOD CRATE LOAD, INCREASE THE LENGTH OF LATERAL PIECES TO AN APPROPRIATE DIMENSION (REF: 22"), AND INSTALL TWO ASSEMBLIES.



DETAIL A

A PARTIAL PLAN VIEW OF THE LEFT REAR PORTION OF THE CONTAINER IS SHOWN DEPICTING THE PROPER POSITION OF THE DOOR POST VERTICAL, UNIVERSAL LOAD RETAINER, AND ADJACENT DUNNAGE PIECES.



ISOMETRIC VIEW

LESS-THAN-FULL-LOAD PROCEDURES

KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 2. SEE GENERAL NOTE "H" ON PAGE 3, AND THE "CENTER FILL/FILLER ASSEMBLY" DETAIL ON PAGE 7.