

# LOADING AND BRACING\* IN END OPENING ISO CONTAINERS OF 2.75” HYDRA ROCKETS IN M643 HDPE CONTAINERS ON METAL PALLETS, USING TY-GARD RESTRAINT MATERIAL

## INDEX

ITEM	PAGE(S)
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
PALLET UNIT DETAIL - - - - -	3
12 PALLET UNIT LOAD - - - - -	4
DETAILS - - - - -	5-7
LESS-THAN-FULL-LOAD PROCEDURES - - - - -	7-8

**DISTRIBUTION STATEMENT A:**

APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION IS UNLIMITED.

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

## U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY JOINT MUNITIONS COMMAND  WARD.GINA. <small>Digitally signed by WARD.GINA.M.1369379808 Date: 2022.12.05 11:24:35 -06'00'</small> M.1369379808	<b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://www.dau.edu/cop/ammo/pages/default.aspx">https://www.dau.edu/cop/ammo/pages/default.aspx</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 8.</b>			
	<b>DO NOT SCALE</b>		<b>OCTOBER 2022</b>	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  BRAILSFORD.KEITH H.ANTHONY.10286 55661 <small>Digitally signed by BRAILSFORD.KEITH.ANTHONY. 1028655661 Date: 2022.12.09 13:05:49 -06'00'</small>  DEFENSE AMMUNITION CENTER	DESIGN ENGINEER	BASIC REV.	QUYEN TRAN	
	ENGINEERING DIVISON	FIEFFER.LAUR A.A.1230375727 <small>Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2022.10.20 10:37:21 -05'00'</small>		
	TEST REPORT	NA	FELICIANO.AD IN.1259200373 <small>Digitally signed by FELICIANO.ADIN.1259200373 Date: 2022.10.27 14:31:32 -05'00'</small>	CLASS
	EXPLOSIVE SAFETY DIRECTORATE	FIEFFER.LAUR A.A.1230375727 <small>Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2022.11.17 08:06:06 -06'00'</small>	DIVISION	DRAWING
			FILE	
			19	
			48	
			4245/62A	
			15PM1009	

**GENERAL NOTES**

**(GENERAL NOTES CONTINUED)**

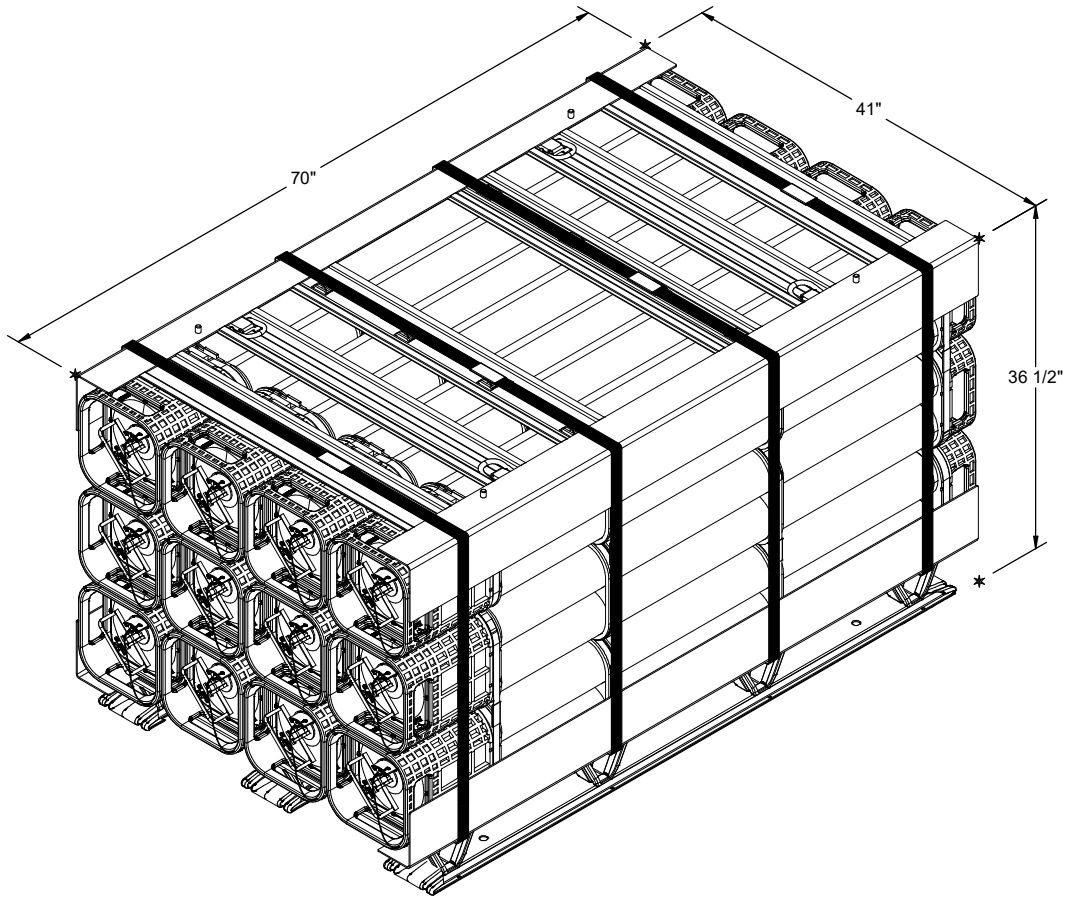
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO LOADS OF 2.75" HYDRA ROCKETS PACKED IN M643 HDPE CONTAINERS ON METAL PALLETS USING TY-GARD MATERIALS FOR AFT RESTRAINT. SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS 2.75" HYDRA ROCKET PACKED IN M643 CONTAINER ON METAL PALLET. SEE PAGE 3 AND AMC DRAWING 19-48-4231/62-20PM1006 FOR DETAILS OF THE PALLET UNIT. SEE AMC DRAWING 19-48-4245/62-15PM1009 FOR ALL NON-TYGARD SHIPMENTS. **CAUTION:** REGARDLESS OF THE QUANTITY OF PALLET UNITS TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE END OPENING ISO CONTAINER MUST NOT BE EXCEEDED.
- C. THE LOADS AS SHOWN ARE 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. 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.
- E. WHEN LOADING PALLET 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 HORIZONTAL PIECES ON THE CENTER FILL ASSEMBLY OR INCREASING THE LENGTH OF LATERAL PIECES ON THE CENTER FILL ASSEMBLY. NAIL EACH ADDITIONAL PIECE W/1 APPROPRIATELY SIZED NAIL EVERY 12". ADDITIONALLY, THE THICKNESS AND/OR QUANTITY OF THE PIECES IN THE CENTER FILL ASSEMBLY MAY BE ADJUSTED AS REQUIRED TO FACILITATE VARIANCE IN THE SIZE OF THE PALLET UNITS. THE LOADS MUST BE AS TIGHT AS POSSIBLE LONGITUDINALLY, BUT THE VOID MUST NOT EXCEED 3/4" OVERALL EXCESSIVE SLACK CAN BE ELIMINATED BY APPLYING THE TY-GARD MATERIALS TIGHT AGAINST THE REAR OF THE LOAD.
- 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, ON TO, OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- G. IN SOME ISO CONTAINERS THERE IS A SLOT AT THE CORNERS OF THE FORWARD WALL. PIECES OF DUNNAGE MATERIAL MUST BE LAMINATED TO THE BUFFER PIECES OF THE FORWARD BLOCKING ASSEMBLY OR FORWARD STRUT 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 AN ISO 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 ISO CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- K. PORTIONS OF THE ISO CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE SIDE WALLS AND ROOF, 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.

(CONTINUED AT RIGHT)

- 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.
- 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. A COMPLETE SET OF TY-GARD RESTRAINTS WILL CONSIST OF TWO SECTIONS OF TY-GARD DS AND ONE SECTION OF TY-PATCH DS. EACH COMPLETE SET IS CAPABLE OF RESTRAINING A MAXIMUM OF 13,200 POUNDS. SEE THE CHART ON PAGE 3 FOR ALLOWABLE LOADING WEIGHTS. EACH LAYER OF PALLET UNITS WITHIN A LOAD MUST HAVE A MINIMUM OF ONE COMPLETE SET OF TY-GARD RESTRAINTS.
- Q. MARK CONTAINER SIDEWALLS FOR PROPER LOCATION OF TY-GARD. PEEL AND ADHERE TY-GARD TO PRE-MARKED LOCATIONS, TAKING CARE TO FOLLOW THE CONTOUR OF THE CONTAINER CORRUGATIONS. CARE MUST BE USED TO ENSURE A CONSISTENT PRESSURE (APPROXIMATELY 16 PSI) IS APPLIED WHEN AFFIXING THE TY-GARD TO THE ISO CONTAINER. TENSION THE LOAD WITH THE TY-TOOL AND SEAL THE TY-GARD WITH THE TY-PATCH. TY-TAPE WILL THEN BE APPLIED TO VERTICALLY SPAN ALL TY-GARD LAYERS IN AT LEAST TWO LOCATIONS. REFER TO TY-GARD MANUAL 14019090 FOR COMPLETE INSTALLATION INSTRUCTIONS.
- R. IF NECESSARY DUE TO LOAD HEIGHT AND WEIGHT RESTRICTIONS, ONE SET OF TY-GARD DS RESTRAINTS MAY VERTICALLY OVERLAP ANOTHER SET, HOWEVER, OVERLAP WILL NOT EXCEED 6". ALSO, IT MAY BE NECESSARY TO EXTEND THE TY-GARD DS RESTRAINTS ABOVE THE TOP OF THE LOADED PALLET UNITS/SKIDS. THIS EXTENSION IS LIMITED TO 6" ABOVE THE TOP OF THE LOADED UNITS, AND MUST BE SUPPORTED BY THE PLYWOOD GATE.
- S. LOAD HEIGHT MAY EXTEND ABOVE THE PLYWOOD GATE AND TY-GARD MATERIAL, HOWEVER, ONE-HALF OF THE TOP LAYER OF CONTAINERS ON A PALLET UNIT MUST BE CAPTURED BY THE GATE.
- T. IF THE INTERIOR OF THE ISO CONTAINER BEING LOADED HAS TIEDOWN RINGS ALONG THE BASE OF THE SIDE WALLS, THE BOTTOM SET OF TY-GARD RESTRAINTS CAN BE ADJUSTED UPWARD TO CLEAR THE RINGS. IF NECESSARY TO ACHIEVE THIS, OVERLAP TY-GARD SETS OR ADD TO THE HEIGHT OF THE END GATE. SEE GENERAL NOTE "R" FOR DETAILS.
- U. IF TY-GARD MATERIAL IS USED WITH LOADS UP TO 91" WIDE, A SLIP-SHEET MAY BE USED TO PROTECT TY-GARD MATERIAL FROM DAMAGE DURING LOADING. SEE GENERAL NOTE "K" OF AMC DRAWING 19-48-4153-15PA1002. TY-GARD MATERIAL IS NOT RECOMMENDED FOR LOADS WIDER THAN 91".
- V. THE QUANTITY OF PALLET UNITS SHOWN IN THE LOAD ON PAGE 4 MAY BE REDUCED FOR SHIPMENT, IF DESIRED. SEE THE "LESS-THAN-FULL-LOAD PROCEDURE" ON PAGES 7 AND 8.
- W. FILLER ASSEMBLIES MUST NOT BE PLACED IN ROWS THAT CONTACT THE END GATE.

**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.
- WIRE, CARBON STEEL - - - - - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.
- TY-GARD DS® - - - - - : 8135-01-585-0512, 24" WIDE.
- TY-PATCH DS® - - - - - : 8135-01-584-6017, 24" WIDE.
- TY-TAPE DS® - - - - - : 8135-17-123-0568.
- TY-TOOL DS® - - - - - : 5120-17-123-0567, 3 PIECES.

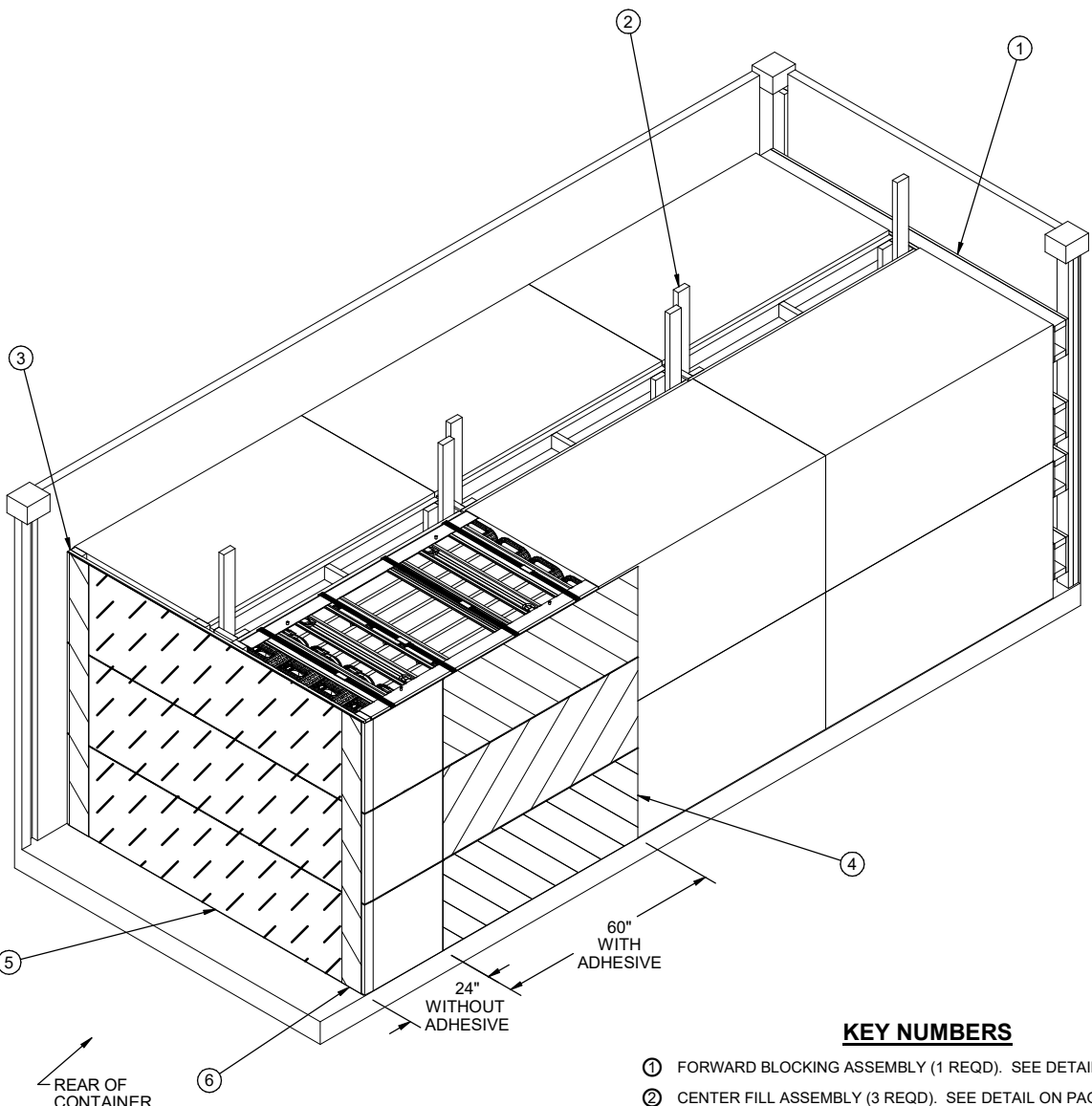


**PALLET UNIT DATA**

GROSS WEIGHT - - - - - 2,378 LBS  
 CUBE - - - - - 60.6 CU FT

TY-GARD DS STRENGTH RATINGS		
SETS OF TY-GARD	LOAD HEIGHT MIN (INCHES)	ISO CONTAINER CONTENTS MAX (LBS)
1	18	13,200
2	36	26,400
3	54	39,600

**NOTE:** EACH SET CONTAINS TWO SECTIONS OF TY-GARD DS AND ONE SECTION OF TY-PATCH DS. DO NOT CUT TY-GARD DS AND TY-PATCH DS INTO WIDTHS LESS THAN THE STANDARD 24" WIDE.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 5.
- ② CENTER FILL ASSEMBLY (3 REQD). SEE DETAIL ON PAGE 5.
- ③ END GATE (1 REQD). SEE THE DETAIL ON PAGE 6.
- ④ TY-GARD DS FLEXIBLE BARRIER, 24" WIDE X 12'-0" LONG (6 REQD). APPLY EACH TY-GARD PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS. PRE-MARK THE CONTAINER SIDEWALL 7'-0" FROM THE EXPECTED REARMOST EDGE OF THE LOAD AT THE REQUIRED HEIGHT. INSTALL THE TY-GARD WITH THE 5 FOOT ADHESIVE SECTION FURTHEST FROM THE REAR OF THE LOAD, AT THE PRE-MARKED LOCATION.
- ⑤ TY-PATCH DS, 24" WIDE X 7'-0" LONG (3 REQD). APPLY EACH TY-PATCH PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS, FORMING A PATCH OVER TWO PIECES OF TY-GARD MATERIAL AFTER CINCHING THEM TIGHT.
- ⑥ TY-TAPE DS, 72" LONG (2 REQD). APPLY EACH TY-TAPE PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4"	340	227
NAILS	NO. REQD	POUNDS
6d (2")	228	1-1/2
10d (3")	276	4-1/2
PLYWOOD, 3/4"	94.20 SQ FT REQD	194.30 LBS
TY-GARD	72 FT REQD	12.10 LBS
TY-PATCH	21 FT REQD	4.70 LBS
TY-TAPE	12 FT REQD	0.80 LBS

**LOAD AS SHOWN**

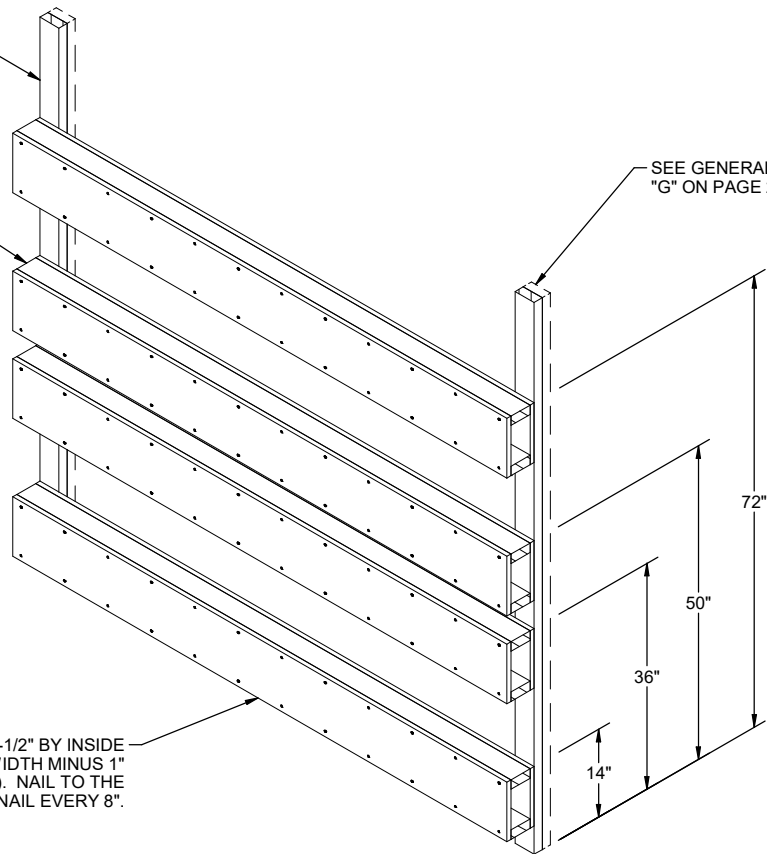
ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT	12	28,536 LBS
DUNNAGE		672 LBS
CONTAINER		4,700 LBS
<b>TOTAL WEIGHT</b>		<b>33,908 LBS</b>

BUFFER PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-4" AT FORWARD WALL, 7'-8" ELSEWHERE (2 REQD). NAIL THRU THE PLYWOOD INTO THE BEAMS W/2-10d NAILS AT EACH JOINT.

BEAM, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (8 REQD).

SEE GENERAL NOTE "G" ON PAGE 2.

PLYWOOD, 3/4" X 9-1/2" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (8 REQD). NAIL TO THE BEAMS W/1-6d NAIL EVERY 8".

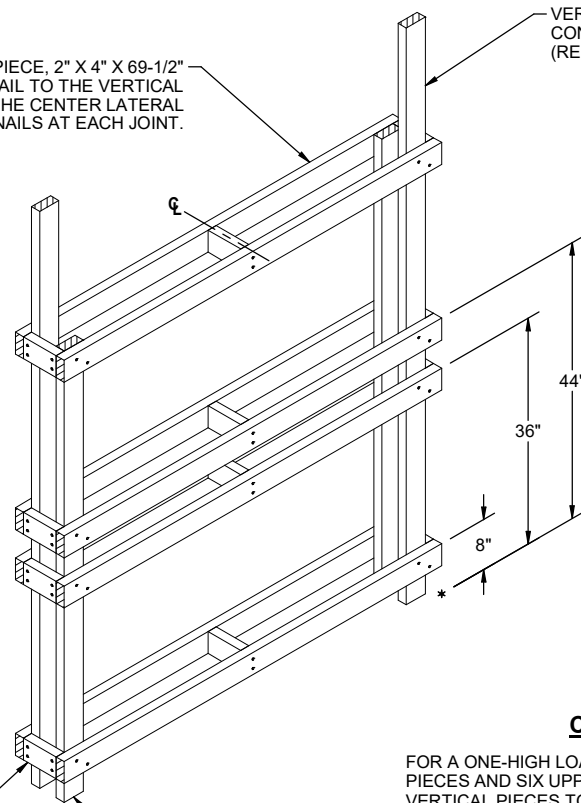


**FORWARD BLOCKING ASSEMBLY**

FOR A ONE-HIGH LOAD, ELIMINATE TOP TWO BOX BEAM ASSEMBLIES.

HORIZONTAL PIECE, 2" X 4" X 69-1/2" (8 REQD). NAIL TO THE VERTICAL PIECES AND THE CENTER LATERAL PIECE W/2-10d NAILS AT EACH JOINT.

VERTICAL PIECE, 2" X 4" BY INSIDE CONTAINER HEIGHT MINUS 1" (REF: 7'-8") (2 REQD).

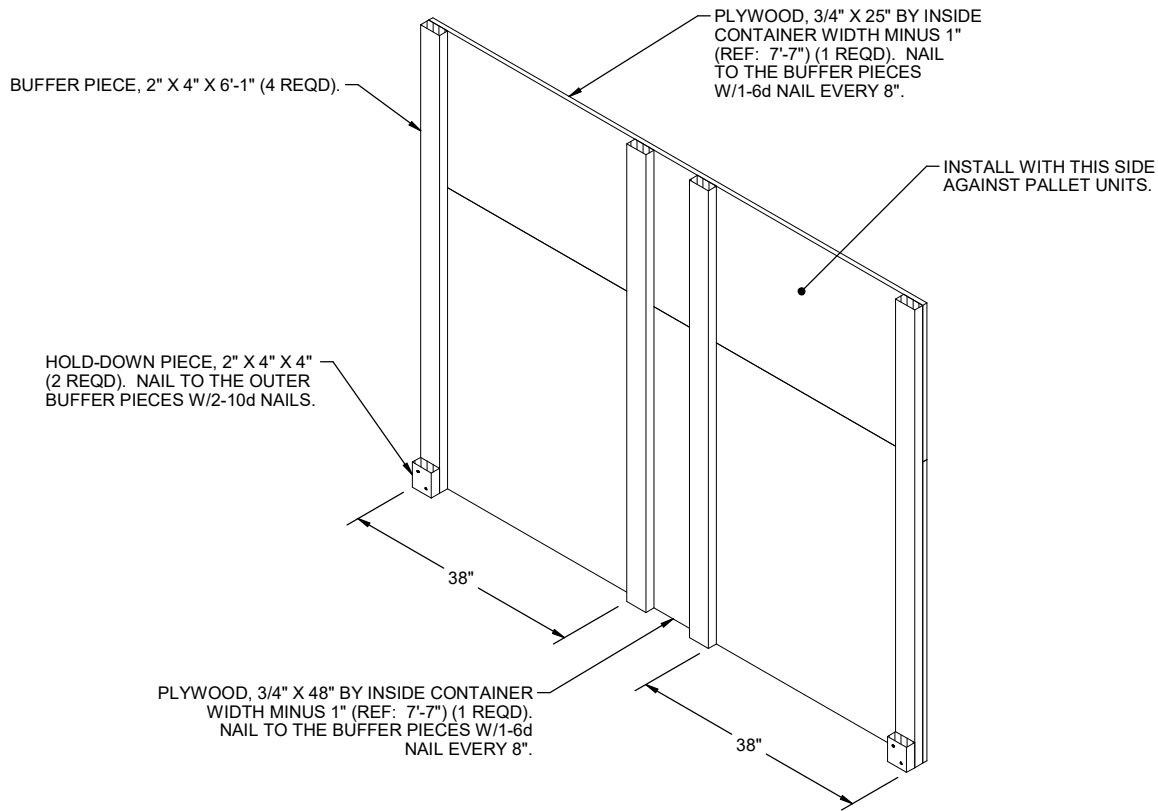


**CENTER FILL ASSEMBLY**

FOR A ONE-HIGH LOAD, ELIMINATE THE FOUR UPPER HORIZONTAL PIECES AND SIX UPPER LATERAL PIECES, AND SHORTEN THE 72" VERTICAL PIECES TO 36".

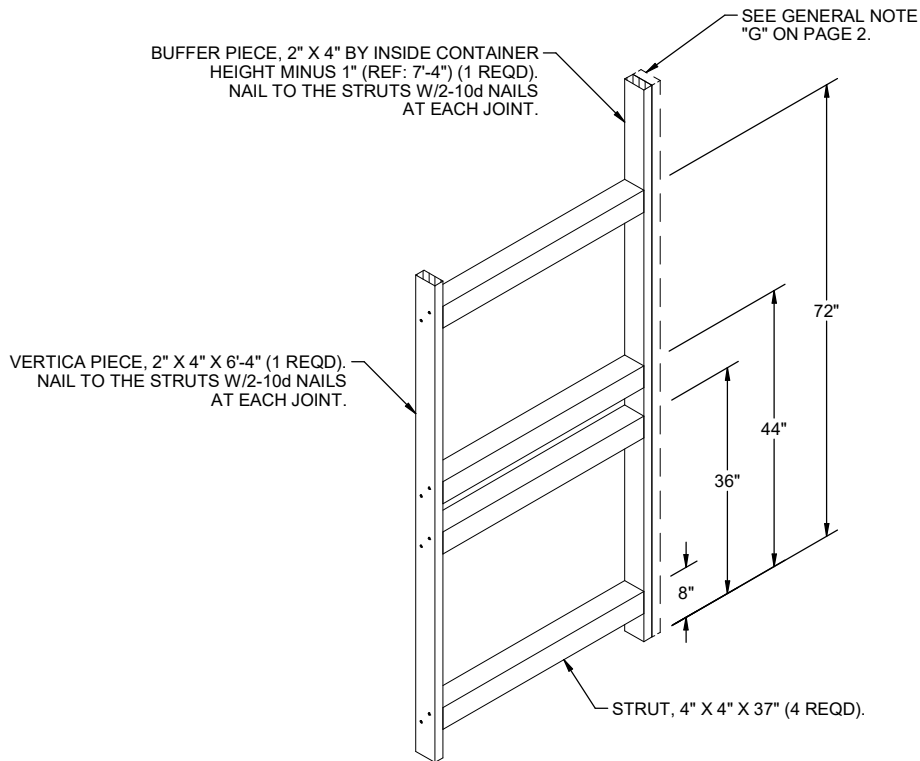
LATERAL PIECE, 2" X 4" X 6" (12 REQD). NAIL THE OUTER LATERAL PIECE TO THE VERTICAL PIECES W/2-10d NAILS AT EACH END.

VERTICAL PIECE, 2" X 4" X 72" (2 REQD).



**END GATE**

THE ASSEMBLY DEPICTED ABOVE IS ROTATED 180 DEGREES FROM THE ISOMETRIC VIEW SHOW ON PAGE 4 FOR CLARITY PURPOSES. FOR A ONE-HIGH LOAD, ELIMINATE THE TOP PLYWOOD PIECE, SHORTEN THE BOTTOM PLYWOOD PIECE AND FOUR BUFFER PIECES TO 37".

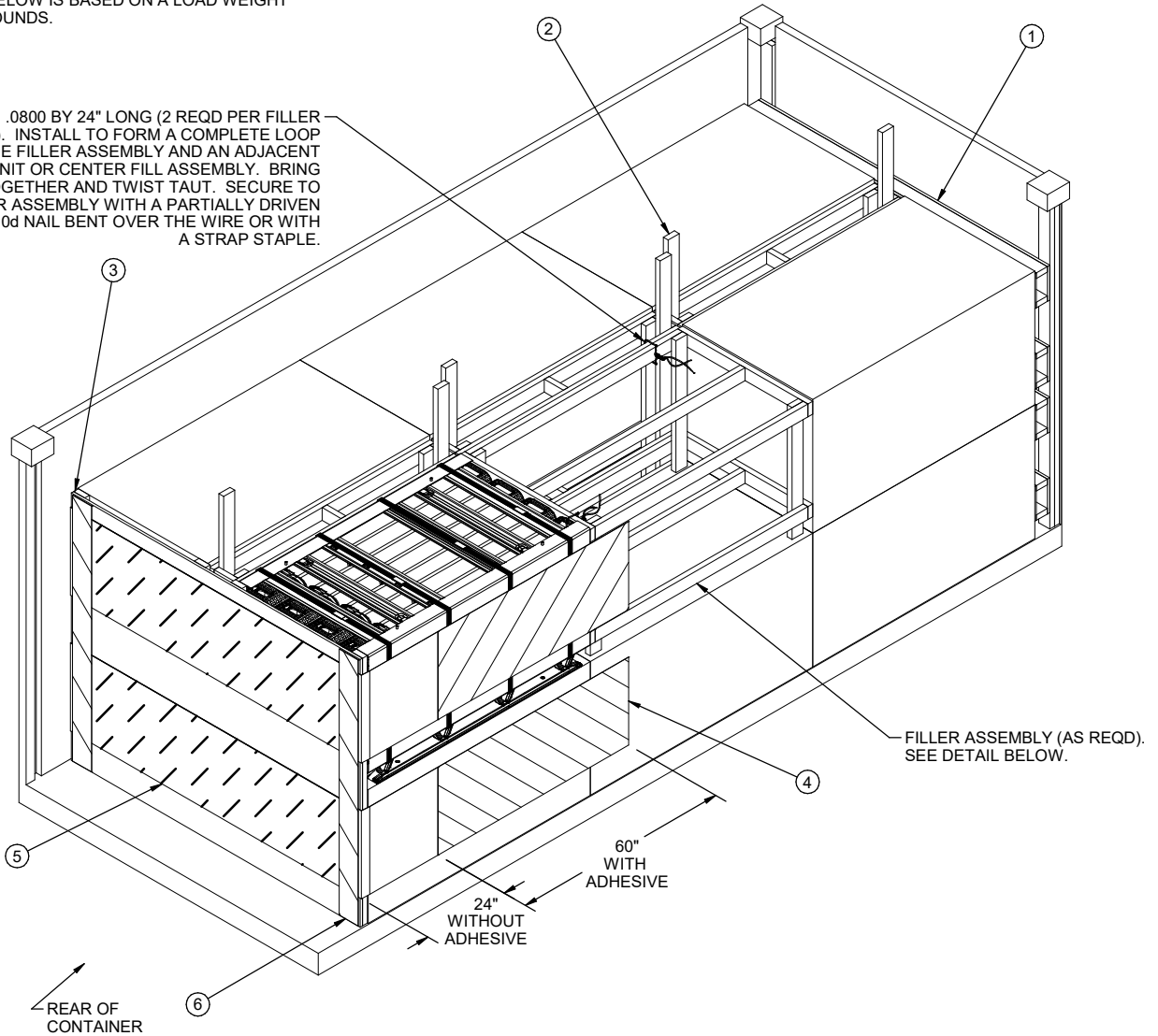


**FORWARD STRUT ASSEMBLY**

FOR A ONE-HIGH LOAD, ELIMINATE THE TWO UPPER STRUTS AND SHORTEN THE 6'-4" VERTICAL PIECE TO 40".

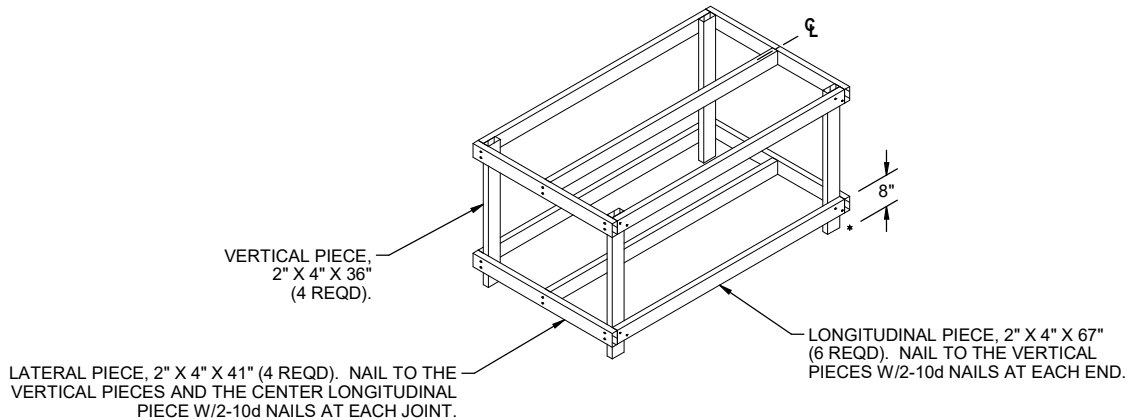
**NOTE:** THE QUANTITY OF TY-GARD SETS IN LOAD DEPICTED BELOW IS BASED ON A LOAD WEIGHT OF 26,158 POUNDS.

TIE WIRE, .0800 BY 24" LONG (2 REQD PER FILLER ASSEMBLY). INSTALL TO FORM A COMPLETE LOOP AROUND THE FILLER ASSEMBLY AND AN ADJACENT PALLET UNIT OR CENTER FILL ASSEMBLY. BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE FILLER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE OR WITH A STRAP STAPLE.



**LESS-THAN-FULL-LOAD PROCEDURE**

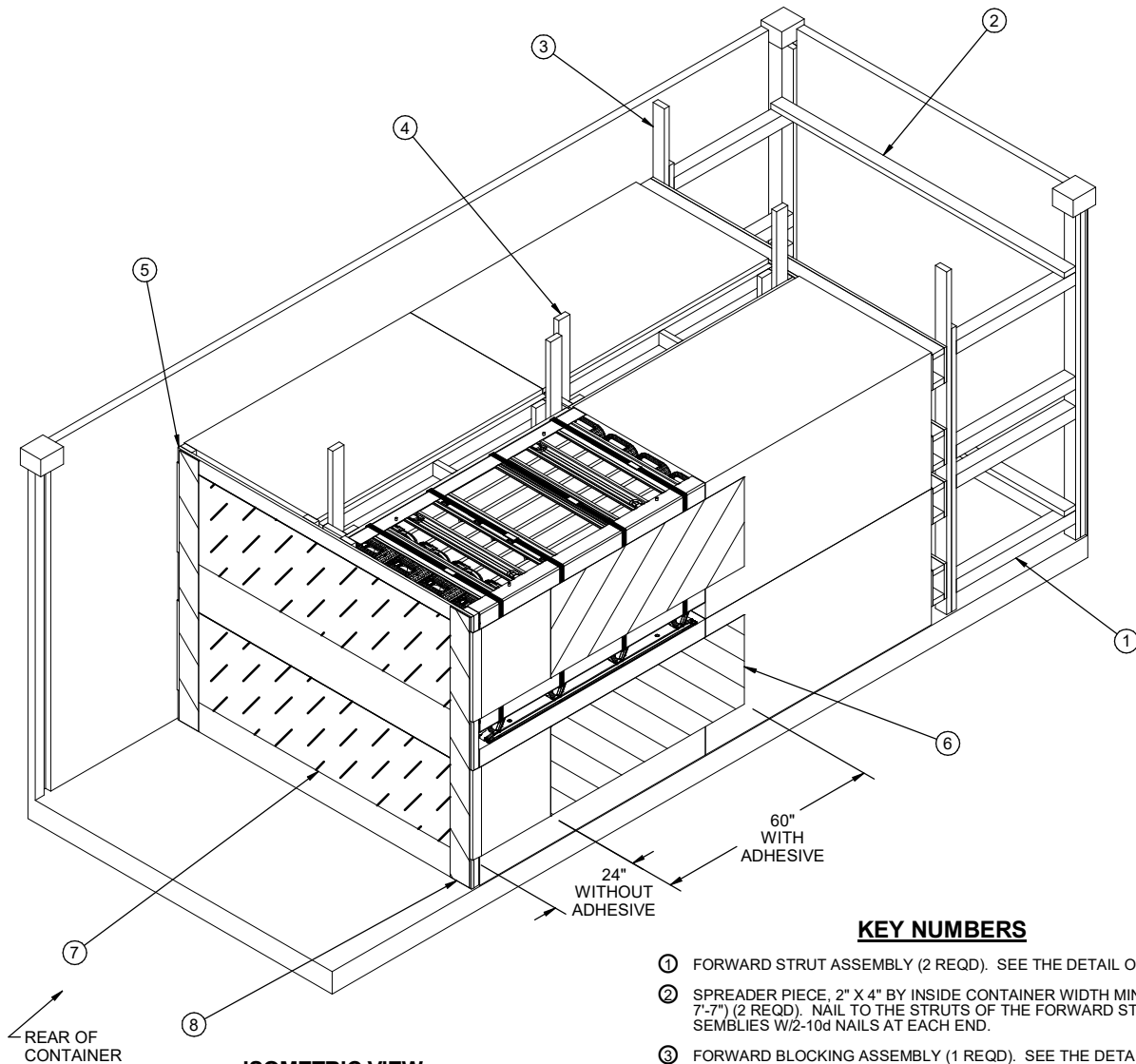
THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL-LOAD. KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 4. SEE GENERAL NOTES "H" AND "V" ON PAGE 2, AND THE CHART ON PAGE 3.



**FILLER ASSEMBLY**

FOR MINUS ONE PALLET UNIT. NO MORE THAN THREE FILLER ASSEMBLIES MAY BE USED FOR A 2-HIGH LOAD OR ONE FILLER ASSEMBLY MAY BE USED FOR A 1-HIGH LOAD.

**NOTE:** THE QUANTITY OF TY-GARD SETS IN LOAD DEPICTED BELOW IS BASED ON A LOAD WEIGHT OF 19,024 POUNDS.



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD STRUT ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 6.
- ② SPREADER PIECE, 2" X 4" BY INSIDE CONTAINER WIDTH MINUS 1" (REF: 7'-7") (2 REQD). NAIL TO THE STRUTS OF THE FORWARD STRUT ASSEMBLIES W/2-10d NAILS AT EACH END.
- ③ FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 5. NAIL THROUGH THE BUFFER PIECES INTO THE VERTICAL PIECE OF THE FORWARD STRUT ASSEMBLIES W/6-10d NAILS.
- ④ CENTER FILL ASSEMBLY (2 REQD). SEE THE DETAIL ON PAGE 5.
- ⑤ END GATE (1 REQD). SEE THE DETAIL ON PAGE 6.
- ⑥ TY-GARD DS FLEXIBLE BARRIER, 24" WIDE X 12'-0" LONG (4 REQD). APPLY EACH TY-GARD PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS. PRE-MARK THE CONTAINER SIDEWALL 7'-0" FROM THE EXPECTED REARMOST EDGE OF THE LOAD AT THE REQUIRED HEIGHT. INSTALL THE TY-GARD WITH THE 5 FOOT ADHESIVE SECTION FURTHEST FROM THE REAR OF THE LOAD, AT THE PRE-MARKED LOCATION.
- ⑦ TY-PATCH DS, 24" WIDE X 7'-0" LONG (2 REQD). APPLY EACH TY-PATCH PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS, FORMING A PATCH OVER TWO PIECES OF TY-GARD MATERIAL AFTER CINCHING THEM TIGHT.
- ⑧ TY-TAPE DS, 72" LONG (2 REQD). APPLY EACH TY-TAPE PIECE IN ACCORDANCE WITH TY-GARD DS INSTALLATION INSTRUCTIONS.

**LESS-THAN-FULL-LOAD PROCEDURE**

THE DETAIL ABOVE DEPICTS A BLOCKING METHOD TO BE USED IN A LESS-THAN-FULL-LOAD. SEE GENERAL NOTES "H" AND "V" ON PAGE 2, AND THE CHART ON PAGE 3.