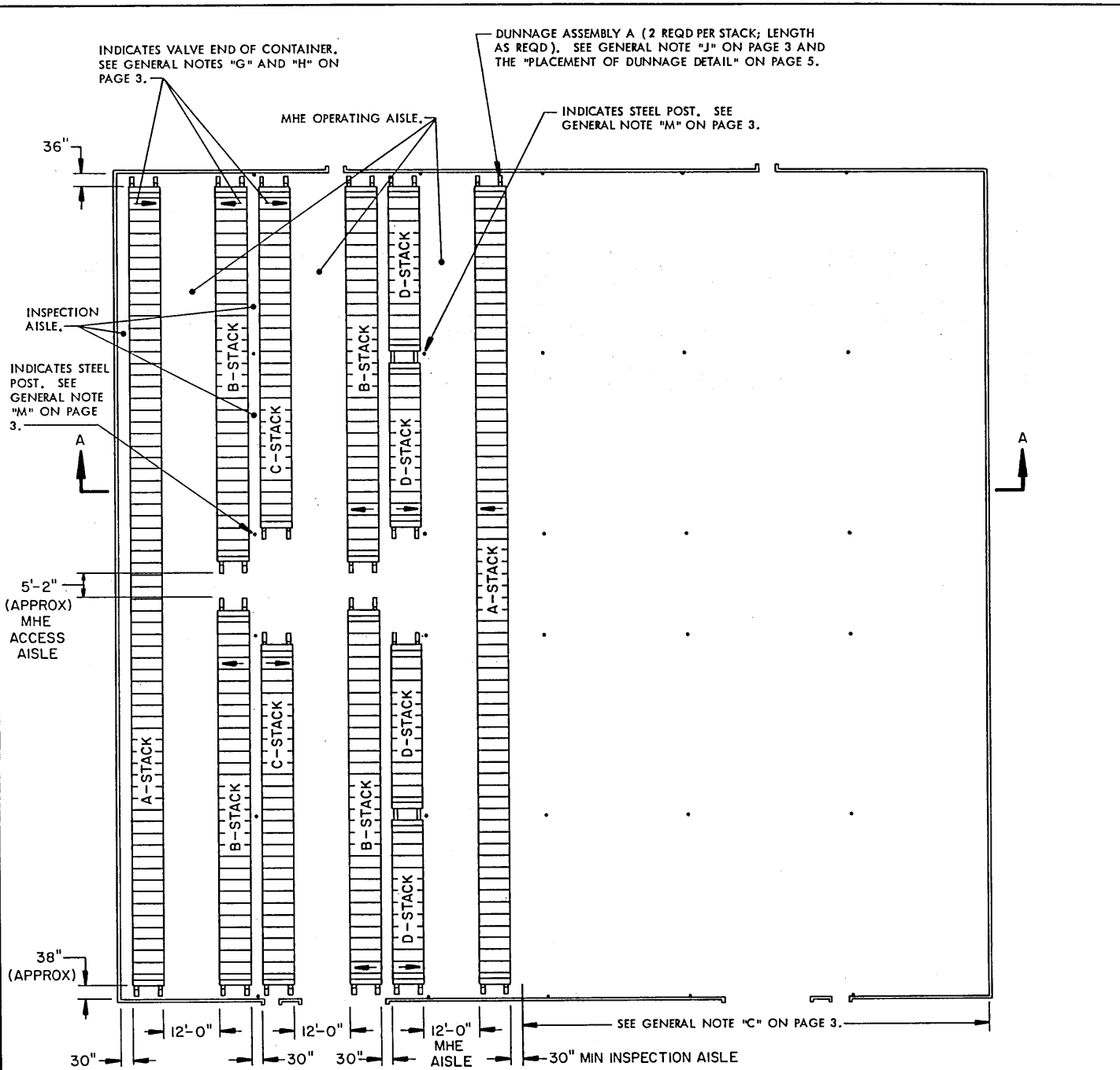


STORAGE IN 187'-8" L X 179'-0" W BULK
AGENT STORAGE BUILDING OF THE
I-TON CONTAINER (FILLED)

REVISIONS				<small>DRAFTSMAN</small> <i>P.B. / 4</i>	<small>PROJ. ENG.</small> <i>MWD / 2</i>
				<small>CHECKER</small> <i>GRS / P.B.</i>	<small>LOG ENGINE OFFICE</small> <i>WFB / 2</i>
				<small>APPROVED, U. S. ARMY ARMAMENT MATERIEL READINESS COMMAND</small> <i>[Signature]</i>	
				<small>APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM)</small> <i>[Signature]</i> <small>U. S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL</small>	
				U. S. ARMY DARCOM DRAWING	
				MARCH 1981	
				<small>CLASS</small>	<small>DIVISION</small>
				19	48
				<small>DRAWING</small>	<small>FILE</small>
				4521	CB 10 MI3

DO NOT SCALE



PLAN VIEW

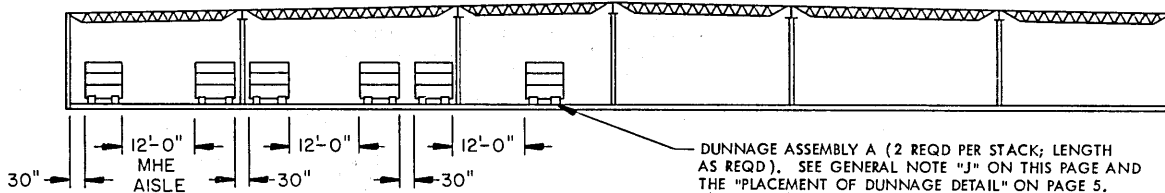
STORAGE IN APPROXIMATELY HALF OF STRUCTURE CONSISTS OF 2 A-STACKS, 4 B-STACKS, 2 C-STACKS AND 4 D-STACKS.

CONTAINERS PER STACK				
TYPE STACK	1ST LAYER	2ND LAYER	3RD LAYER	TOTAL
A	68	67	66	201
B	32	31	30	93
C	29	28	27	84
D	14	13	12	39

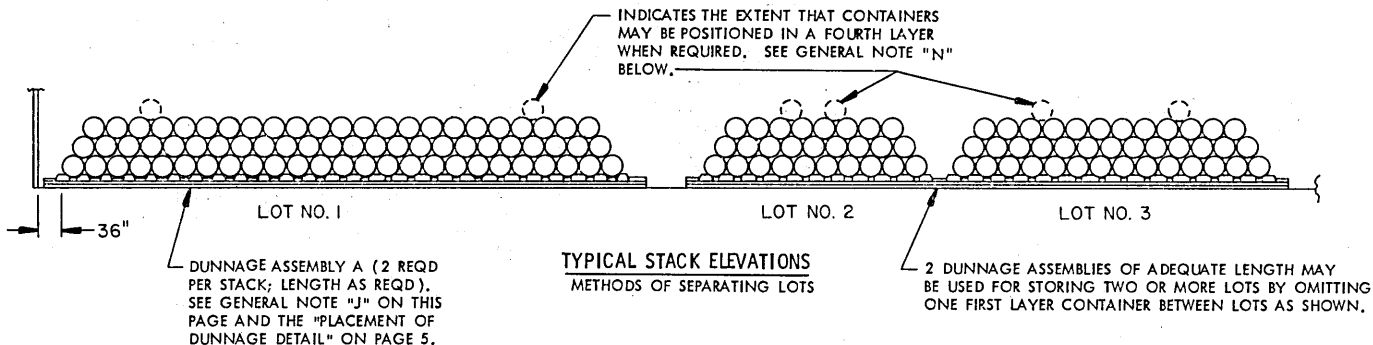
STORAGE AS SHOWN

(APPROX HALF OF BULK AGENT STORAGE BUILDING)

ITEM	QUANTITY
1-TON CONTAINER	1098



SECTION A-A



(GENERAL NOTES CONTINUED)

GENERAL NOTES

- K. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- L. THE MAXIMUM FLOOR LOAD FOR A STRUCTURE, AS PRESCRIBED BY LOCAL STANDARDS, WILL NOT BE EXCEEDED.
- M. IF STEEL POSTS OR OTHER STRUCTURAL FEATURES OF THE BUILDING DO NOT PERMIT SUITABLE CLEARANCE FOR PLACEMENT, REMOVAL OR INSPECTION OF CONTAINERS, IT MAY BE NECESSARY TO OMIT CONTAINERS AT SUCH LOCATIONS.
- N. STORAGE WILL BE LIMITED TO THREE LAYERS HIGH. HOWEVER, TO PRECLUDE BUILDING SEVERAL PARTIAL STACKS TO HANDLE THE END OF A LOT, CONTAINERS CAN BE PLACED IN A FOURTH LAYER. NOTE: FOURTH LAYER CONTAINERS WILL NOT BE PLACED IN THE FIRST TWO STORAGE LOCATIONS AT BOTH ENDS OF A STACK AS IS TYPICALLY SHOWN IN THE ELEVATION VIEWS.
- O. THE DEPICTED PROCEDURES MAY ALSO BE UTILIZED TO STORE 1-TON CONTAINERS IN OTHER APPROVED WAREHOUSE TYPE STRUCTURES. MINOR ADJUSTMENTS MAY BE MADE TO FACILITATE STORAGE IN OTHER STRUCTURES, HOWEVER, THE BASIC PRINCIPLES AS DEPICTED HEREIN WILL BE FOLLOWED.
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5), TM 9-1300-206 (CHAPTER 4), AND TM 3-250.
- B. DETAILS OF CONTAINER:
DIMENSIONS-----81-1/2" LONG X 30-1/2" DIAMETER,
GROSS WEIGHT-----3,500 POUNDS (APPROX).
- C. THE STORAGE PROCEDURES WITHIN THIS DOCUMENT DEPICT STORAGE OF 1-TON CONTAINERS IN A BULK AGENT STORAGE BUILDING 187'-8" LONG BY 179'-0" WIDE. THE BUILDING MUST COMPLY WITH REQUIREMENTS OF APPLICABLE SAFETY AND SECURITY REGULATIONS AND MUST BE APPROVED FOR THE STORAGE OF CHEMICAL ITEMS. THE STORAGE AS SHOWN IS BASED ON USE OF APPROXIMATELY ONE-HALF OF THE STRUCTURE. ADDITIONAL 1-TON CONTAINERS AND/OR OTHER COMPATIBLE ITEMS MAY BE STORED TO FULLY UTILIZE THE SPACE WITHIN THE STRUCTURE.
- D. THIS STORAGE PLAN IS BASED ON THE USE OF A 6000 POUND MINIMUM CAPACITY FORKLIFT TRUCK OR A MOBILE WAREHOUSE TYPE CRANE. MHE WILL BE EQUIPPED WITH AN M1 LIFTING BEAM (NSN 1730-00-368-6195) WHICH PERMITS A CONTAINER TO BE REMOVED FROM ANY LOCATION WITHIN A STACK WITHOUT EXCESSIVE RELOCATION OF OTHER CONTAINERS. ATTACHMENT DEVICES USED FOR SECURING THE M1 LIFTING BEAM TO THE FORKLIFT TRUCK OR MOBILE CRANE WILL BE OF A TYPE AND DESIGN AS APPROVED BY THE DEFENSE AMMUNITION CENTER AND SCHOOL AND THE FIELD SAFETY ACTIVITY OF THE MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM).
- E. AISLE DIMENSIONS SHOWN IN THIS DRAWING MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS AND/OR MATERIALS HANDLING EQUIPMENT; HOWEVER, BOTH ENDS OF EACH CONTAINER MUST BE ACCESSIBLE BY NOT LESS THAN A 30" WIDE AISLE TO PERMIT ADEQUATE INSPECTION.
- F. STORED CONTAINERS MUST NOT CONTACT THE WALLS OF THE BUILDING.
- G. THE VALVE END OF ALL CONTAINERS WILL BE ORIENTED TO FACE THE MHE OPERATING AISLES. SEE THE STORAGE VIEWS FOR ADDITIONAL GUIDANCE ON CONTAINER ORIENTATION.
- H. VALVES ON EACH CONTAINER WILL BE POSITIONED IN THE PROPER VERTICAL OR HORIZONTAL ALIGNMENT, AS REQUIRED FOR THE SPECIFIC CHEMICAL AGENTS IN THE CONTAINER.
- J. THE PROCEDURES AS SHOWN SPECIFY "DUNNAGE ASSEMBLY A" TO SUPPORT BOTTOM LAYER OF CONTAINERS. DUNNAGE ASSEMBLIES "A", "B", AND/OR "C" MAY BE USED, AS DESIRED. SEE THE APPROPRIATE DETAILS ON PAGES 4 THROUGH 8.

MATERIAL SPECIFICATIONS

- LUMBER----- : SEE TM 743-200-1, DUNNAGE LUMBER, FED SPEC MM-L-751.
- NAILS----- : COMMON, FED SPEC FF-N-105.
- STRUCTURAL STEEL----- : ROLLED SHAPES, PLATE AND BAR; FED SPEC QQ-S-741D.
- BOLTS----- : SAE GRADE 1 CARBON STEEL.

(CONTINUED AT LEFT)

CHOCK BLOCK, AS REQD FOR ASSEMBLY LENGTH. SEE DETAIL ON PAGE 5. SECURE EACH BLOCK TO THE DOUBLED 2" X 6" PIECES W/4-60d NAILS FOR EACH BLOCK, AS SHOWN.

SPACER, 2" X 6" X CUT-TO-FIT (REFERENCE 8-1/2") (AS REQD). POSITION A SPACER BETWEEN TWO CHOCK BLOCKS AND NAIL W/4-30d NAILS, AS SHOWN.

END PIECE, 2" X 6" X 20" (2 REQD PER ASSEMBLY). NAIL W/8-30d NAILS, AS SHOWN.

48" MINIMUM OVERLAP ON STAGGERED JOINTS FOR RISER PIECES.

RISER, 2" X 6" BY RANDOM LENGTH (DOUBLED). FABRICATE TO REQUIRED LENGTH. LAMINATE DOUBLED MATERIAL W/1-10d NAIL EVERY 24" TO HOLD ALIGNMENT UNTIL THE SPACER PIECES AND CHOCK BLOCKS HAVE BEEN INSTALLED.

30 1/2"

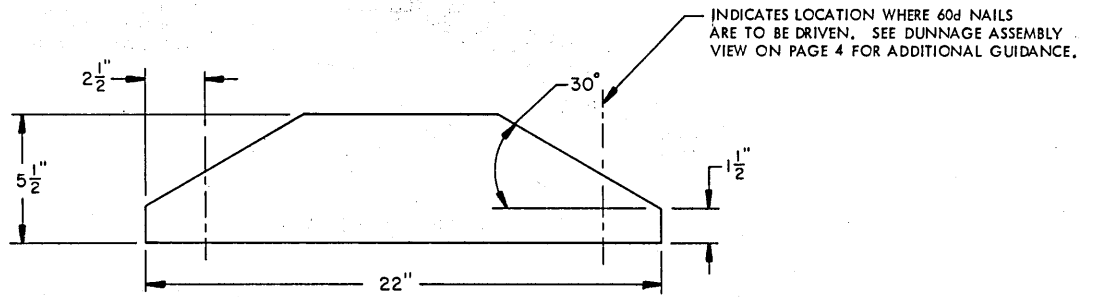
DUNNAGE ASSEMBLY A

CHOCK BLOCK, 4" X 6" X 22". CUT AS SHOWN IN THE "CHOCK BLOCK DETAIL" ON PAGE 5 AND POSITION AS SHOWN, ON THE 3-1/2" WIDTH, AND CENTERED ON THE RISER. NAIL W/2-60d NAILS THROUGH THE TOP, AS SHOWN. ALSO, TOENAIL W/2-60d NAILS ON EACH SIDE, BEGINNING APPROXIMATELY 2-1/2" ABOVE THE BOTTOM OF THE CHOCK AND NAILING AT AN ANGLE OF 30 DEGREES FROM THE VERTICAL.

SPACER. INSTALL AS SHOWN ABOVE.

RISER, DOUBLED.

ALTERNATIVE CHOCK BLOCK DETAIL



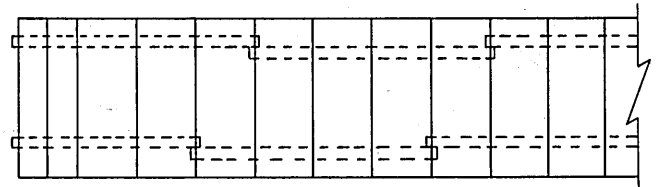
CHOCK BLOCK
6" X 6" MATERIAL

USE 4" X 6" MATERIAL FOR ALTERNATIVE.

ALTHOUGH THE SPECIFICATIONS FOR BOTH CHOCK BLOCKS (6" X 6" AND 4" X 6") ARE BASED ON THE USE OF NOMINAL SIZED LUMBER, FULL SIZE LUMBER MAY BE USED.

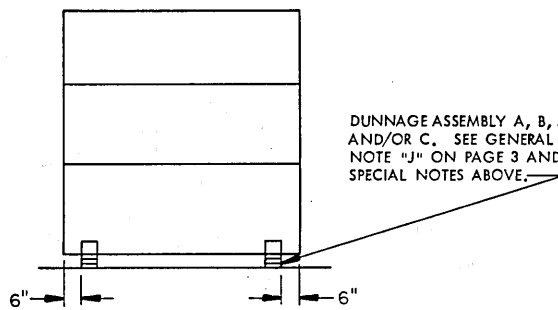
SPECIAL NOTES:

1. WHEN USING DUNNAGE ASSEMBLY A, THE ASSEMBLY SHALL BE CONSTRUCTED OF THE LENGTH AS REQUIRED TO HOLD THE NUMBER OF CONTAINERS IN THE BOTTOM LAYER OF A STACK.
2. WHEN USING DUNNAGE ASSEMBLY B AND/OR C, AS DETAILED ON PAGES 6 THRU 8, THE LONGITUDINAL LAP JOINTS OF DUNNAGE ASSEMBLIES ON ONE SIDE OF A STACK OF CONTAINERS MUST BE STAGGERED FROM THE LAP JOINTS ON THE OTHER SIDE OF THE SAME STACK OF CONTAINERS. SEE THE PARTIAL PLAN VIEW ON THE RIGHT OF THIS PAGE FOR ADDITIONAL GUIDANCE RELATIVE TO THE POSITIONING OF DUNNAGE ASSEMBLIES B AND/OR C.

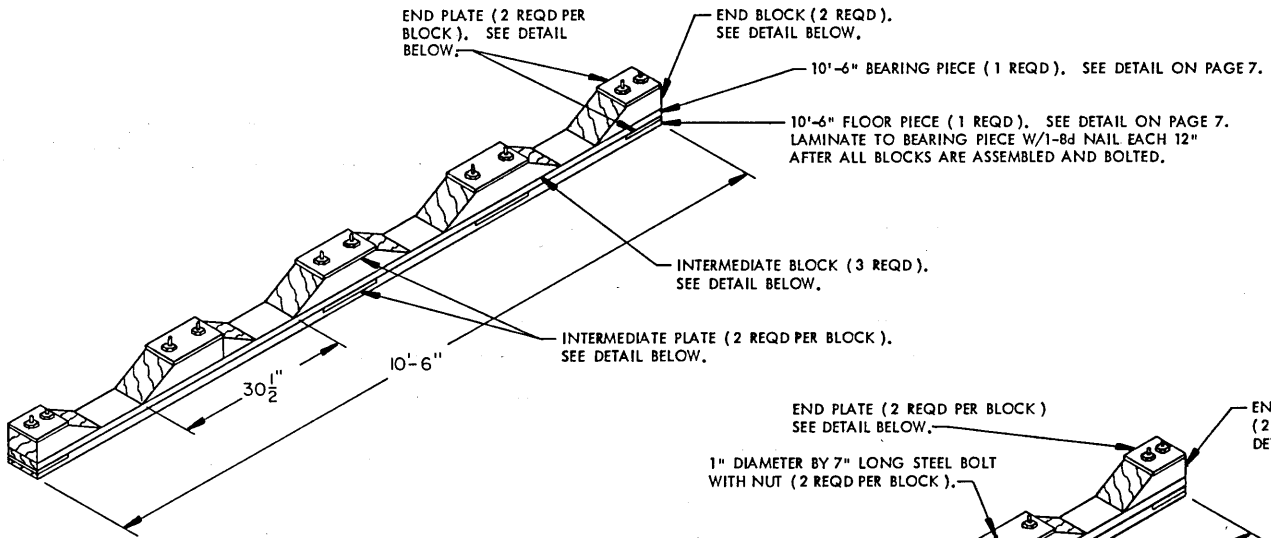


PARTIAL PLAN VIEW

SEE SPECIAL NOTE 2 AT LEFT.



PLACEMENT OF DUNNAGE DETAIL



END PLATE (2 REQD PER BLOCK), SEE DETAIL BELOW.

END BLOCK (2 REQD), SEE DETAIL BELOW.

10'-6" BEARING PIECE (1 REQD), SEE DETAIL ON PAGE 7.

10'-6" FLOOR PIECE (1 REQD), SEE DETAIL ON PAGE 7. LAMINATE TO BEARING PIECE W/1-8d NAIL EACH 12" AFTER ALL BLOCKS ARE ASSEMBLED AND BOLTED.

INTERMEDIATE BLOCK (3 REQD), SEE DETAIL BELOW.

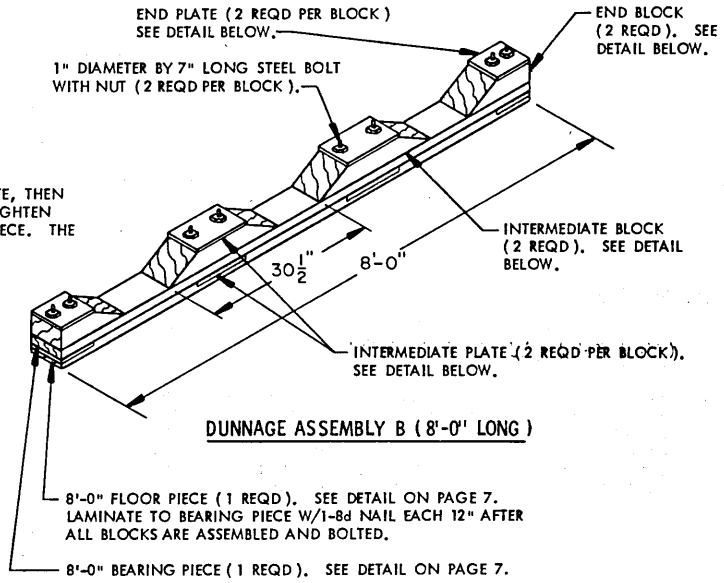
INTERMEDIATE PLATE (2 REQD PER BLOCK), SEE DETAIL BELOW.

30 1/2"

10'-6"

DUNNAGE ASSEMBLY B (10'-6" LONG)

ASSEMBLE THE DUNNAGE ASSEMBLY BY PLACING A BOLT THROUGH A BOTTOM PLATE, THEN THROUGH A BEARING PIECE AND A BLOCK, AND THEN THROUGH A TOP PLATE. TIGHTEN THE NUT ON THE BOLT AND THEN LAMINATE THE FLOOR PIECE TO THE BEARING PIECE. THE NUT ON THE BOLT IS TO BE ON THE UPPER SURFACE.



END PLATE (2 REQD PER BLOCK) SEE DETAIL BELOW.

END BLOCK (2 REQD), SEE DETAIL BELOW.

1" DIAMETER BY 7" LONG STEEL BOLT WITH NUT (2 REQD PER BLOCK).

INTERMEDIATE BLOCK (2 REQD), SEE DETAIL BELOW.

INTERMEDIATE PLATE (2 REQD PER BLOCK), SEE DETAIL BELOW.

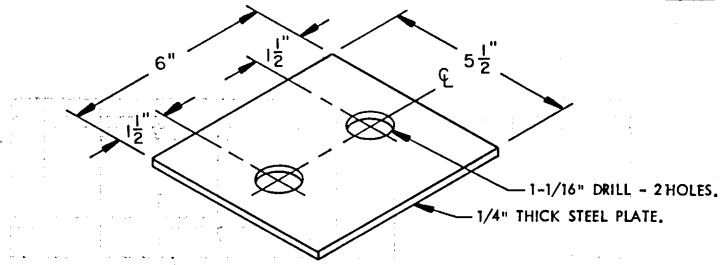
30 1/2"

8'-0"

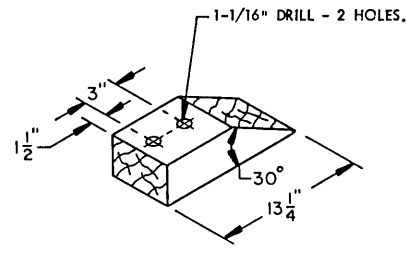
DUNNAGE ASSEMBLY B (8'-0" LONG)

8'-0" FLOOR PIECE (1 REQD), SEE DETAIL ON PAGE 7. LAMINATE TO BEARING PIECE W/1-8d NAIL EACH 12" AFTER ALL BLOCKS ARE ASSEMBLED AND BOLTED.

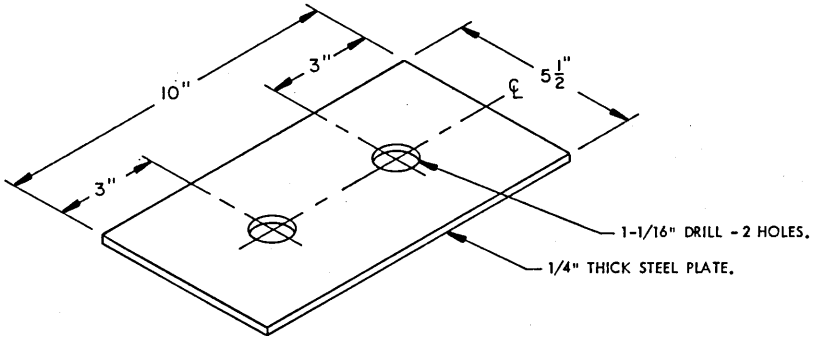
8'-0" BEARING PIECE (1 REQD), SEE DETAIL ON PAGE 7.



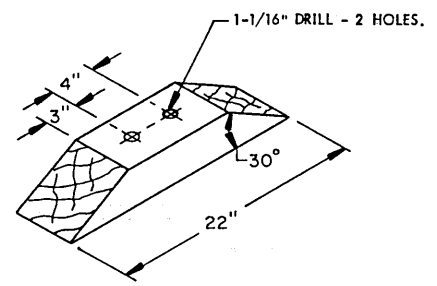
END PLATE
(2 REQD PER END BLOCK)



END BLOCK
4" X 6" MATERIAL

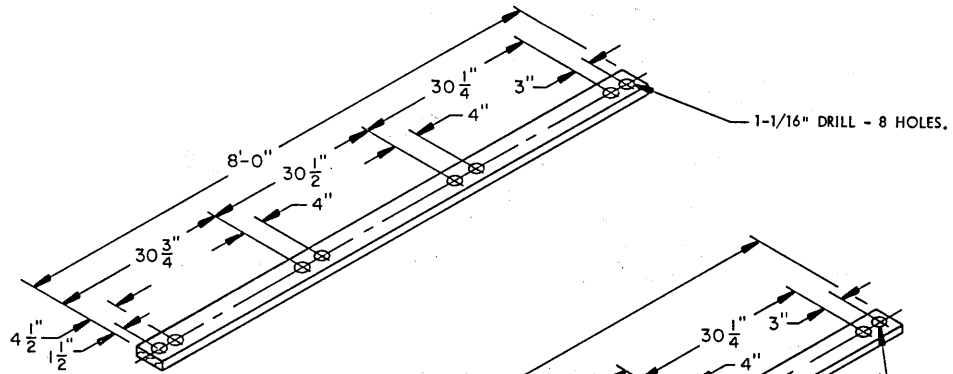


INTERMEDIATE PLATE
(2 REQD PER INTERMEDIATE BLOCK)

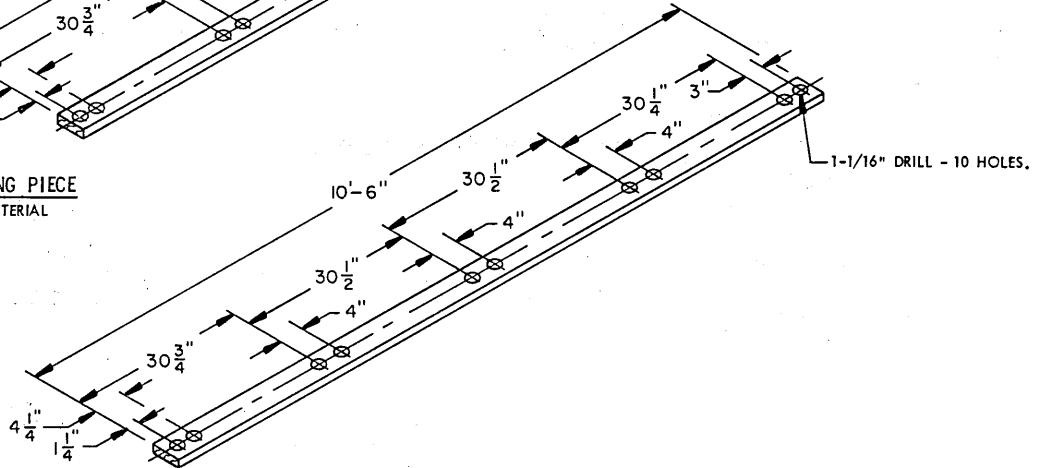


INTERMEDIATE BLOCK
4" X 6" MATERIAL

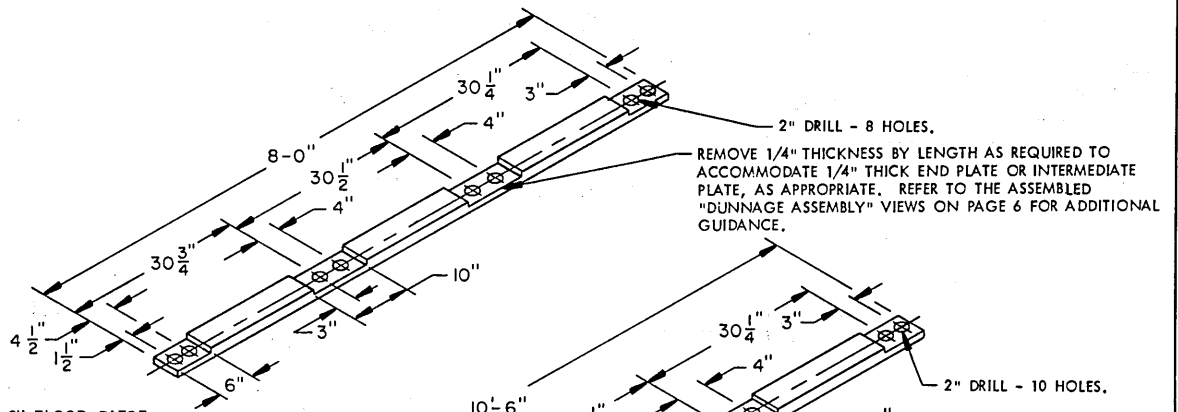
8'-0" BEARING PIECE
2" X 6" MATERIAL



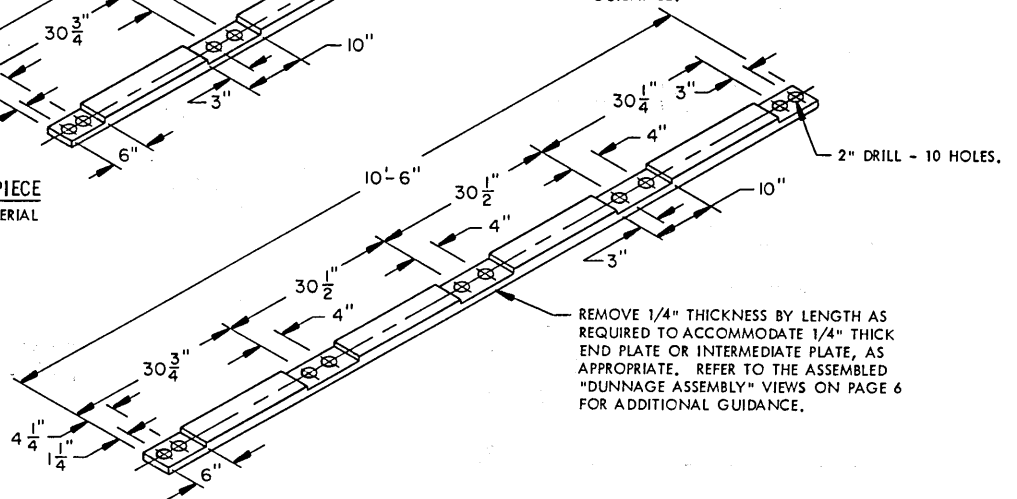
10'-6" BEARING PIECE
2" X 6" MATERIAL

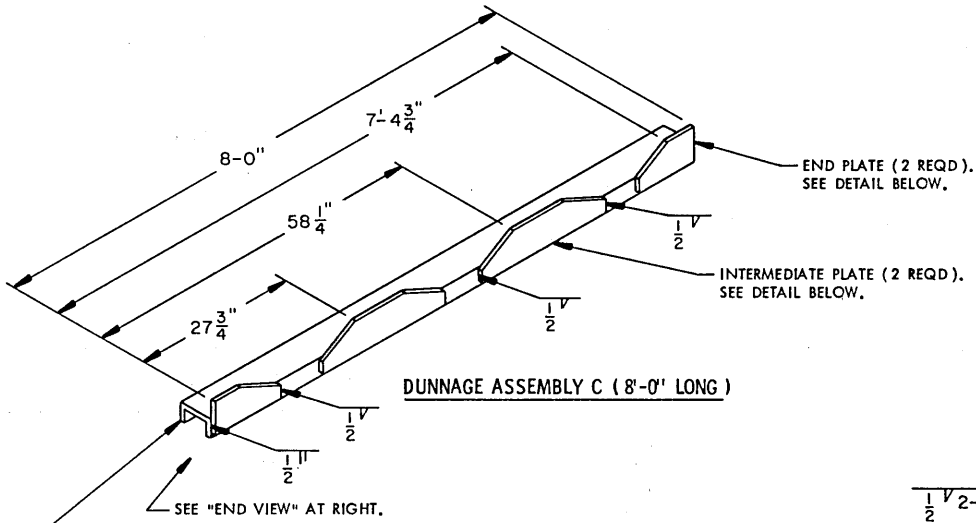


8'-0" FLOOR PIECE
2" X 6" MATERIAL



10'-6" FLOOR PIECE
2" X 6" MATERIAL

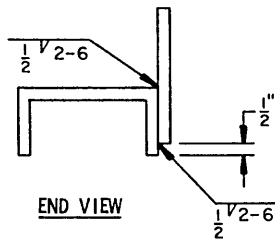




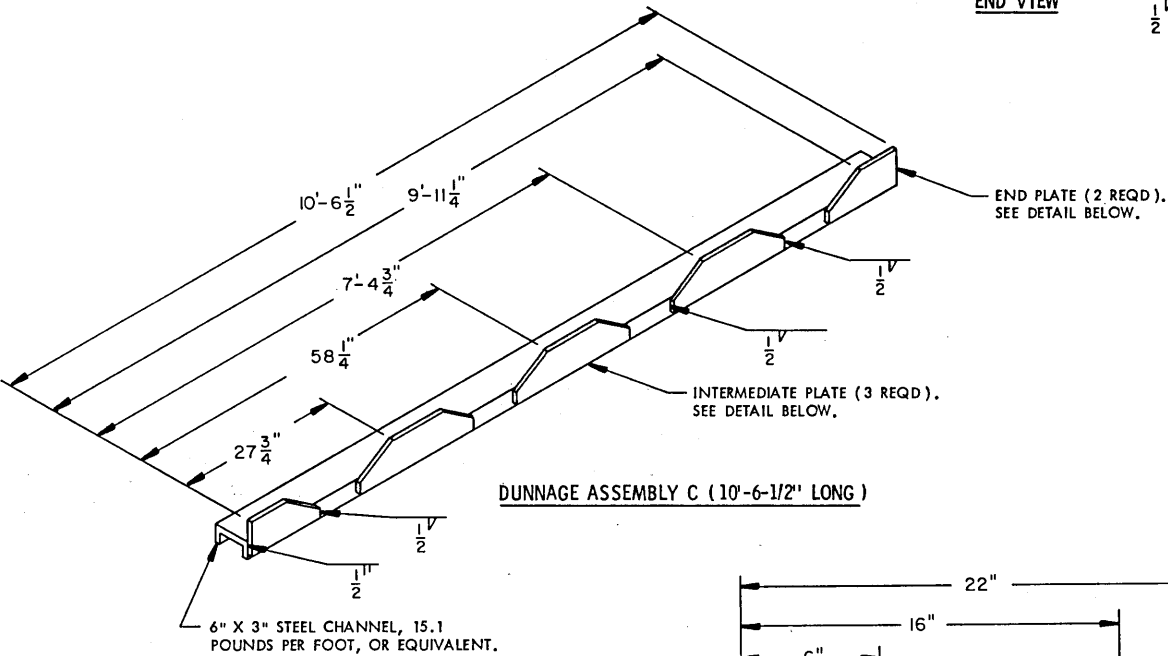
DUNNAGE ASSEMBLY C (8'-0' LONG)

6" X 3" STEEL CHANNEL, 15.1 POUNDS PER FOOT, OR EQUIVALENT.

SEE "END VIEW" AT RIGHT.

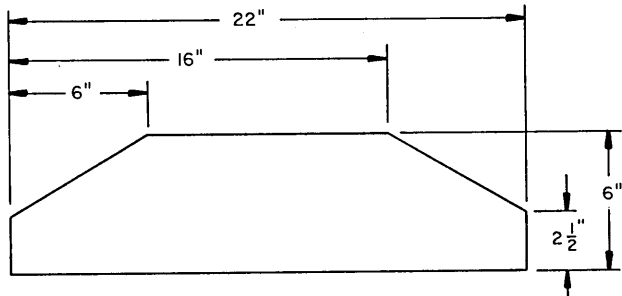


END VIEW

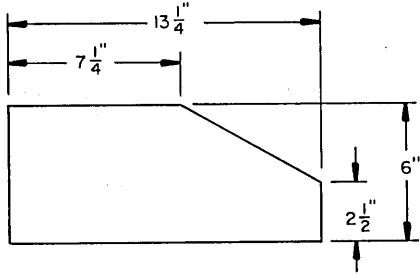


DUNNAGE ASSEMBLY C (10'-6-1/2' LONG)

6" X 3" STEEL CHANNEL, 15.1 POUNDS PER FOOT, OR EQUIVALENT.



INTERMEDIATE PLATE
(1/2" THICK STEEL PLATE)



END PLATE
(1/2" THICK STEEL PLATE)