STORAGE IN 40', 60' & 80' IGLOO AND 80' STRADLEY MAGAZINES OF THE 1-TON CONTAINER (FILLED)

INDEX

DO NOT SCALE

REVISIONS

1	OCT 79	[signature]	[signature]

DRAFTSMAN [signature] / MGK — PROJ ENG MWD / [signature]
CHECKER [signature] / RSH — LOG ENGR OFFICE [signature]
APPROVED
K H Benton
U. S. ARMY ARMAMENT COMMAND
APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL COMMAND
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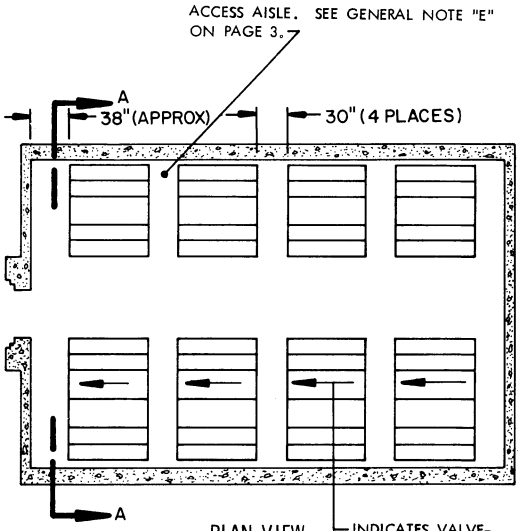
USAMC AMMO CENTER

U.S. ARMY MATERIEL COMMAND

SEPTEMBER 1975

CLASS	DIVISION	DRAWING	FILE
19	48	4504	CB 1-14M3

PROJECT CB 19-75



PLAN VIEW

40' IGLOO MAGAZINE

INDICATES VALVE-END OF CONTAINER. SEE GENERAL NOTES "G" AND "H" ON PAGE 3.

SPECIAL NOTES:

1. THE "METHOD A" PROCEDURES SHOWN MAY ALSO BE USED WHEN STORING 1-TON CONTAINERS IN OTHER MAGAZINES.

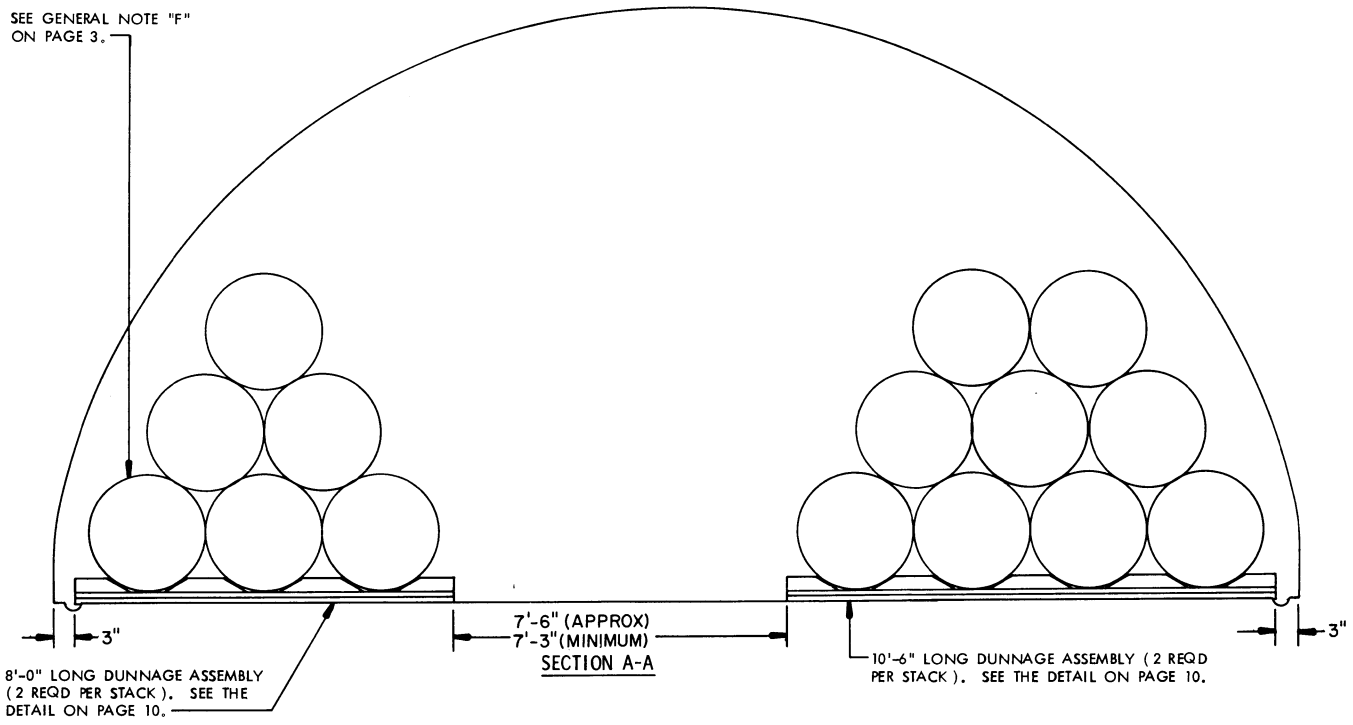
   A. IN A 60-FOOT IGLOO MAGAZINE, A TOTAL OF 6 STACKS (90 CONTAINERS) MAY BE STORED.

   B. IN AN 80-FOOT IGLOO MAGAZINE, A TOTAL OF 8 STACKS (120 CONTAINERS) MAY BE STORED.

   C. IN AN 80-FOOT STRADLEY MAGAZINE, A TOTAL OF 8 STACKS (96 CONTAINERS) MAY BE STORED. ONE ROW OF CONTAINERS MUST BE OMITTED BECAUSE OF THE LESSER WIDTH OF THE STRADLEY MAGAZINE; THEREFORE, EACH STACK WILL CONSIST OF 12 CONTAINERS, 6 CONTAINERS ON EACH SIDE OF THE CENTER OPERATING AISLE.

2. OTHER STORAGE METHODS DEPICTED IN THIS DRAWING MAY BE USED IN 40' IGLOO MAGAZINES; HOWEVER, "METHOD A" PROVIDES FOR MAXIMUM SPACE UTILIZATION.

BILL OF MATERIAL PER STACK		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6" 4" X 6"	74 21	74 42
NAILS	NO. REQD	POUNDS
8d (2-1/2")	38	1/2
STEEL, FLAT - 1/4" X 5-1/2" X 6" ---------- 16 REQD STEEL, FLAT - 1/4" X 5-1/2" X 10" ---------- 20 REQD BOLT, MACHINE - 1" DIA. X 7" ---------- 36 REQD NUT, HEX - 1" DIA. ---------- 36 REQD		

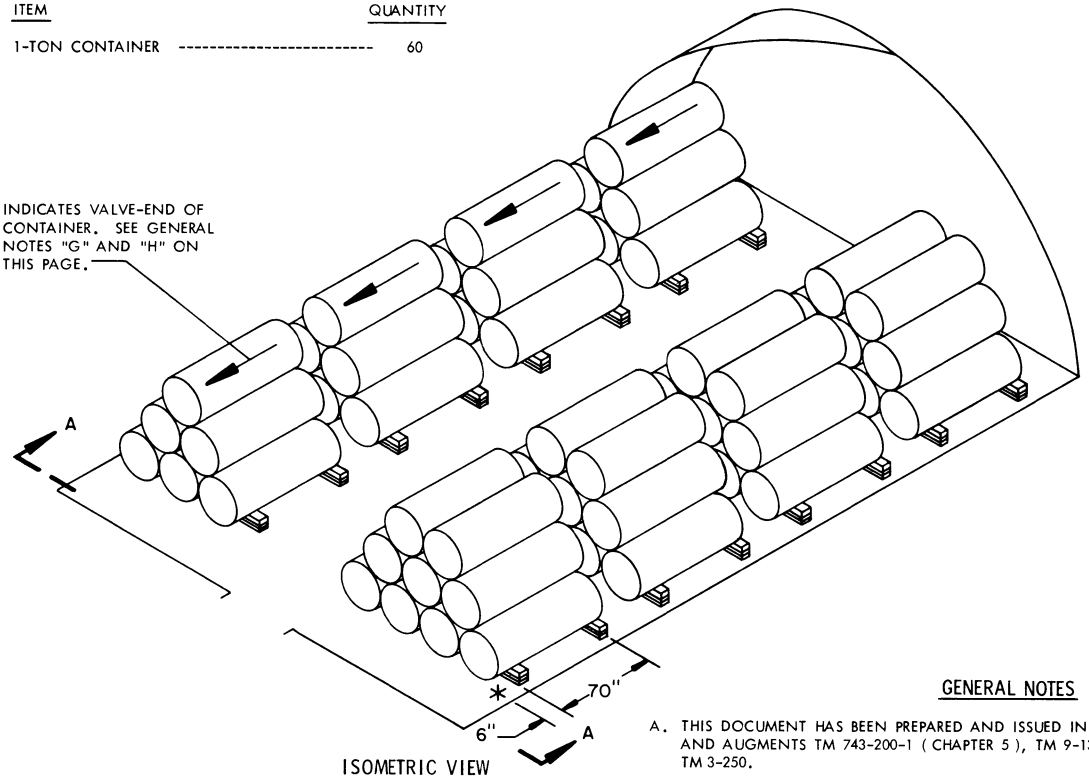


MAGAZINE STORAGE PROCEDURES - METHOD A

STORAGE AS SHOWN

40' IGLOO

ITEM	QUANTITY
1-TON CONTAINER	60



ISOMETRIC VIEW

40' IGLOO MAGAZINE

GENERAL NOTES

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. STORAGE PLANS ARE BASED ON USE OF A 6,000 POUND CAPACITY FORKLIFT WITH ADEQUATE TINE EXTENSIONS OR A BOOM FOR MOUNTING A GRAB BEAM WHICH WILL PERMIT END-HANDLING OF 1-TON CONTAINERS. END-HANDLING OF CONTAINERS WILL PERMIT STACKING OF 4 LAYERS; HOWEVER, STACKING ACCOMPLISHED BY SIDE HANDLING OF CONTAINERS IS LIMITED TO A MAXIMUM OF 3 LAYERS. THE LOAD ON THE FORKLIFT WILL BE AT A 40 TO 45 INCH LOAD CENTER. IF ONLY 4,000 POUND CAPACITY FORKLIFTS ARE AVAILABLE, ONLY THE METHOD "A" PROCEDURES, SHOWN FOR THE 40-FOOT IGLOO, CAN BE UTILIZED AND STORAGE WILL BE LIMITED TO A 2-LAYER STACK. OTHER MATERIALS HANDLING EQUIPMENT MAY BE UTILIZED IF AVAILABLE AND OF SUFFICIENT CAPACITY TO HANDLE THE CONTAINERS IN AN APPROVED MANNER.

D. IF THE FORKLIFT TO BE USED IS EQUIPPED WITH A PACKAGE GUARD AND/OR AN OVERHEAD GUARD WHICH INTERFERES WITH MANEUVERING THE FORKLIFT WITHIN AVAILABLE OPERATING AISLES, THE GUARD (S) MAY BE MODIFIED IN ACCORDANCE WITH APPLICABLE REGULATIONS.

E. AISLE DIMENSIONS SHOWN IN THIS DRAWING MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS AND/OR AVAILABLE MATERIALS HANDLING EQUIPMENT; HOWEVER, THIRTY-INCH (30") MINIMUM ACCESS AISLES WILL BE PROVIDED, AS SHOWN, UNLESS OTHERWISE INDICATED, TO FACILITATE INSPECTION OF BOTH ENDS OF EACH CONTAINER.

F. STORED CONTAINERS MUST NOT CONTACT THE WALL OF A MAGAZINE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, UNITS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.

G. THE VALVE END OF CONTAINERS WILL BE ORIENTED IN THE SAME DIRECTION WITHIN A STACK. ALSO, EACH STACK WILL BE ORIENTED SO THAT THE VALVE END OF THE CONTAINERS WILL BE ONLY ON ONE SIDE OF AN ACCESS AISLE. THE BASE END OF CONTAINERS IN AN ADJACENT STACK MUST FACE THE SAME AISLE AS THE VALVE END OF CONTAINERS IN THE PRECEDING STACK. 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 WOODEN DUNNAGE TO SUPPORT THE BOTTOM LAYER OF CONTAINERS. IF DESIRED, STEEL DUNNAGE MAY BE USED IN LIEU OF THE WOODEN DUNNAGE. SEE THE "ALTERNATIVE DUNNAGE ASSEMBLY" DETAILS ON PAGE 12.

(CONTINUED AT LEFT)

(GENERAL NOTES CONTINUED)

K. THE MAGAZINE MUST COMPLY WITH ALL REQUIREMENTS AND BE APPROVED FOR THE STORAGE OF CHEMICAL ITEMS.

L. THE STORAGE PROCEDURES DEPICTED HEREIN FOR SPECIFIC TYPES OF MAGAZINES MAY ALSO BE UTILIZED TO STORE CONTAINERS IN OTHER TYPES OF APPROVED MAGAZINES. MINOR ADJUSTMENTS MAY BE MADE TO FACILITATE STORAGE IN OTHER TYPES OF MAGAZINES, HOWEVER, THE BASIC PRINCIPLES AS DEPICTED HEREIN WILL BE COMPLIED WITH.

MATERIAL SPECIFICATIONS

LUMBER ---------- : SEE TM 743-200-1, DUNNAGE LUMBER, FED SPEC MM-L-751.

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

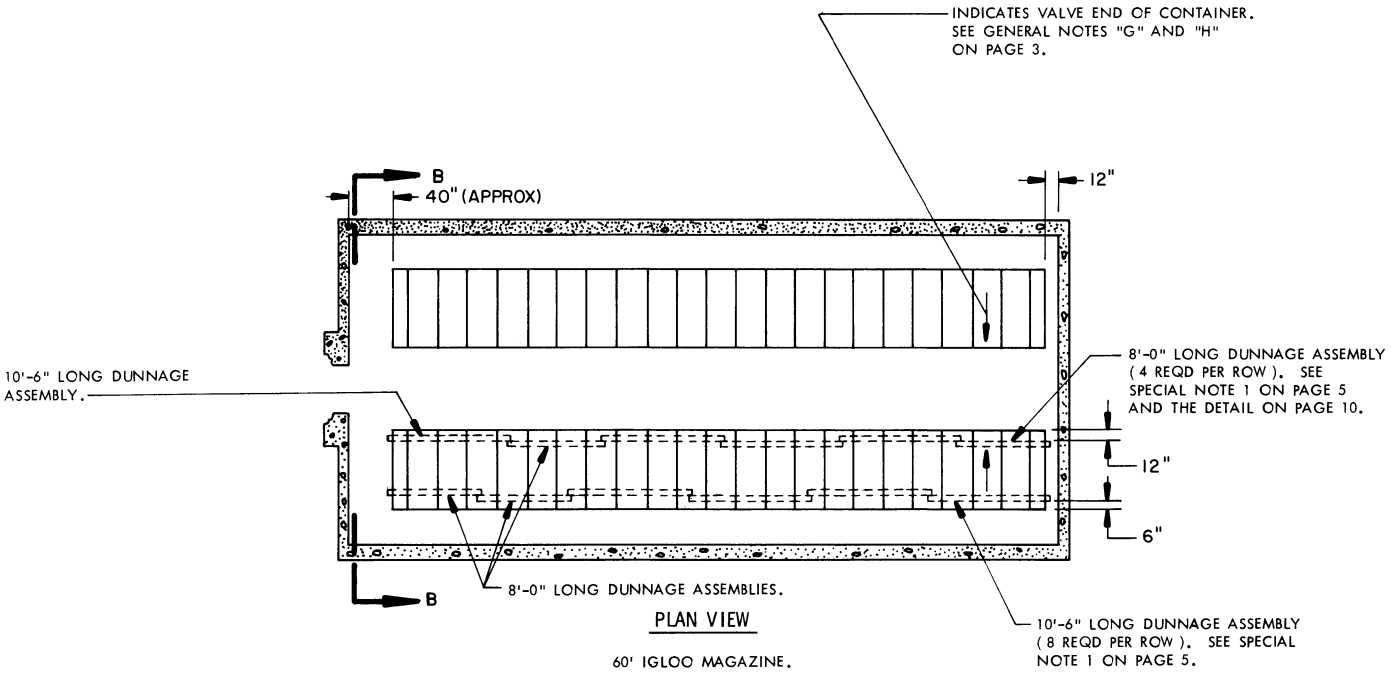
STRUCTURAL STEEL ------ : ROLLED SHAPES, PLATE AND BAR; FED SPEC QQ-S-741D.

BOLTS ---------- : SAE GRADE 1 CARBON STEEL.

REVISIONS

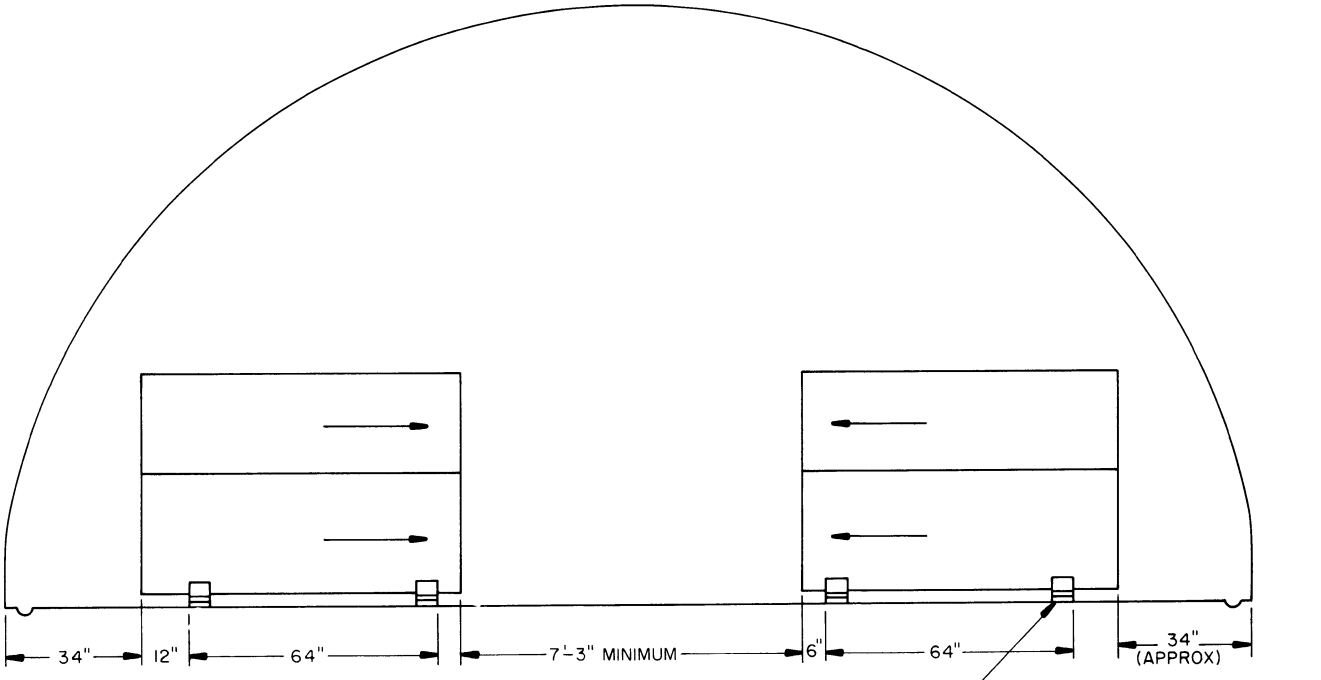
REVISION NO. 1 DATED OCTOBER 1979, CONSISTS OF:

1. UPDATING MATERIAL SPECIFICATIONS.
2. ADDING SPECIAL NOTE 3 ON PAGE 7.
3. REMOVING CERTAIN DIMENSIONS FROM DUNNAGE ASSEMBLIES ON PAGE 10.



PLAN VIEW

60' IGLOO MAGAZINE.

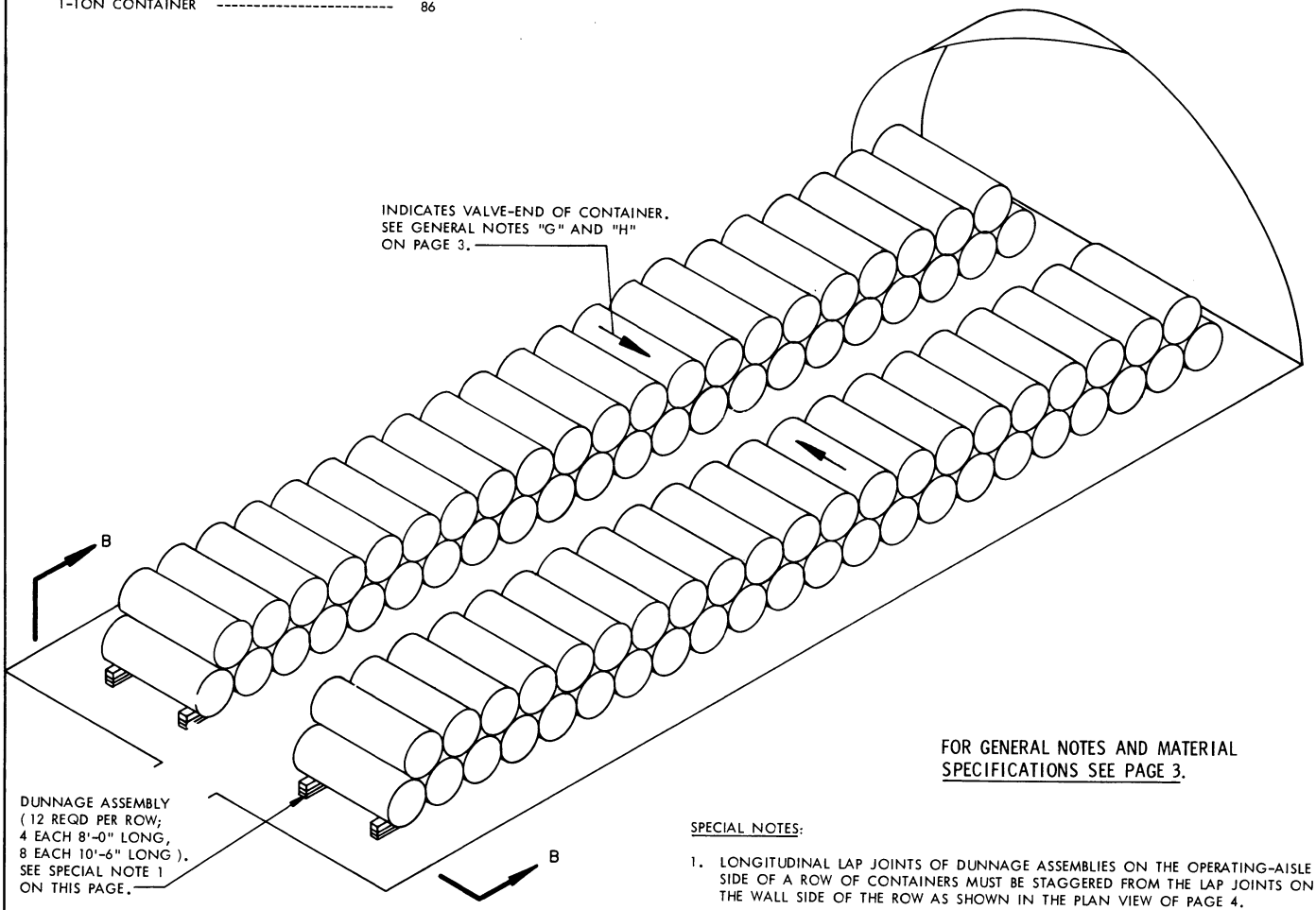


SECTION B-B

STORAGE AS SHOWN

60' IGLOO

ITEM	QUANTITY
1-TON CONTAINER	86



ISOMETRIC VIEW

60' IGLOO MAGAZINE

FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS SEE PAGE 3.

SPECIAL NOTES:

1. LONGITUDINAL LAP JOINTS OF DUNNAGE ASSEMBLIES ON THE OPERATING-AISLE SIDE OF A ROW OF CONTAINERS MUST BE STAGGERED FROM THE LAP JOINTS ON THE WALL SIDE OF THE ROW AS SHOWN IN THE PLAN VIEW OF PAGE 4.

2. THE "METHOD B" PROCEDURES AS SHOWN ARE AN ALTERNATIVE METHOD FOR STORAGE OF 1-TON CONTAINERS IN A 60' IGLOO. FOR MAXIMUM SPACE UTILIZATION, "METHOD A", AS DEPICTED ON PAGES 2 AND 3, SHOULD BE USED. SEE SPECIAL NOTE 1A ON PAGE 2.

3. THE "METHOD B" PROCEDURES SHOWN MAY ALSO BE USED WHEN STORING 1-TON CONTAINERS IN OTHER MAGAZINES.

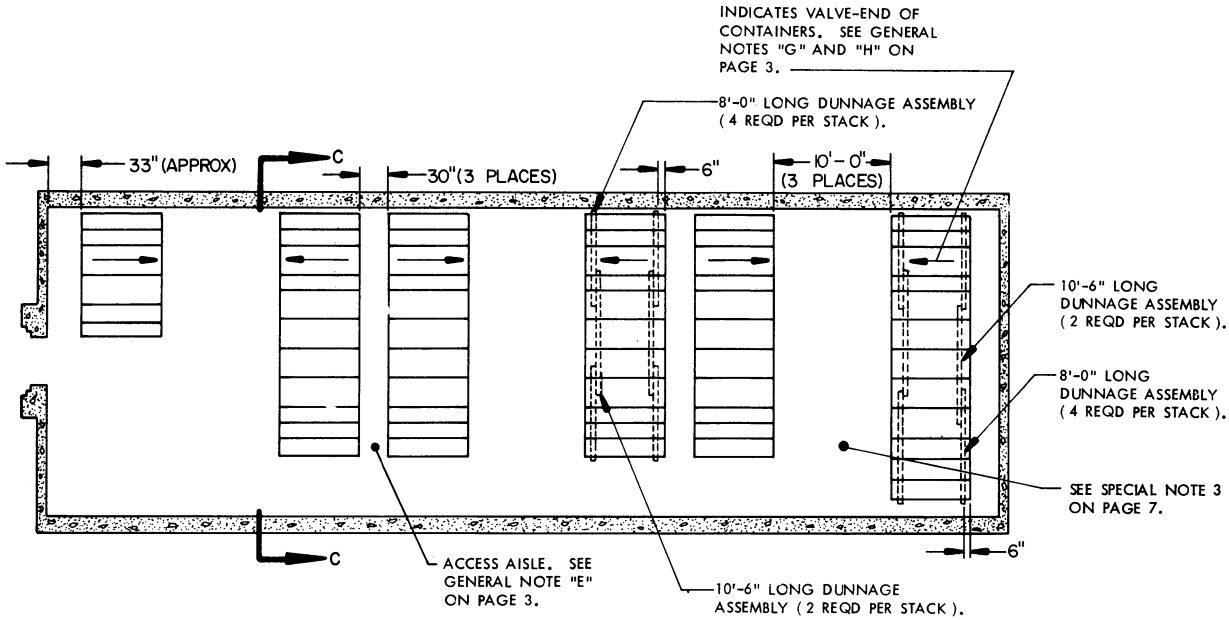
   A. IN A 40-FOOT IGLOO MAGAZINE, A TOTAL OF 2 ROWS (54 CONTAINERS) MAY BE STORED.

   B. IN AN 80-FOOT IGLOO MAGAZINE, A TOTAL OF 2 ROWS (118 CONTAINERS) MAY BE STORED.

   C. IN AN 80-FOOT STRADLEY MAGAZINE, ONLY 1 ROW OF CONTAINERS MAY BE STORED TO PERMIT THE REQUIRED 30" MINIMUM ACCESS AISLE BETWEEN THE SIDE WALL OF THE MAGAZINE AND THE CONTAINERS. HOWEVER, THE SINGLE ROW MAY BE STACKED 4 FULL LAYERS HIGH AND THEREBY PROVIDE FOR STORAGE OF A TOTAL OF 114 CONTAINERS.

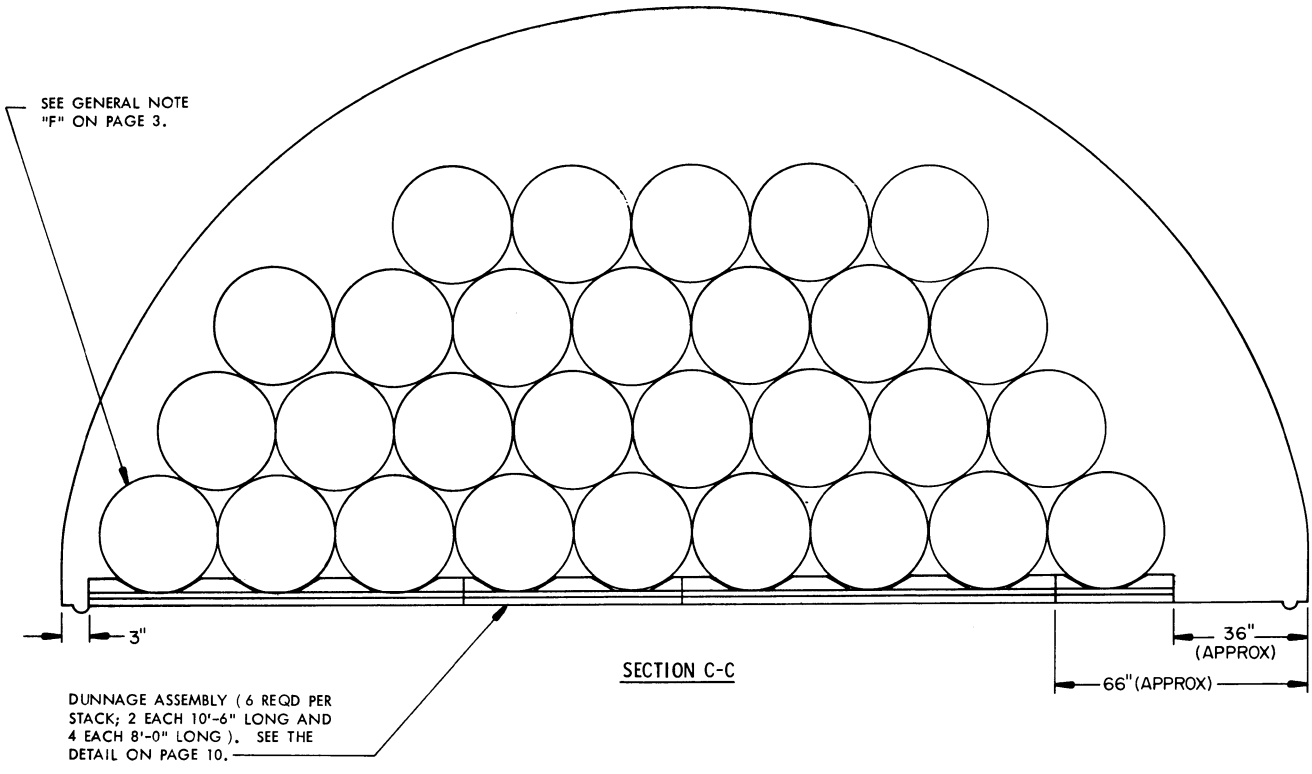
4. OTHER STORAGE METHODS DEPICTED IN THIS DRAWING MAY BE USED IN 60' IGLOO MAGAZINES; HOWEVER, "METHOD A" PROVIDES FOR MAXIMUM SPACE UTILIZATION.

BILL OF MATERIAL PER ROW		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6" 4" X 6"	232 66	232 132
NAILS	NO. REQD	POUNDS
8d (2-1/2")	120	1-1/2
STEEL, FLAT - 1/4" X 5-1/2" X 6" ---------- 48 REQD STEEL, FLAT - 1/4" X 5-1/2" X 10" ---------- 64 REQD BOLT, MACHINE - 1" DIA. X 7" ---------- 112 REQD NUT, HEX - 1" DIA. ---------- 112 REQD		



PLAN VIEW

80' IGLOO MAGAZINE

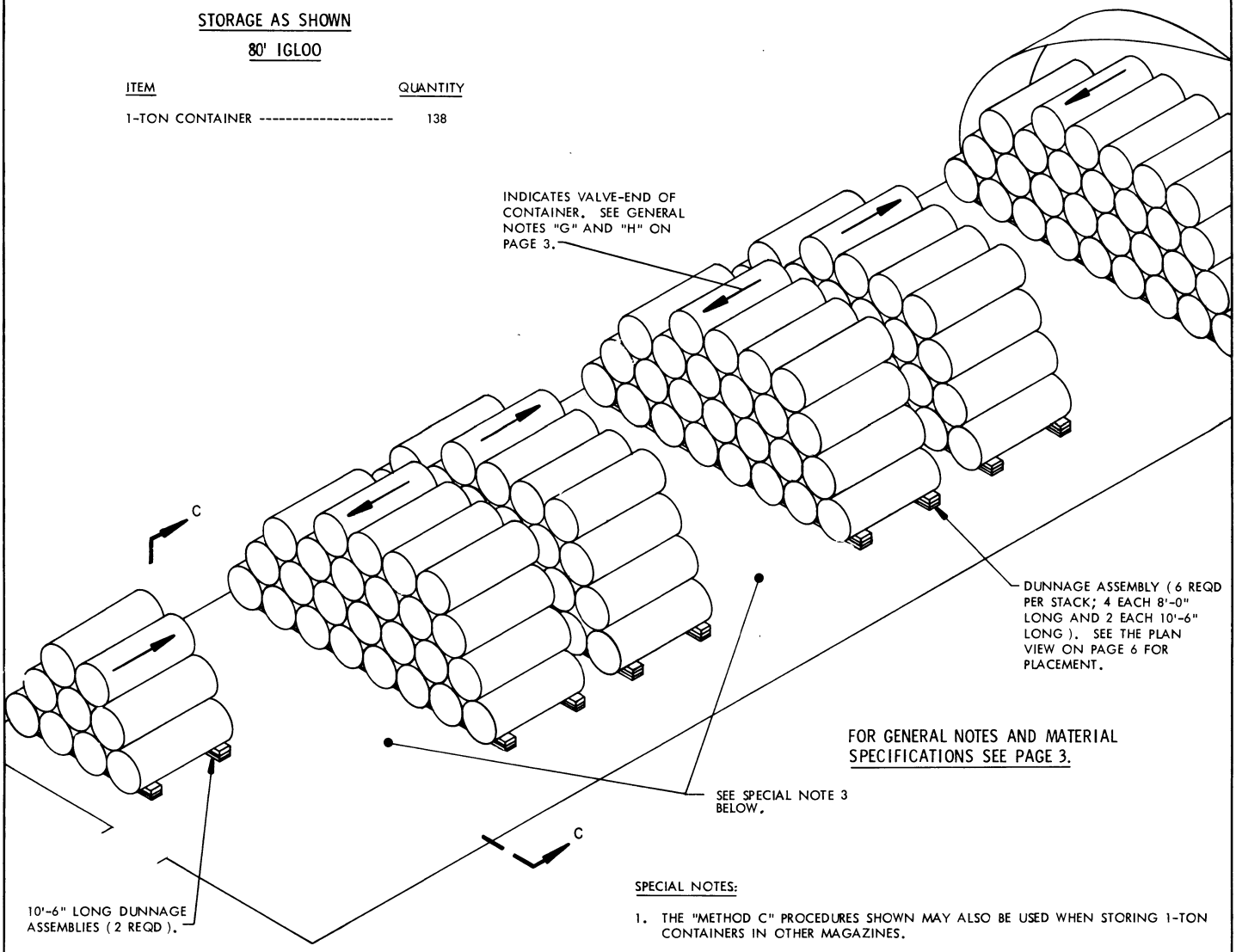


SECTION C-C

STORAGE AS SHOWN

80' IGLOO

ITEM	QUANTITY
1-TON CONTAINER	138



ISOMETRIC VIEW

80' IGLOO MAGAZINE

SPECIAL NOTES:

1. THE "METHOD C" PROCEDURES SHOWN MAY ALSO BE USED WHEN STORING 1-TON CONTAINERS IN OTHER MAGAZINES.

   A. IN A 40-FOOT IGLOO MAGAZINE, A TOTAL OF 44 CONTAINERS MAY BE STORED BY PLACING A 29-CONTAINER STACK AT THE REAR OF THE MAGAZINE, AND ONE EACH 9-CONTAINER AND 6-CONTAINER STACK AT THE FRONT WALL.

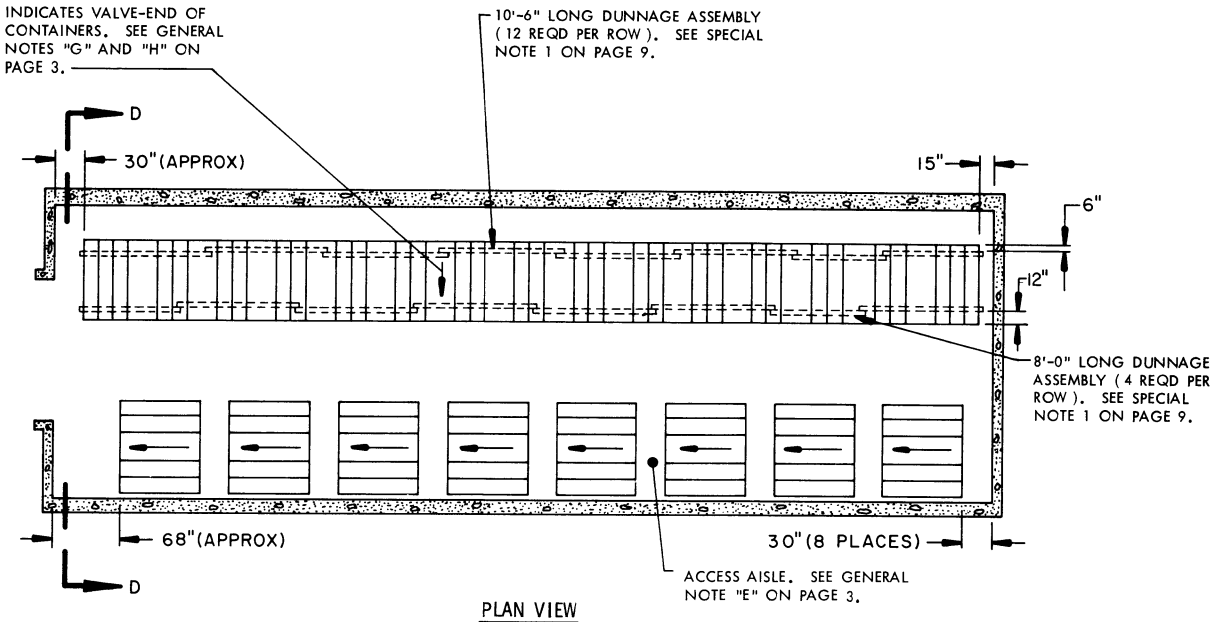
   B. IN A 60-FOOT IGLOO MAGAZINE, A TOTAL OF 88 CONTAINERS MAY BE STORED BY CMITTING TWO 25-CONTAINER STACKS FROM THE DEPICTED PROCEDURES.

   C. IN AN 80-FOOT STRADLEY MAGAZINE, THE DEPICTED PROCEDURES ARE APPLICABLE,EXCEPT THAT AN ADDITIONAL CONTAINER CAN BE ADDED IN THE FOURTH LAYER OF EACH OF THE 6 STACKS THEREBY PROVIDING FOR STORAGE OF 144 CONTAINERS.

2. OTHER METHODS DEPICTED IN THIS DRAWING MAY BE USED IN 80' IGLOO MAGAZINES; HOWEVER, "METHOD C" PROVIDES FOR MAXIMUM SPACE UTILIZATION.

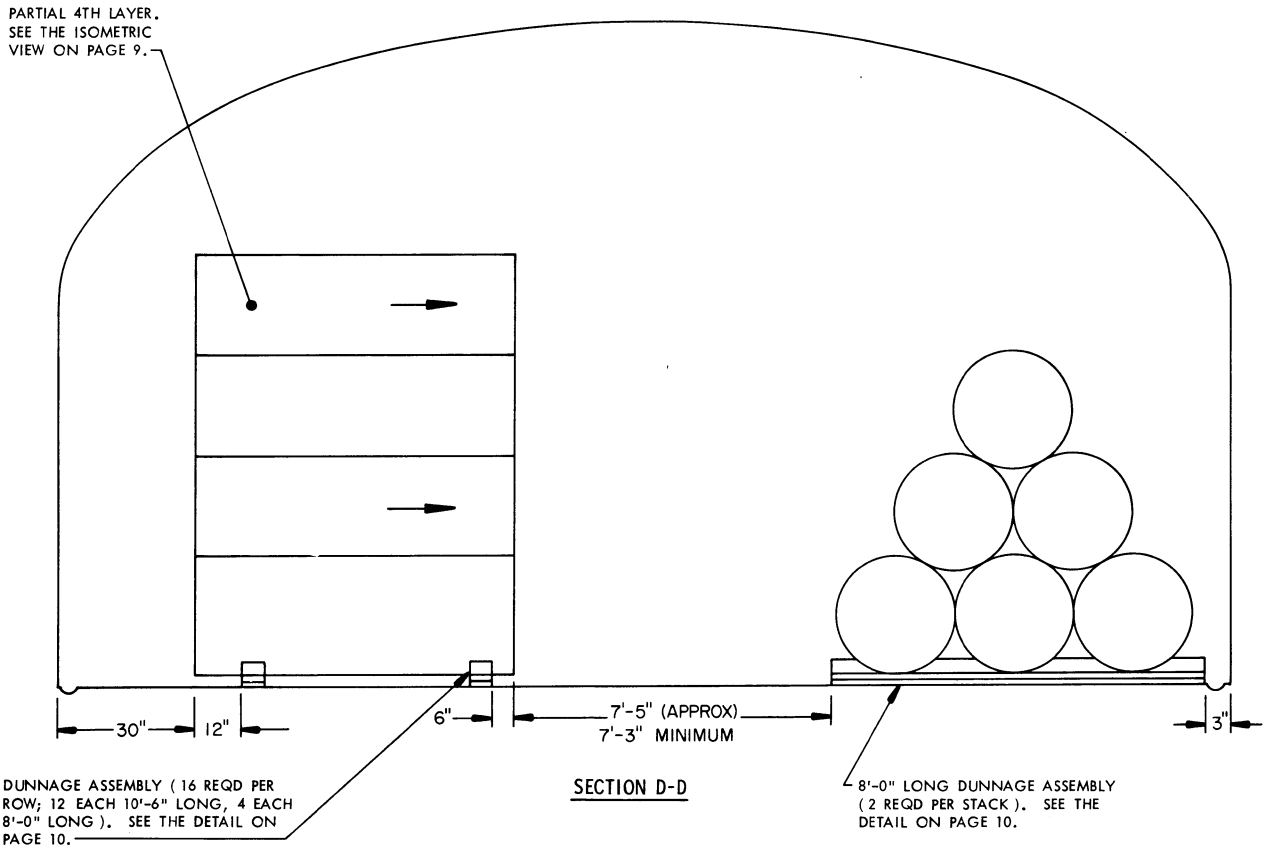
3. THE TWO REARMOST 10'-0" WIDE MHE OPERATING AISLES, AS SHOWN ON PAGE 6, MAY BE INCREASED TO 12'-0" WIDE IF AVAILABLE FORKLIFT TRUCK BEING USED CANNOT SAFELY OPERATE WHEN REMOVING AN INDIVIDUAL CONTAINER FROM A STORAGE STACK. THE AISLE BETWEEN THE TWO STACKS AT THE FRONT OF THE IGLOO WILL BE REDUCED TO 6'-0". REMOVAL OF A LEAKING CONTAINER FROM ONE OF THE FRONT STACKS MAY NECESSITATE MOVING AND RELOCATING UP TO 18 CONTAINERS.

BILL OF MATERIAL PER STACK		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6" 4" X 6"	106 30	106 60
NAILS	NO. REQD	POUNDS
8d (2-1/2")	54	3/4
STEEL, FLAT - 1/4" X 5-1/2" X 6" ---------- 24 REQD STEEL, FLAT - 1/4" X 5-1/2" X 10" ---------- 28 REQD BOLT, MACHINE - 1" DIA. X 7" ---------- 52 REQD NUT, HEX - 1" DIA. ---------- 52 REQD		



PLAN VIEW

80' STRADLEY MAGAZINE



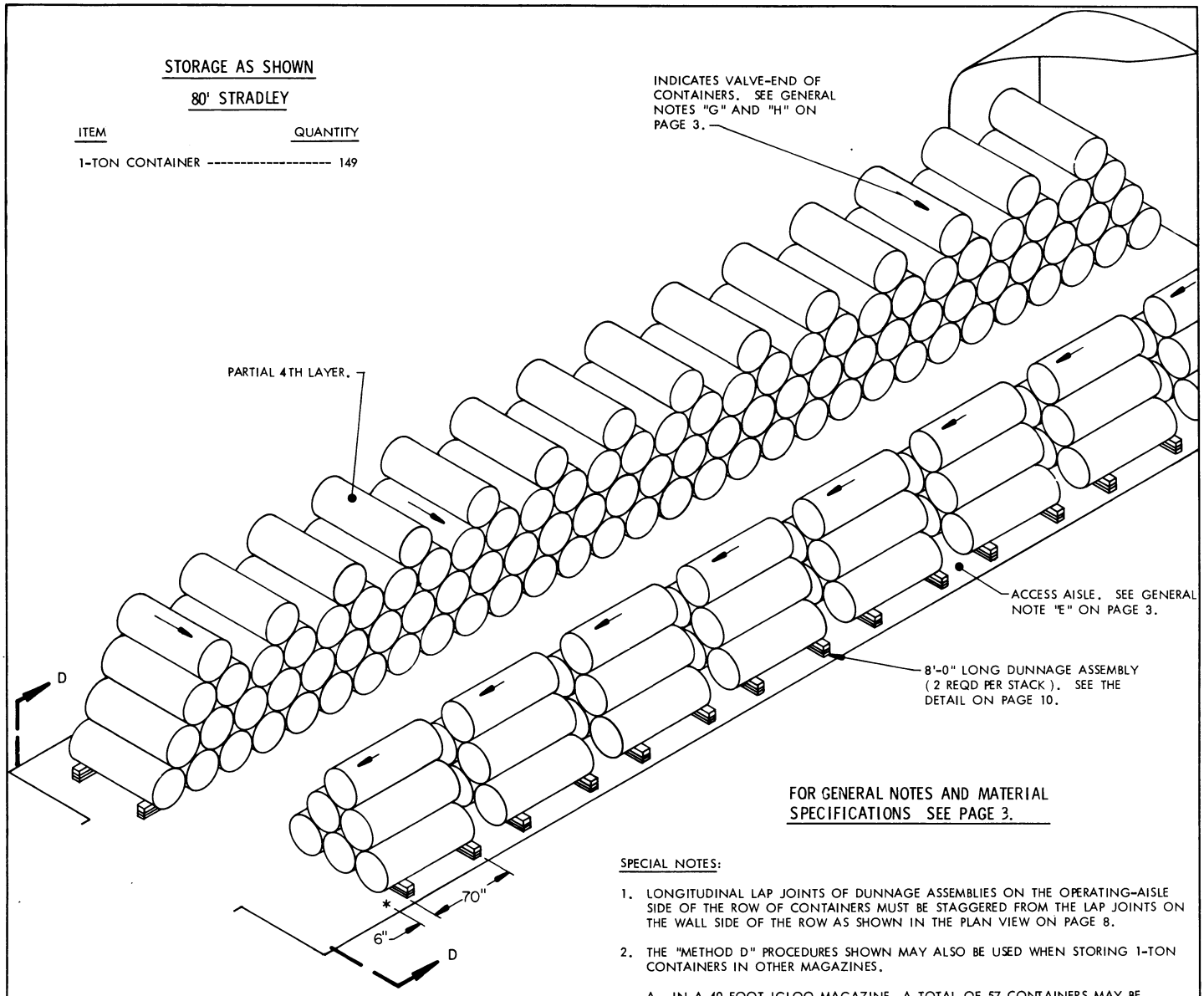
SECTION D-D

MAGAZINE STORAGE PROCEDURES - METHOD D

STORAGE AS SHOWN

80' STRADLEY

ITEM	QUANTITY
1-TON CONTAINER	149



ISOMETRIC VIEW

80' STRADLEY MAGAZINE

FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS SEE PAGE 3.

SPECIAL NOTES:

1. LONGITUDINAL LAP JOINTS OF DUNNAGE ASSEMBLIES ON THE OPERATING-AISLE SIDE OF THE ROW OF CONTAINERS MUST BE STAGGERED FROM THE LAP JOINTS ON THE WALL SIDE OF THE ROW AS SHOWN IN THE PLAN VIEW ON PAGE 8.

2. THE "METHOD D" PROCEDURES SHOWN MAY ALSO BE USED WHEN STORING 1-TON CONTAINERS IN OTHER MAGAZINES.

   A. IN A 40-FOOT IGLOO MAGAZINE, A TOTAL OF 57 CONTAINERS MAY BE STORED; 4 STACKS OF 6 CONTAINERS EACH AND ONE ROW OF 33 CONTAINERS. THE ROW OF CONTAINERS MUST BE POSITIONED 42" FROM THE SIDE WALL OF THE IGLOO AND WILL CONSIST OF TWO FULL LAYERS AND A THIRD PARTIAL LAYER PLACED SIMILARLY TO THAT DEPICTED IN THE ISOMETRIC VIEW ABOVE FOR THE PARTIAL 4TH LAYER.

   B. IN A 60-FOOT IGLOO MAGAZINE, A TOTAL OF 89 CONTAINERS MAY BE STORED; 6 STACKS OF 6 CONTAINERS EACH AND ONE ROW OF 53 CONTAINERS. THE ROW OF CONTAINERS MUST BE POSITIONED 42" FROM THE SIDE WALL OF THE IGLOO AND WILL CONSIST OF TWO FULL LAYERS AND A THIRD PARTIAL LAYER PLACED SIMILARLY TO THAT DEPICTED IN THE ISOMETRIC VIEW ABOVE FOR THE PARTIAL 4TH LAYER.

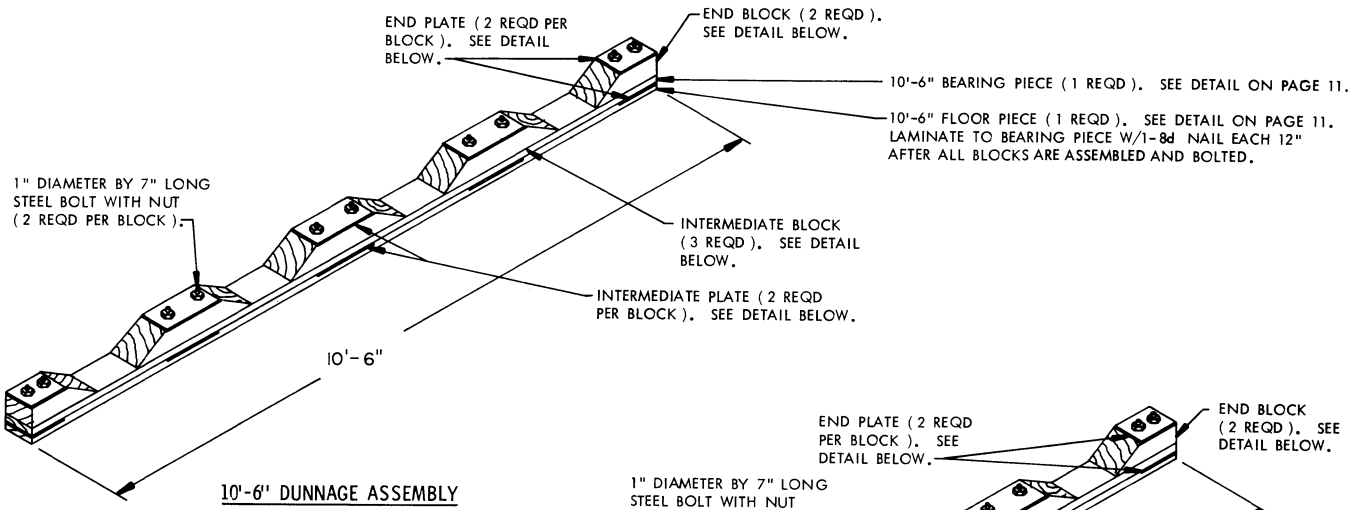
   C. IN AN 80-FOOT IGLOO MAGAZINE, A TOTAL OF 121 CONTAINERS MAY BE STORED; 8 STACKS OF 6 CONTAINERS EACH AND ONE ROW OF 73 CONTAINERS. THE ROW OF CONTAINERS MUST BE POSITIONED 42" FROM THE SIDE WALL OF THE IGLOO AND WILL CONSIST OF TWO FULL LAYERS AND A THIRD PARTIAL LAYER PLACED SIMILARLY TO THAT DEPICTED IN THE ISOMETRIC VIEW ABOVE FOR THE PARTIAL 4TH LAYER.

3. OTHER STORAGE METHODS DEPICTED IN THIS DRAWING MAY BE USED IN 80' STRADLEY MAGAZINES; HOWEVER, "METHOD D" PROVIDES FOR MAXIMUM SPACE UTILIZATION.

BILL OF MATERIAL PER ROW

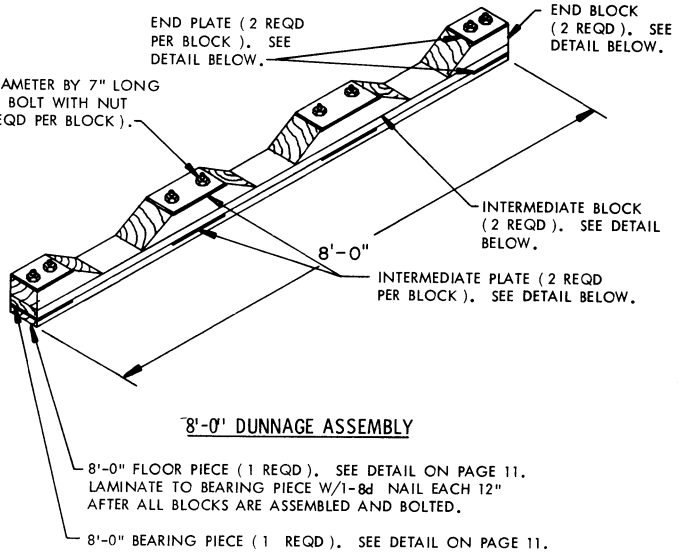
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	316	316
4" X 6"	90	180
NAILS	NO. REQD	POUNDS
8d (2-1/2")	164	1-3/4

STEEL, FLAT, 1/4" X 5-1/2" X 6"	64 REQD
STEEL, FLAT, 1/4" X 5-1/2" X 10"	88 REQD
BOLT, MACHINE - 1" DIA X 7"	152 REQD
NUT, HEX - 1" DIA	152 REQD

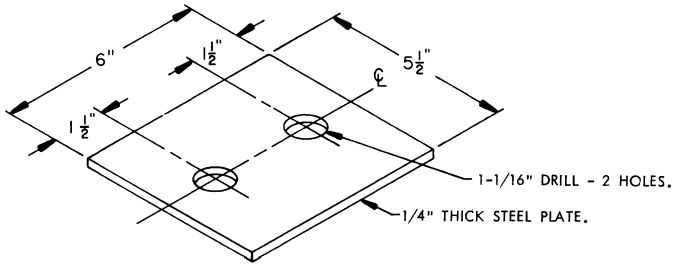


10'-6' DUNNAGE ASSEMBLY

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. SEE THE "ALTERNATIVE DUNNAGE ASSEMBLIES" ON PAGE 12 THAT MAY BE USED IN LIEU OF THE SPECIFIED WOODEN DUNNAGE ASSEMBLIES.

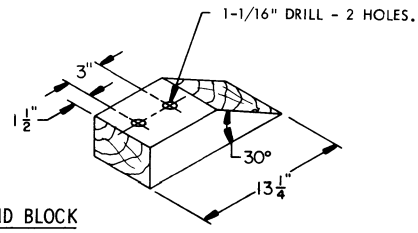


8'-0' DUNNAGE ASSEMBLY



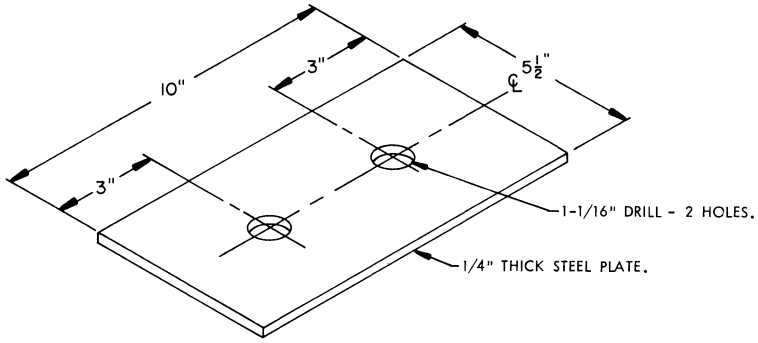
END PLATE

(2 REQD PER END BLOCK)



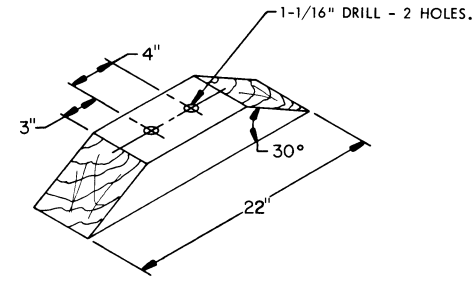
END BLOCK

4" X 6" MATERIAL.



INTERMEDIATE PLATE

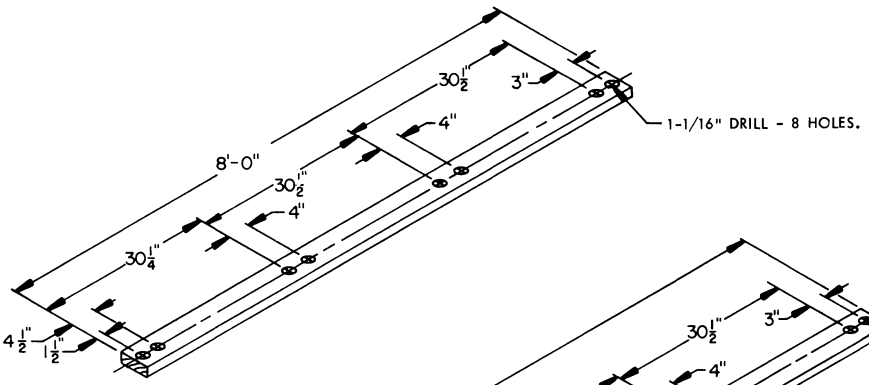
(2 REQD PER INTERMEDIATE BLOCK)



INTERMEDIATE BLOCK

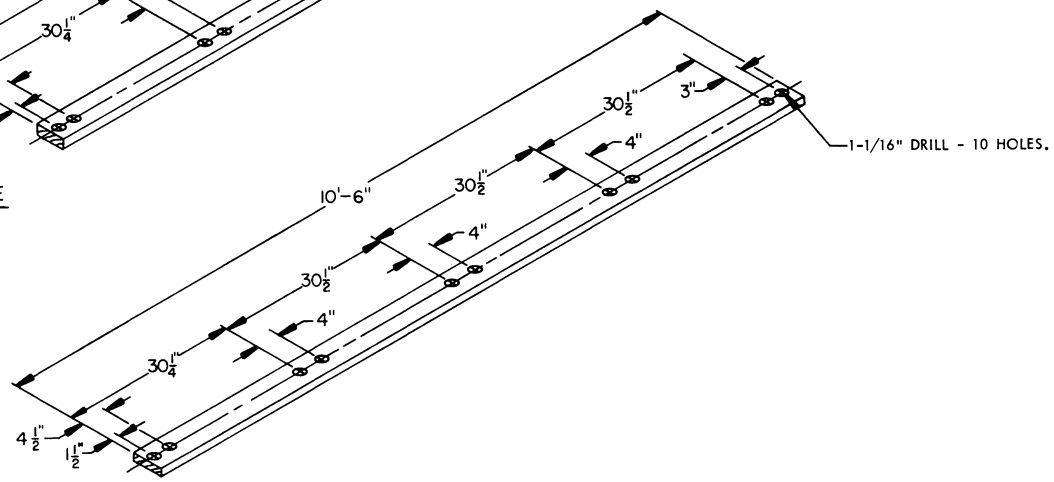
4" X 6" MATERIAL

DUNNAGE ASSEMBLIES



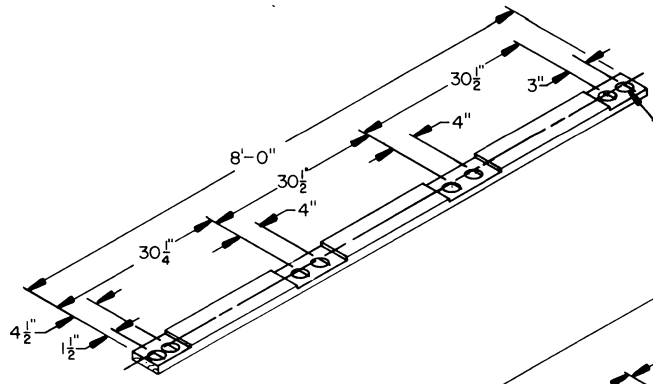
8'-0" BEARING PIECE

2" X 6" MATERIAL



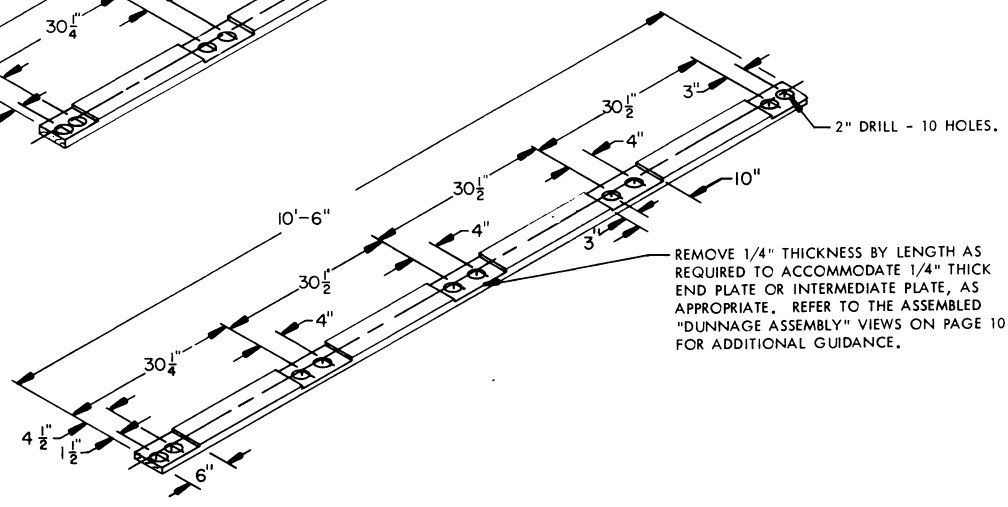
10'-6" BEARING PIECE

2" X 6" MATERIAL



8'-0" FLOOR PIECE

2" X 6" MATERIAL



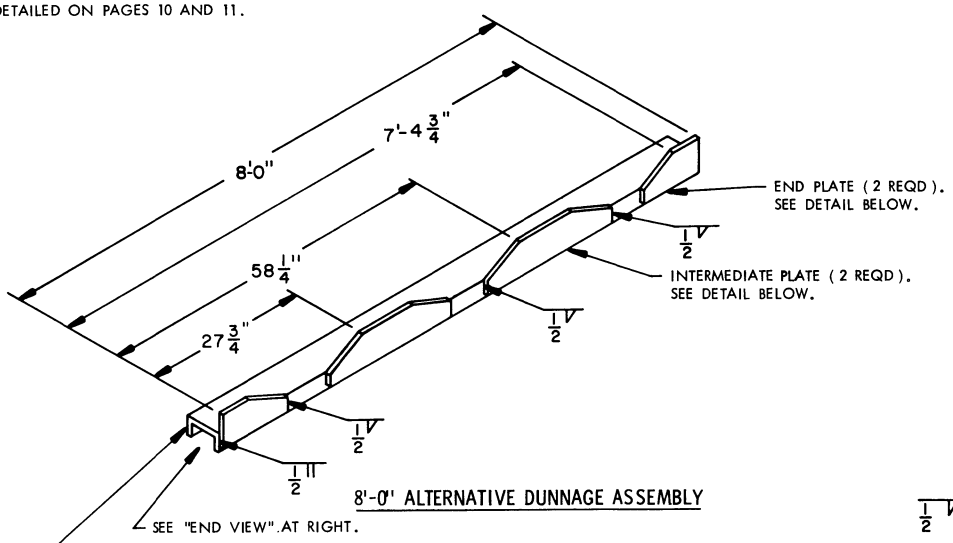
10'-6" FLOOR PIECE

2" X 6" MATERIAL

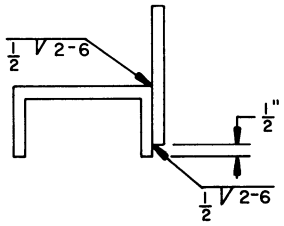
DUNNAGE ASSEMBLY

NOTE:

THE STEEL "ALTERNATIVE DUNNAGE ASSEMBLIES" SHOWN ON THIS PAGE MAY BE USED IN LIEU OF THE WOODEN "DUNNAGE ASSEMBLIES" DETAILED ON PAGES 10 AND 11.



8'-0' ALTERNATIVE DUNNAGE ASSEMBLY



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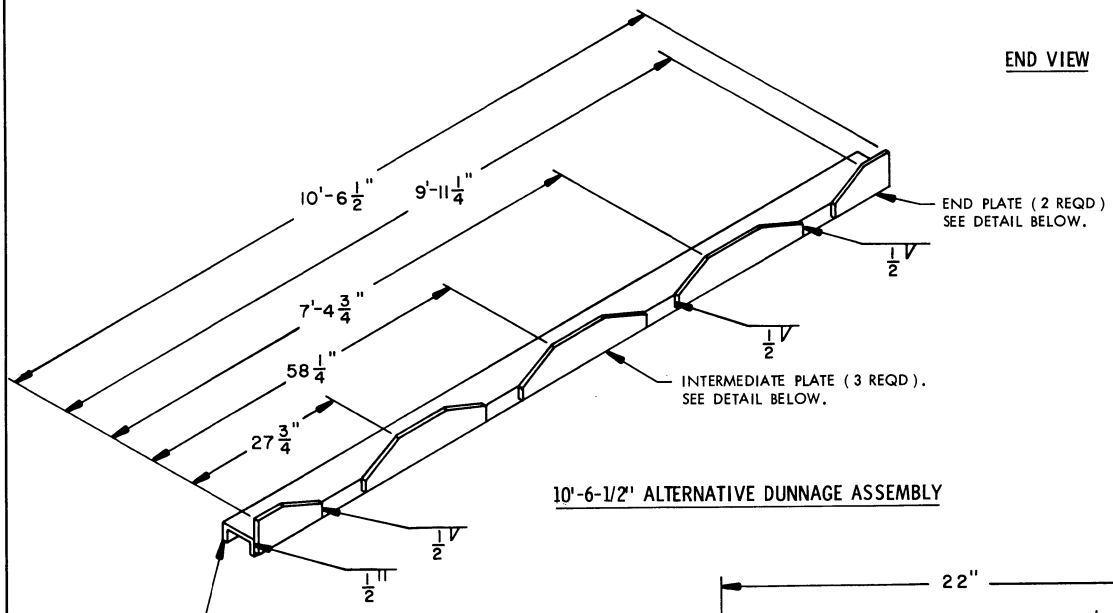
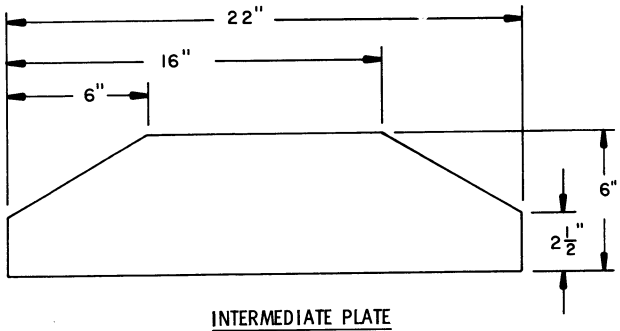
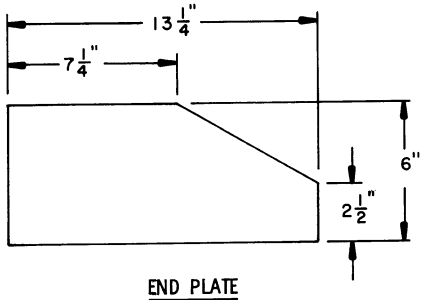


10'-6-1/2' ALTERNATIVE DUNNAGE ASSEMBLY



INTERMEDIATE PLATE

(1/2" THICK STEEL PLATE)



END PLATE

(1/2" THICK STEEL PLATE)