

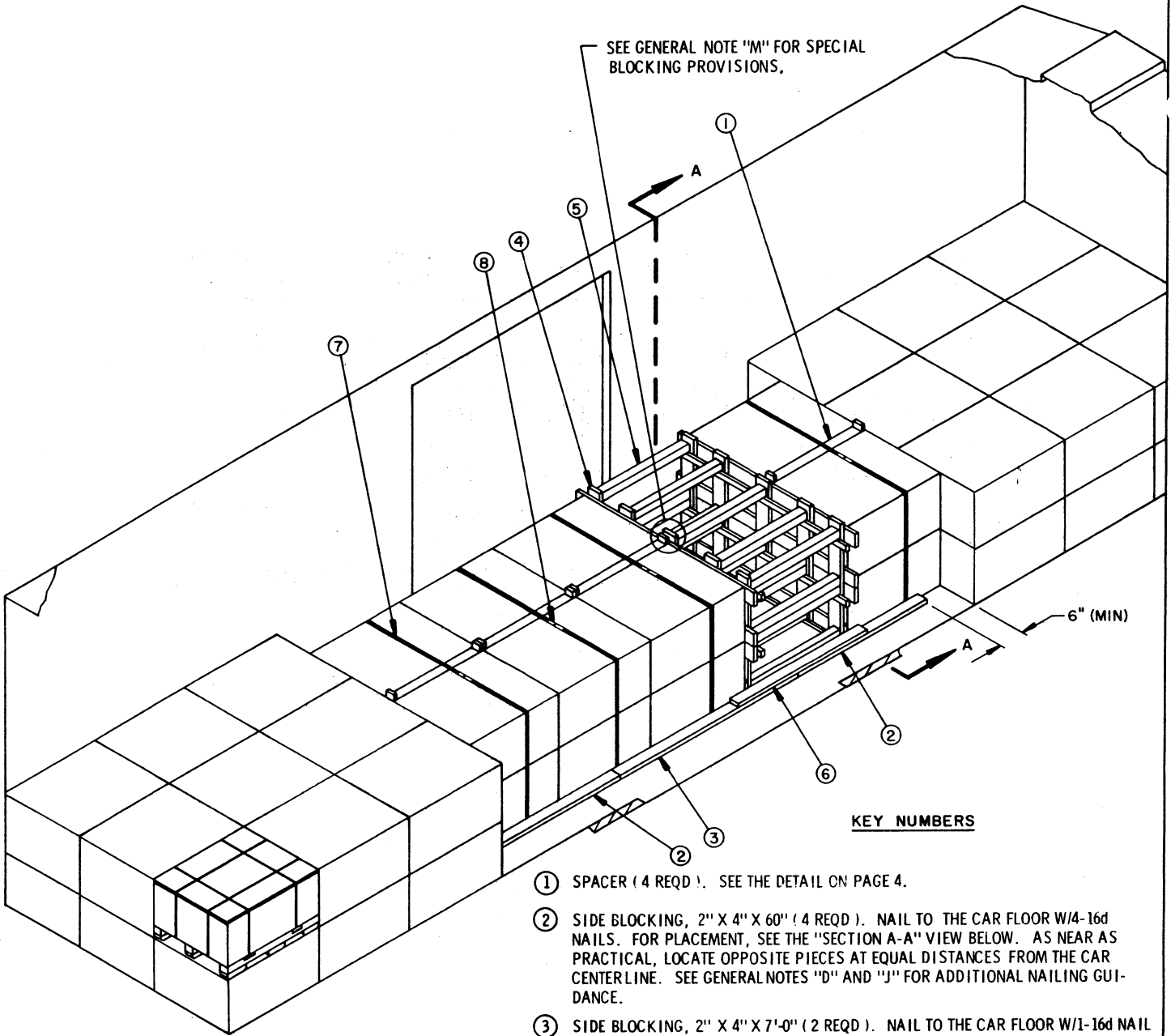
METHOD FOR 40-FOOT CARS

FIXED-LOAD PROCEDURES FOR LOADING AND BRACING (CL) IN BOXCAR OF PALLETIZED EMPTY 105 MM PROJECTILES[●] (M1 HE PROJ PACKED IN WIREBOUND BOX PLT)

THE OUTLOADING PROCEDURES SPECIFIED WITHIN THIS DRAWING ARE ONLY APPLICABLE TO ITEMS WHICH ARE EMPTY. **NOTICE:** THE SPECIFIED LOADING AND BRACING PROCEDURES WILL NOT BE USED FOR SHIPPING ITEMS CONTAINING EXPLOSIVES.

DO NOT SCALE

REVISIONS			DRAFTSMAN <i>John L. Byrd</i>	PROJ ENG <i>DIW/AMC</i>	CHK <i>CH</i>
			CHECKED <i>J. L. Byrd</i>	LOG ENGRG OFFICE <i>John L. Byrd</i>	
			APPROVED <i>Paul J. Leonard</i>		
			U. S. ARMY MUNITIONS COMMAND		
			APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND		
			<i>John L. Byrd</i>		
			U.S. ARMY MATERIEL COMMAND		
			DATE: MARCH 1973		
			AMC AMMO CEN DWG NO		
			D-AMXAC-4335		

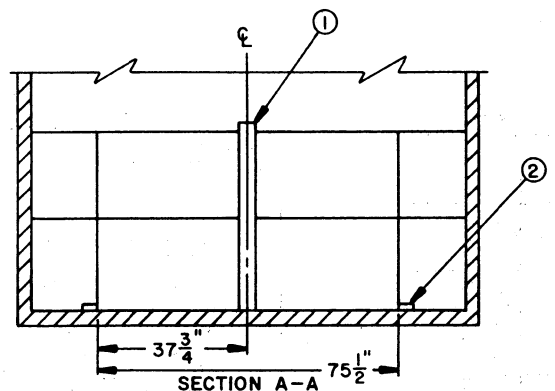


SEE GENERAL NOTE "M" FOR SPECIAL BLOCKING PROVISIONS.

KEY NUMBERS

- ① SPACER (4 REQD). SEE THE DETAIL ON PAGE 4.
- ② SIDE BLOCKING, 2" X 4" X 60" (4 REQD). NAIL TO THE CAR FLOOR W/4-16d NAILS. FOR PLACEMENT, SEE THE "SECTION A-A" VIEW BELOW. AS NEAR AS PRACTICAL, LOCATE OPPOSITE PIECES AT EQUAL DISTANCES FROM THE CAR CENTERLINE. SEE GENERAL NOTES "D" AND "J" FOR ADDITIONAL NAILING GUIDANCE.
- ③ SIDE BLOCKING, 2" X 4" X 7'-0" (2 REQD). NAIL TO THE CAR FLOOR W/1-16d NAIL EVERY 16".
- ④ CENTER GATE (2 REQD). SEE THE DETAIL ON PAGE 4.
- ⑤ STRUT, 4" X 4" BY CUT-TO-FIT IN LENGTH (20 REQD). POSITION AS SHOWN AND TOENAIL TO THE VERTICAL PIECES OF THE CENTER GATES W/2-16d NAILS AT EACH END. SEE THE "STRUT DETAIL" ON PAGE 4 AND GENERAL NOTE "F" FOR ADDITIONAL GUIDANCE.
- ⑥ GATE RETAINER, 2" X 4" X 60" (2 REQD). NAIL TO PIECES MARKED ② AND ③ W/3-10d NAILS NEAR EACH END.
- ⑦ BUNDLING STRAP, 1-1/4" X .035" X 22'-0" LONG STEEL STRAPPING (4 REQD). ALTHOUGH IT IS NOT MANDATORY, IT IS SUGGESTED THAT A STRAP BE PRE-POSITIONED PRIOR TO LOADING A STACK SO THAT THE STRAP WILL ENCIRCLE THE STACK AS SHOWN, WHEN IT IS TENSIONED AND SEALED, SEAL EACH STRAP JOINT W/2 SEALS PER STRAP.
- ⑧ SEAL FOR 1-1/4" STEEL STRAPPING (8 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G".

ISOMETRIC VIEW



NOTE: THE BUNDLING STRAP HAS BEEN OMITTED FROM THE SECTION VIEW FOR CLARITY PURPOSES.

(GENERAL NOTES CONTINUED)

GENERAL NOTES

- J. A STAGGERED NAILING PATTERN WILL BE USED WHEREVER 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.
- K. PORTIONS OF THE DEPICTED CAR, SUCH AS A CAR SIDEWALL, HAVE BEEN OMITTED FROM THE LOAD VIEWS FOR CLARITY PURPOSES.
- L. **NOTICE:** IF AUTHORIZED BY THE U. S. ARMY MUNITIONS COMMAND, JOLIET, ILLINOIS, ON A CASE BY CASE BASIS, THE LOADING AND BRACING SPECIFICATIONS OF THIS DRAWING CAN ALSO BE USED FOR SHIPPING OTHER EMPTY PROJECTILES. THESE OTHER PROJECTILES ARE IDENTIFIED WITHIN A TABULAR DATA TABLE IN PA DRAWING 8837835, IN ADDITION TO THE M1 HE PROJECTILE. HOWEVER, THE FOLLOWING CRITERIA WILL APPLY.
 - 1. ONLY EMPTY PROJECTILES ARE ACCEPTABLE. PROJECTILES CONTAINING EXPLOSIVE FILLER OR OTHER TYPES OF FILLER ARE NOT TO BE SHIPPED BY THE DELINEATED PROCEDURES.
 - 2. A PALLET UNIT OF PROJECTILES THAT WEIGHS MORE THAN 2,360 POUNDS IS NOT ACCEPTABLE.
 - 3. PROJECTILES THAT ARE LONGER THAN THE M1 HE PROJECTILE ARE NOT ACCEPTABLE. ALSO, PROJECTILES THAT ARE MORE THAN 1-1/4" SHORTER THAN THE M1 HE PROJECTILE ARE NOT ACCEPTABLE. IF PROJECTILES THAT ARE SHORTER THAN THE M1 HE ARE TO BE SHIPPED WOODEN OR OTHER SUITABLE "HARD" FILLER MATERIAL MUST BE USED TO FILL THE VOID BETWEEN THE TOP OF THE PROJECTILES AND THE INSIDE SURFACE OF THE PALLET UNIT COVER ASSEMBLY. ALSO, IF THE PROJECTILES DO NOT FULLY OCCUPY THE INTERIOR SPACE OF A PALLET UNIT AS THE M1 HE PROJECTILES DO, THE SAME TYPE OF FILLER MATERIAL MUST BE USED TO FILL VOIDS AT THE SIDES AND/OR ENDS OF THE PALLET LOAD BETWEEN THE PROJECTILES AND THE SIDE/END PANELS OF THE PALLET UNIT.
- M. AFTER LOADING THE CAR, IF THERE IS A VOID BETWEEN THE END OF THE LOAD BAY AND THE INDICATED "SPACER" ASSEMBLY, 4" WIDE BY 48" LONG FILLER MATERIAL OF SUITABLE THICKNESS MUST BE USED AS REQUIRED TO FILL THE VOID. DO NOT "OVER FILL"; ALLOW SPACE FOR TIGHTENING THE LOAD WITH LOAD JACKS OR DRIVEN STRUTS (REFERENCE: GENERAL NOTE "F"). LAMINATE THE FILL MATERIAL TO THE SPACER ASSEMBLY WITH TWO (2) APPLICABLY SIZED NAILS.

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE "INTERIM PROCEDURES" APPLICABLE TO THE OUTLOADING OF PALLETIZED EMPTY 105MM PROJECTILES. THIS DRAWING WILL BE USED UNTIL CANCELLED AND/OR SUPERSEDED BY USAMC 19-48 SERIES DRAWING.
- C. PALLET UNIT DATA:
 DIMENSIONS (APPROX) --- 43-1/4" LONG X 35-3/4" WIDE X 22-3/4" HIGH.
 GROSS WEIGHT (APPROX) - 2,360 POUNDS.
- D. THE 52-UNIT LOAD DEPICTED HEREIN IS BASED ON A 40'-6" LONG BY 9'-2" WIDE CONVENTIONAL BOXCAR THAT HAS 8'-0" WIDE THROUGH DOORS OF THE CONVENTIONAL SLIDING TYPE AND HAS A LOAD LIMIT OF NOT LESS THAN 125,600 POUNDS. WHEN SHIPPING A 52-UNIT LOAD, A CAR THAT HAS A LOAD LIMIT LESS THAN 125,600 POUNDS MUST NOT BE USED. HOWEVER, WIDER CARS MAY BE USED, AND CARS WITH ANY TYPE OR WIDTH DOOR CAN BE USED, BUT TO FACILITATE LOADING OPERATIONS, CARS THAT HAVE DOOR OPENINGS LESS THAN 8'-0" WIDE SHOULD NOT BE USED. IF A CAR WITH PLUG DOORS IS USED, AFTER THE PLUG DOORS ON A CAR ARE CLOSED AND READY FOR THE INSTALLTION OF "CAR SEALS", A PIECE OF WIRE OF SUITABLE SIZE WILL BE USED IN ADDITION TO, AND IN CONJUNCTION WITH, EACH CAR SEALED TO "SEAL" THE CAR. THE WIRE WILL BE THREADED THROUGH THE HOLES IN THE DOOR LATCH ASSEMBLY ONE OR MORE TIMES, AND THE WIRE ENDS WILL BE TWISTED TOGETHER. ALSO, ALL-METAL CARS CAN BE USED. IF THE CAR BEING USED FOR THE SHIPMENT OF THE DEPICTED LOAD IS EQUIPPED WITH A NAILABLE METAL FLOOR AND A NAIL SIZE FOR FLOOR NAILING IS MARKED ON THE SIDEWALL OF THE CAR, THAT GUIDANCE SHOULD BE APPLIED TO THE NAILING OF THE APPLICABLE DUNNAGE PIECES. IF A NAIL SIZE IS NOT SPECIFIED IN THE CAR, 30d NAILS SHOULD BE USED, IF 30d NAILS CANNOT BE DRIVEN PROPERLY, THEN 20d NAILS SHOULD BE USED. NAILS OF A LESSER SIZE ARE NOT ACCEPTABLE.
- E. THE SELECTION OF RAILCARS FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE SHIPPER. ONLY CARS WHICH HAVE "SOUND" FLOORS AND ARE IN OTHERWISE PROPER CONDITION TO SAFELY TRANSPORT THELOAD TO DESTINATION WITHOUT DAMAGE WILL BE SELECTED.
- F. WHEN LOADING THE CAR, THE 2-WIDE PORTIONS OF THE LOAD ARE TO BE CENTERED AS NEAR AS PRACTICAL ON THE WIDTH OF THE CAR. ADDITIONALLY, PALLET UNITS ARE TO BE PLACED INTO A LOAD AS CLOSE TOGETHER AS POSSIBLE THROUGHOUT THE LENGTH OF THE LOAD BAYS TO ACHIEVE A "TIGHT" LOAD. IT IS RECOMMENDED THAT "LOAD JACKS" BE USED TO TIGHTEN A LOAD AFTER THE CENTER GATES HAVE BEEN POSITIONED AND PRIOR TO INSTALLING THE STRUTS. EXERCISE CARE WHEN USING LOAD JACKS SO AS TO NOT OVER TIGHTEN A LOAD AND DAMAGE THE PALLET UNITS. WHEN LOAD JACKS ARE NOT AVAILABLE, THE PROVISIONS OF THE "STRUT DETAIL" ON PAGE 4 CAN BE APPLIED TO AID IN ACHIEVING A "TIGHT" LOAD. STRUTS SHOULD BE CUT SLIGHTLY LONGER THAN THE "MEASURED DISTANCE" AND THEN DRIVEN INTO PLACE, THUS FORCING THE CENTER GATES AND LOAD BAYS APART.
- G. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. **CAUTION:** EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO PALLET UNITS.
- H. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE OR 1-5/8" THICK BY 3-5/8" WIDE AND 4" X 4" MATERIAL IS ACTUALLY 3-1/2" THICK BY 3-1/2" WIDE OR 3-5/8" THICK BY 3-5/8" WIDE. IF 2" X 3" MATERIAL IS NOT AVAILABLE, TWO SUITABLE WIDTH PIECES CAN BE MADE BY "RIPPING" NOMINAL 2" X 6" MATERIAL. ALTHOUGH NOMINAL SIZE LUMBER IS SPECIFIED HEREIN, "ROUGH CUT" LUMBER OF EQUAL OR GREATER STRENGTH CAN BE SUBSTITUTED, PROVIDING NAIL SIZES ARE ADJUSTED ACCORDINGLY.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	13	5
2" X 3"	32	16
2" X 4"	76	51
2" X 6"	95	95
4" X 4"	128	171
NAILS	NO. REQD	POUNDS
10d (3")	12	1/4
16d (3-1/2")	364	8-1/4
STEEL STRAPPING, 1-1/4" X .035"----- 88' REQD --- 13 LBS		
SEAL FOR 1-1/4" STRAPPING ----- 8 REQD --- 1/2 LB		

MATERIAL SPECIFICATIONS

- LUMBER**-----: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS** -----: COMMON, CEMENT COATED OR CHEMICALLY ETCHED; FED SPEC FF-N-105.
 ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.
- STRAPPING, STEEL**:- TYPE I OR IV, CLASS A, B, OR C; FED SPEC QQ-S-781.
- SEAL, STRAP**-----: COMMERCIAL GRADE.

(CONTINUED AT UPPER LEFT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT -----	52 -----	122,720 LBS
DUNNAGE -----	-----	877 LBS
TOTAL WEIGHT -----	-----	123,597 LBS

GATE HOLD DOWN, 2" X 3" X 11" (2 REQD). NAIL TO A HORIZONTAL PIECE W/3-16d NAILS. CLINCH NAILS.

HORIZONTAL PIECE, 2" X 6" X 7'-0" (3 REQD). NAIL TO THE VERTICAL PIECES W/3-16d NAILS AT EACH JOINT. CLINCH NAILS.

VERTICAL PIECE, 2" X 6" X 48" (5 REQD).

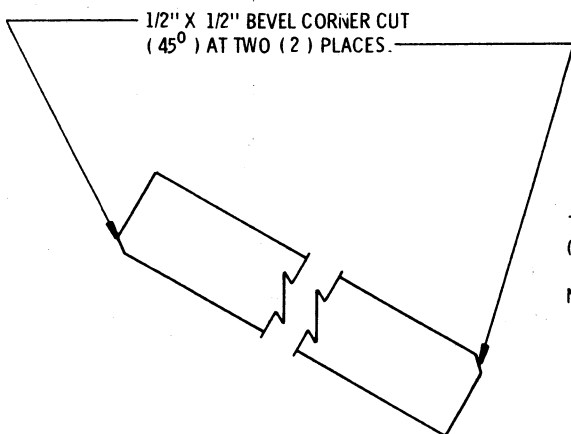
STRUT LEDGER, 2" X 3" X 7'-0" (2 REQD). NAIL TO THE VERTICAL PIECES W/2-16d NAILS AT EACH JOINT. CLINCH EXPOSED NAILS.

BOTTOM HORIZONTAL PIECE, 2" X 6" X 6'-3" (1 REQD). NAIL TO THE VERTICAL PIECES W/3-16d NAILS AT EACH JOINT. CLINCH NAILS.

CENTER GATE

STRUT LEDGER, 2" X 2" X 6'-3" (1 REQD). NAIL TO THE VERTICAL PIECES W/2-16d NAILS AT EACH JOINT.

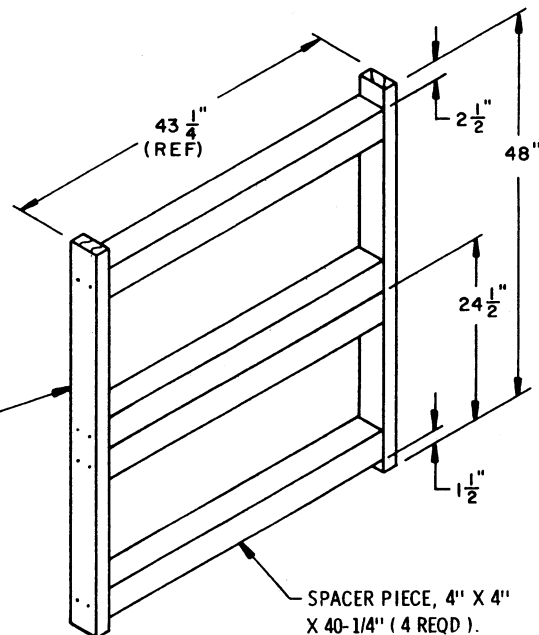
END VIEW



1/2" X 1/2" BEVEL CORNER CUT (45°) AT TWO (2) PLACES.

STRUT DETAIL

BEVEL CUTS SHOWN ARE REQUIRED TO FACILITATE A TIGHT WEDGE FIT. THE BEVEL CUT PROVISIONS ARE OPTIONAL, BUT THEY ARE RECOMMENDED IF "LOAD JACKS" ARE NOT AVAILABLE TO TIGHTEN A LOAD IN ACCORDANCE WITH GUIDANCE SET FORTH BY GENERAL NOTE "F" ON PAGE 3.



TIE PIECE, 2" X 4" X 48" (2 REQD). NAIL TO THE SPACER PIECES W/2-16d NAILS AT EACH JOINT.

SPACER PIECE, 4" X 4" X 40-1/4" (4 REQD).

SPACER