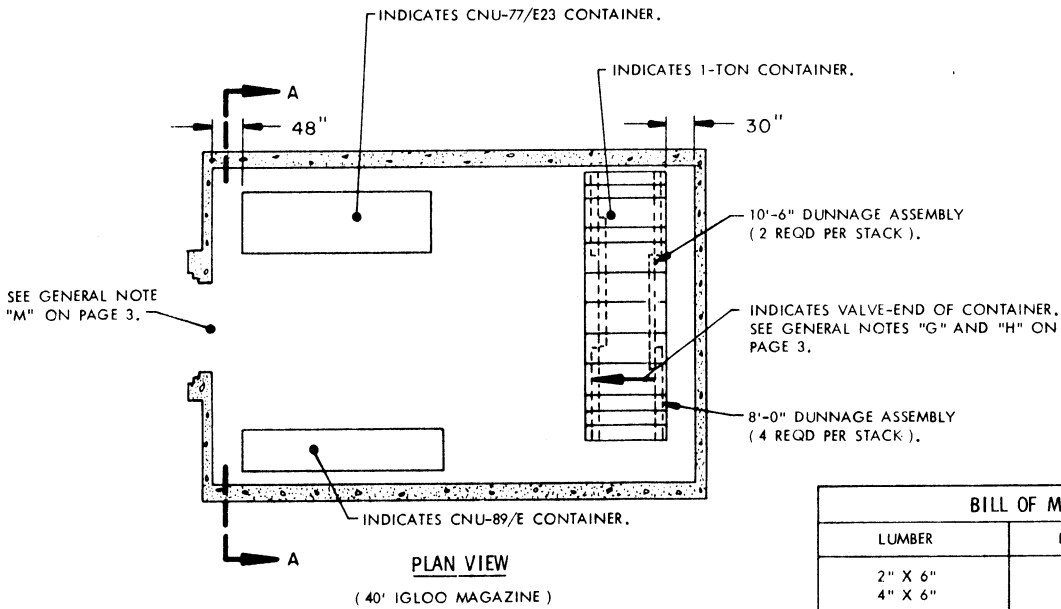


# STORAGE IN 40', 60' & 80' IGLOO AND 80' STRADLEY MAGAZINES OF THE 1-TON CONTAINER (FILLED), AND THE TMU-28/B SPRAY TANK PACKED IN THE CNU-77/E23 AND/OR CNU-89/E CONTAINER

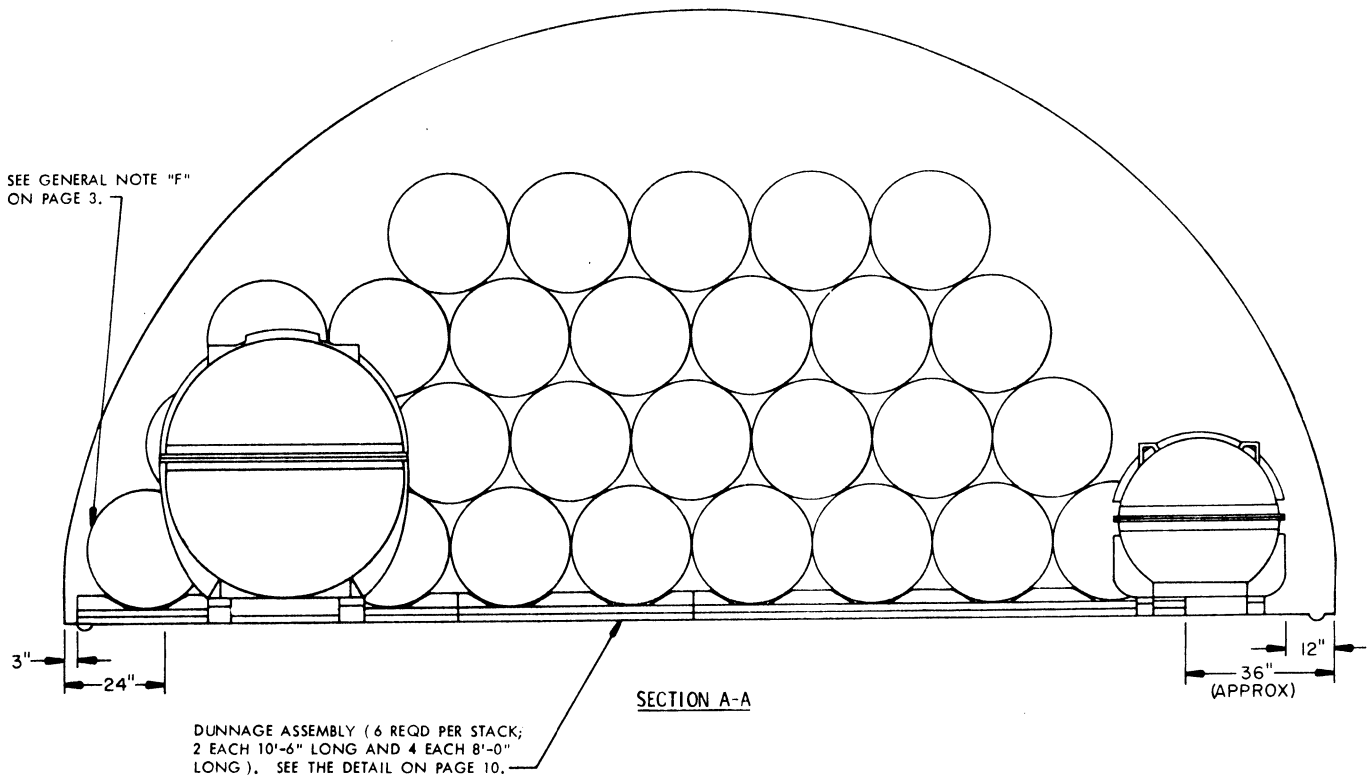
<u>ITEM</u>	<u>INDEX</u>	<u>PAGE (S)</u>
GENERAL NOTES, AND MATERIAL SPECIFICATIONS -----		3
TYPICAL STORAGE PROCEDURES FOR 40' IGLOO MAGAZINES -----		2,3
TYPICAL STORAGE PROCEDURES FOR 60' IGLOO MAGAZINES -----		4,5
TYPICAL STORAGE PROCEDURES FOR 80' IGLOO MAGAZINES -----		6,7
TYPICAL STORAGE PROCEDURES FOR 80' STRADLEY MAGAZINES -----		8,9
DETAILS -----		10-12

REVISIONS				DRAFTSMAN <i>AA</i>	PROJ. ENG. <i>JNW/AMW</i>
				CHECKER <i>RSH</i>	LOG ENGRG OFFICE <i>John Boyd</i>
	/			APPROVED	
	/			<i>H. H. Benton</i> U. S. ARMY ARMAMENT COMMAND APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND <i>At Ehangen</i> USAMC AMMO CENTER	
	/			U. S. ARMY MATERIEL COMMAND	
	/			SEPTEMBER 1975	
	/			CLASS	DIVISION
	/			DRAWING	FILE
	/			19	48
	/			4506	CB I-14M4

**DO NOT SCALE**



BILL OF MATERIAL PER STACK		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	106	106
4" X 6"	30	60
NAILS	NO. REQD	POUNDS
8d ( 2-1/2" )	52	1/2
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



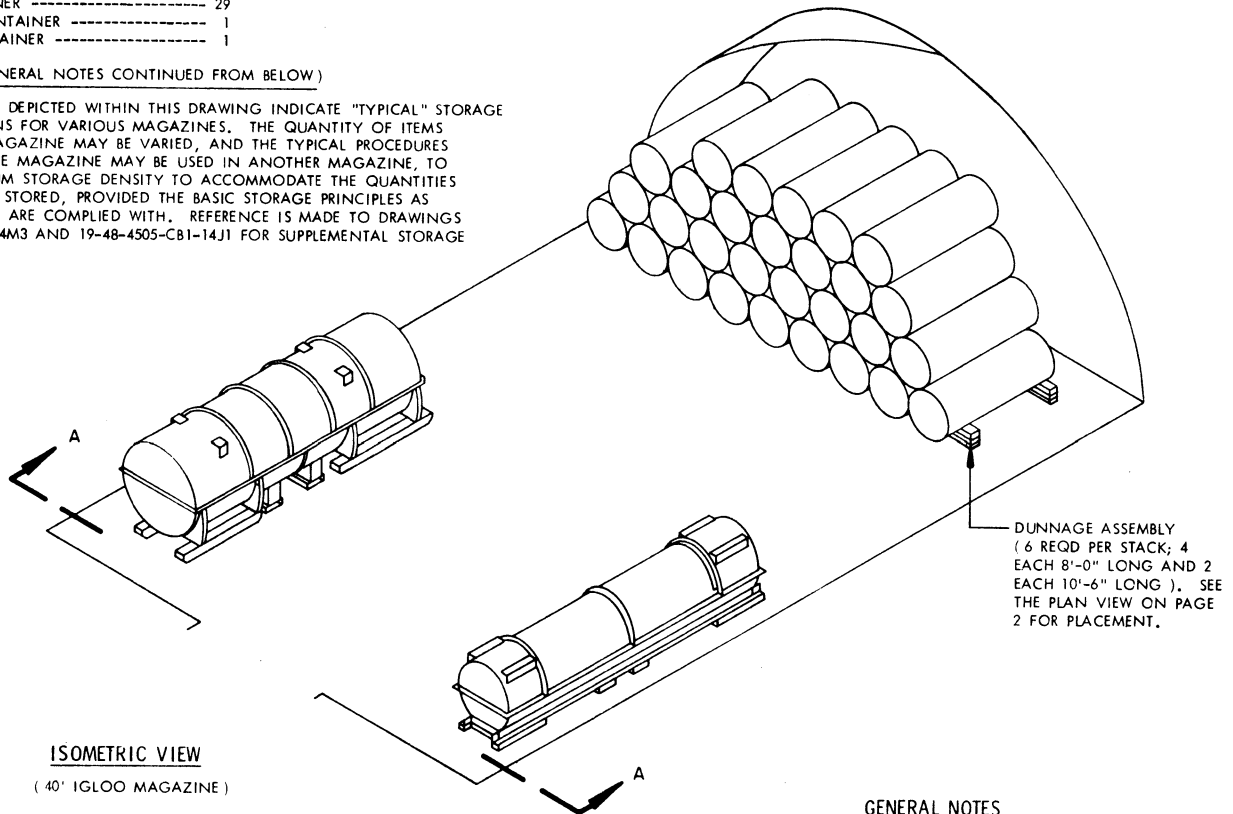
**STORAGE AS SHOWN**

**40' IGLOO**

ITEM	QUANTITY
1-TON CONTAINER -----	29
CNU-77/E23 CONTAINER -----	1
CNU-89/E CONTAINER -----	1

( GENERAL NOTES CONTINUED FROM BELOW )

N. THE PROCEDURES DEPICTED WITHIN THIS DRAWING INDICATE "TYPICAL" STORAGE CONFIGURATIONS FOR VARIOUS MAGAZINES. THE QUANTITY OF ITEMS STORED IN A MAGAZINE MAY BE VARIED, AND THE TYPICAL PROCEDURES SHOWN FOR ONE MAGAZINE MAY BE USED IN ANOTHER MAGAZINE, TO OBTAIN MAXIMUM STORAGE DENSITY TO ACCOMMODATE THE QUANTITIES OF ITEMS TO BE STORED, PROVIDED THE BASIC STORAGE PRINCIPLES AS DEPICTED HEREIN ARE COMPLIED WITH. REFERENCE IS MADE TO DRAWINGS 19-48-4504-CB1-14M3 AND 19-48-4505-CB1-14J1 FOR SUPPLEMENTAL STORAGE GUIDANCE.



**ISOMETRIC VIEW**

( 40' IGLOO MAGAZINE )

( GENERAL NOTES CONTINUED )

**GENERAL NOTES**

- G. THE VALVE END OF 1-TON CONTAINERS WILL BE ORIENTED IN THE SAME DIRECTION WITHIN A STACK. ALSO, EACH STACK WILL BE ORIENTED SO THAT THE VALVE END OF 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 1-TON 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 1-TON CONTAINERS. IF DESIRED, STEEL DUNNAGE MAY BE USED IN LIEU OF THE WOODEN DUNNAGE. SEE THE "ALTERNATIVE DUNNAGE ASSEMBLY" DETAILS ON PAGE 12.
- 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.
- M. STORAGE OF THE CNU-77/E23 CONTAINER REQUIRES UTILIZATION OF A MAGAZINE WHICH HAS DOUBLE DOORS, OR HAS DOORS WHICH ARE OTHERWISE ADEQUATELY WIDE TO PERMIT PASSAGE OF THE 62" WIDE CONTAINER.

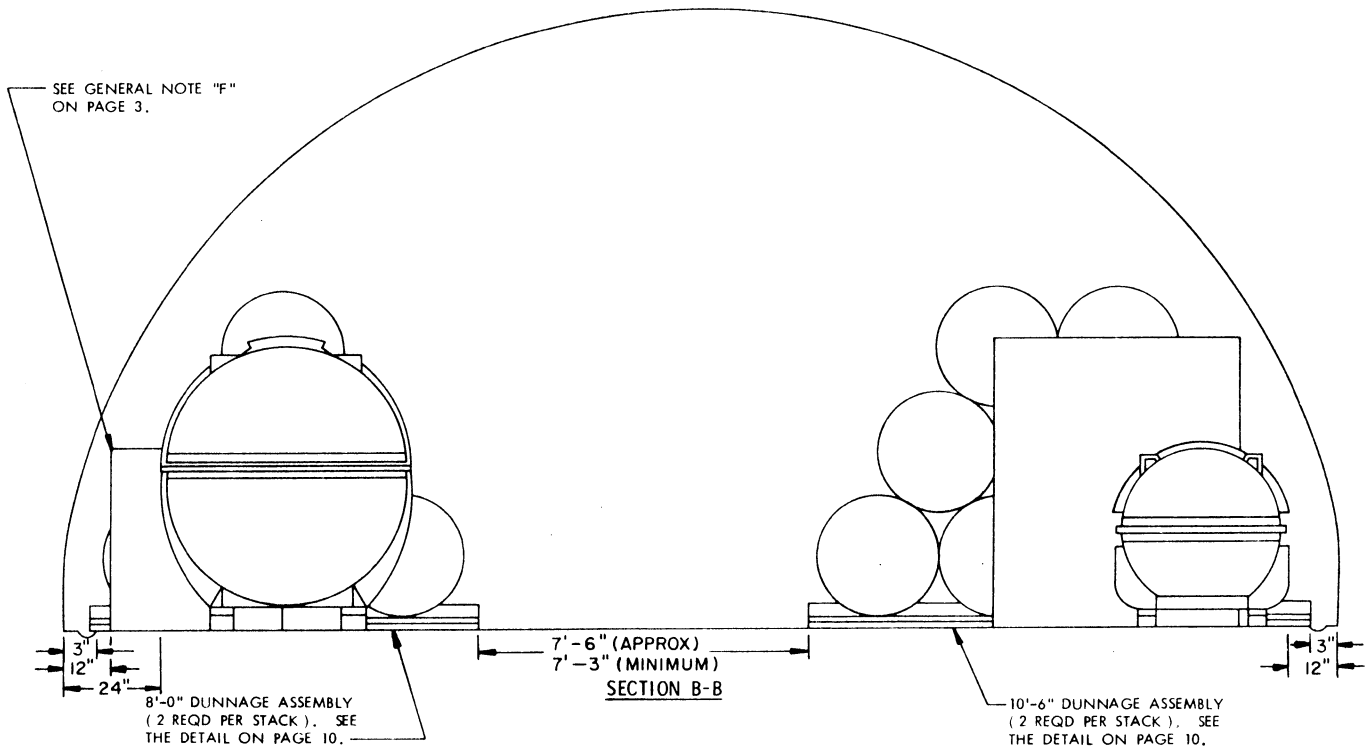
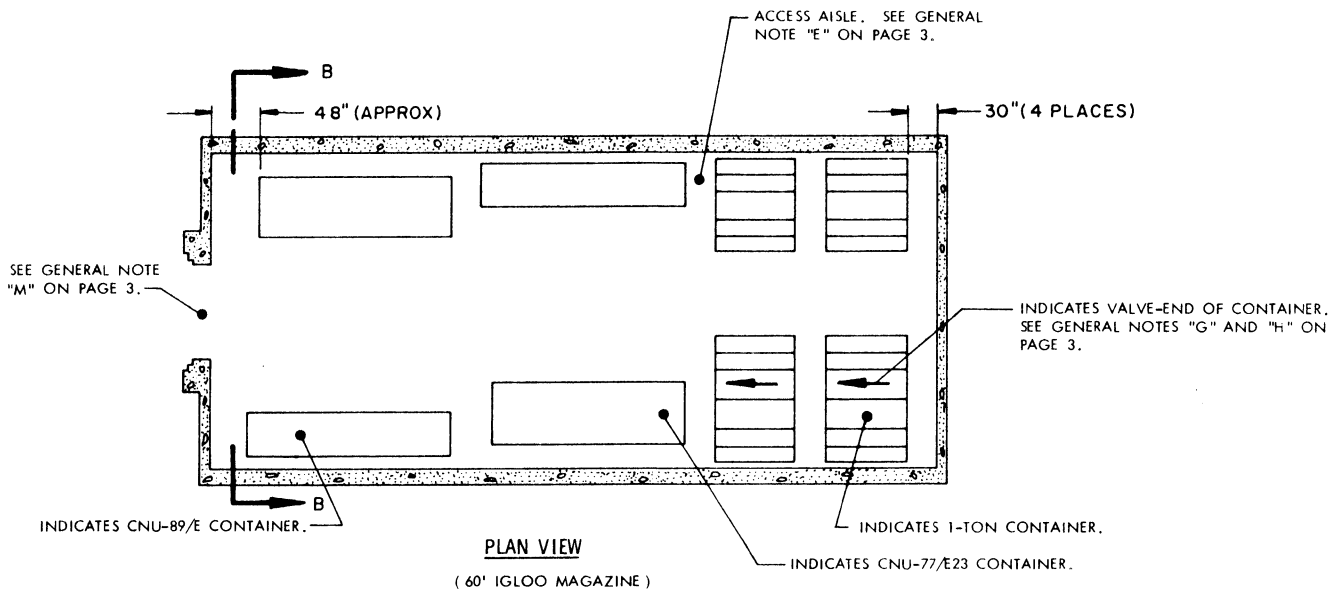
( CONTINUED ABOVE )

**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.
- STRUCTURAL STEEL** - : ROLLED SHAPES, PLATE, AND BAR, FED SPEC QQ-S-741D.
- BOLTS** ----- : SAE GRADE 1 CARBON STEEL.

- 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:
  - 1. CNU-77/E23 CONTAINER:
    - DIMENSIONS ---- 193" LONG X 62" WIDE X 73" HIGH.
    - WEIGHT ----- 6,100 POUNDS ( APPROX ).
  - 2. CNU-89/E CONTAINER:
    - DIMENSIONS ---- 204" LONG X 43-3/8" WIDE X 45-1/2" HIGH.
    - WEIGHT ----- 6,000 POUNDS ( APPROX ).
  - 3. 1-TON 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, THE 1-TON CONTAINERS MUST BE STACKED AS SHOWN IN THE PROCEDURES ON PAGES 4 AND 5, 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.

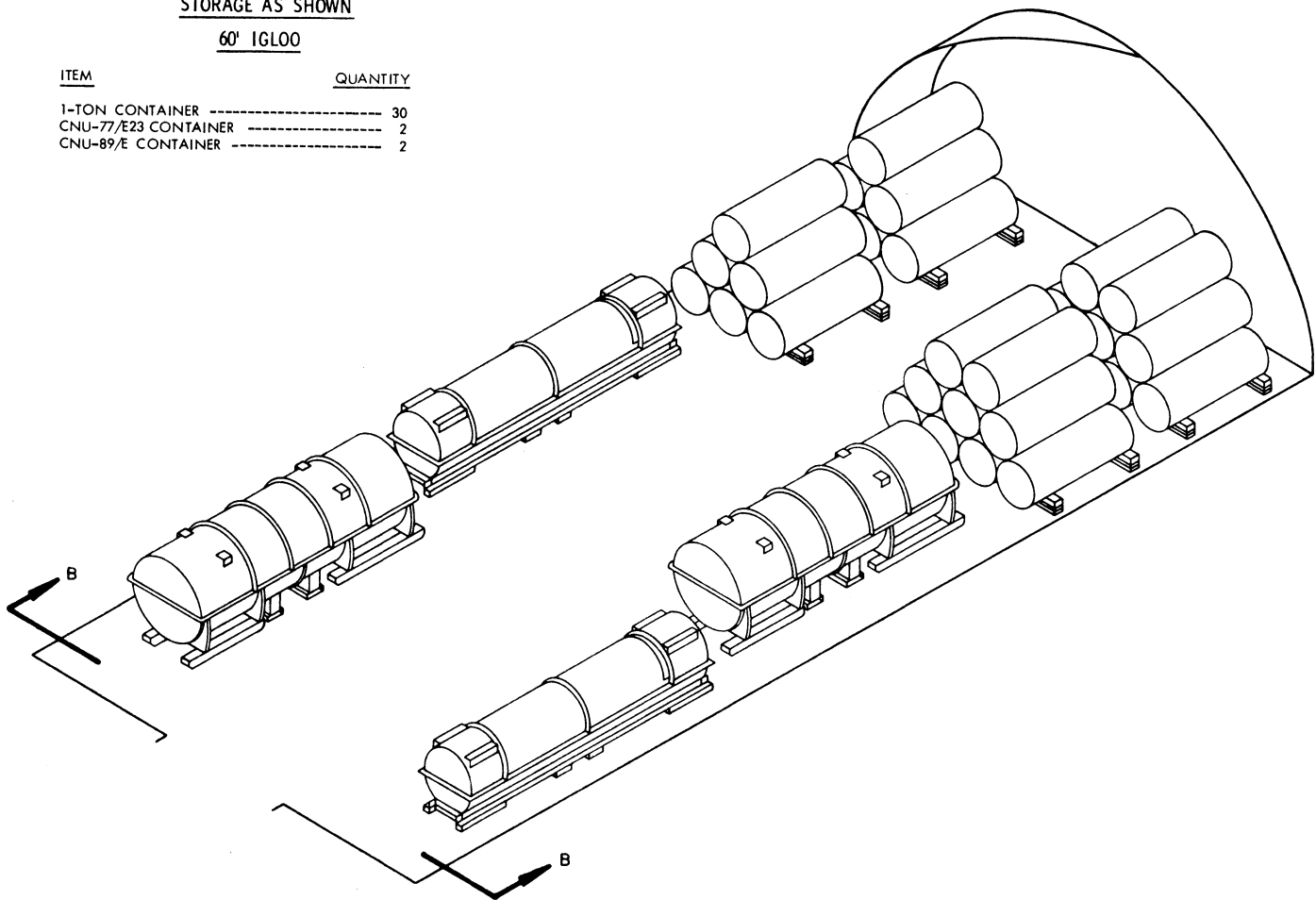
( CONTINUED AT LEFT )



STORAGE AS SHOWN

60' IGLOO

<u>ITEM</u>	<u>QUANTITY</u>
1-TON CONTAINER -----	30
CNU-77/E23 CONTAINER -----	2
CNU-89/E CONTAINER -----	2



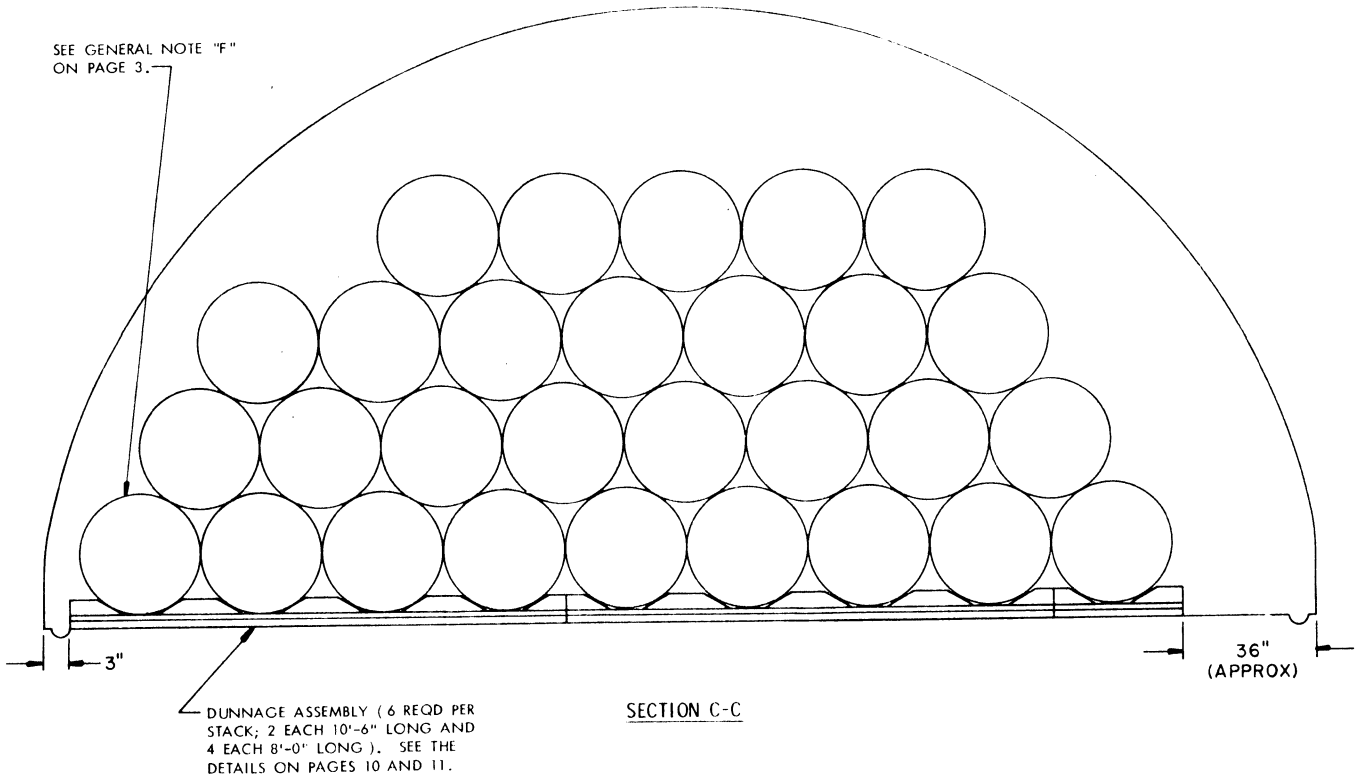
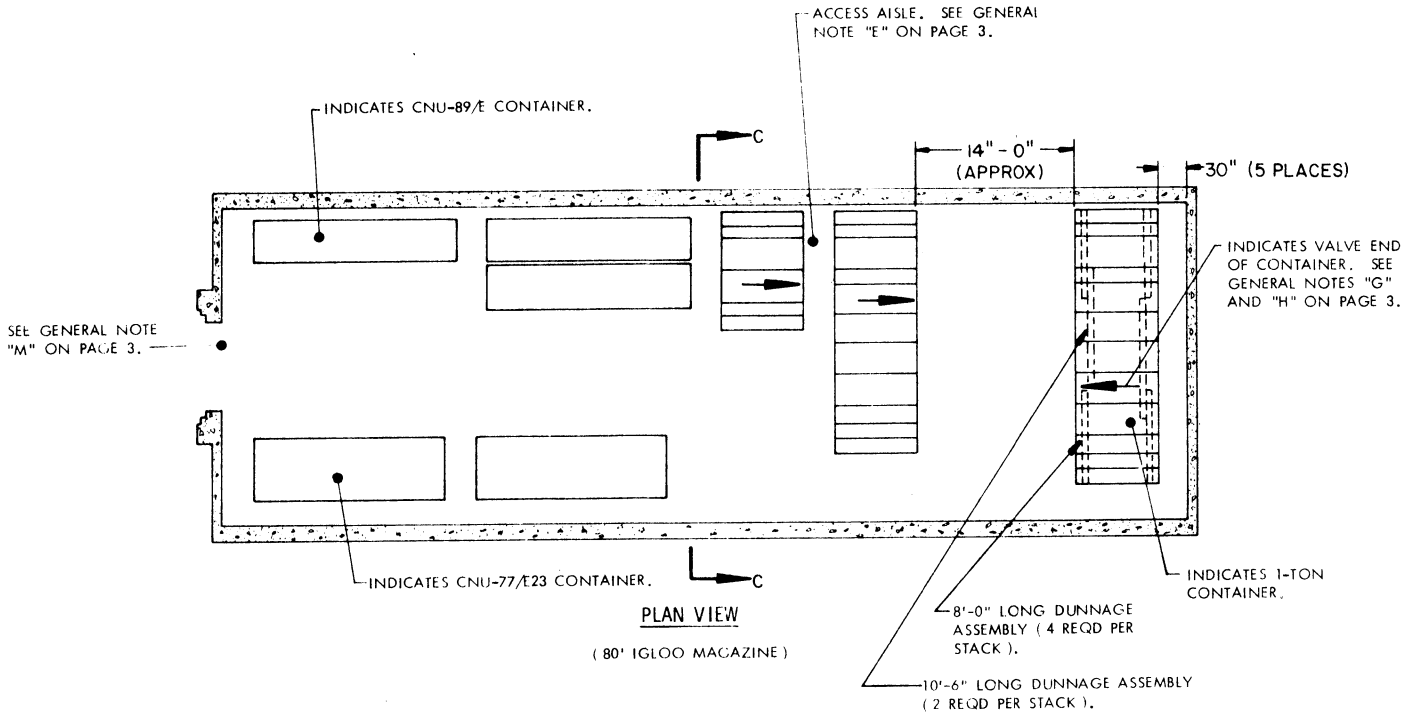
ISOMETRIC VIEW

( 60' IGLOO MAGAZINE )

FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS, SEE PAGE 3.

BILL OF MATERIAL PER STACK

LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	74	74
4" X 6"	21	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



TYPICAL STORAGE PROCEDURES FOR 80' IGLOO MAGAZINES

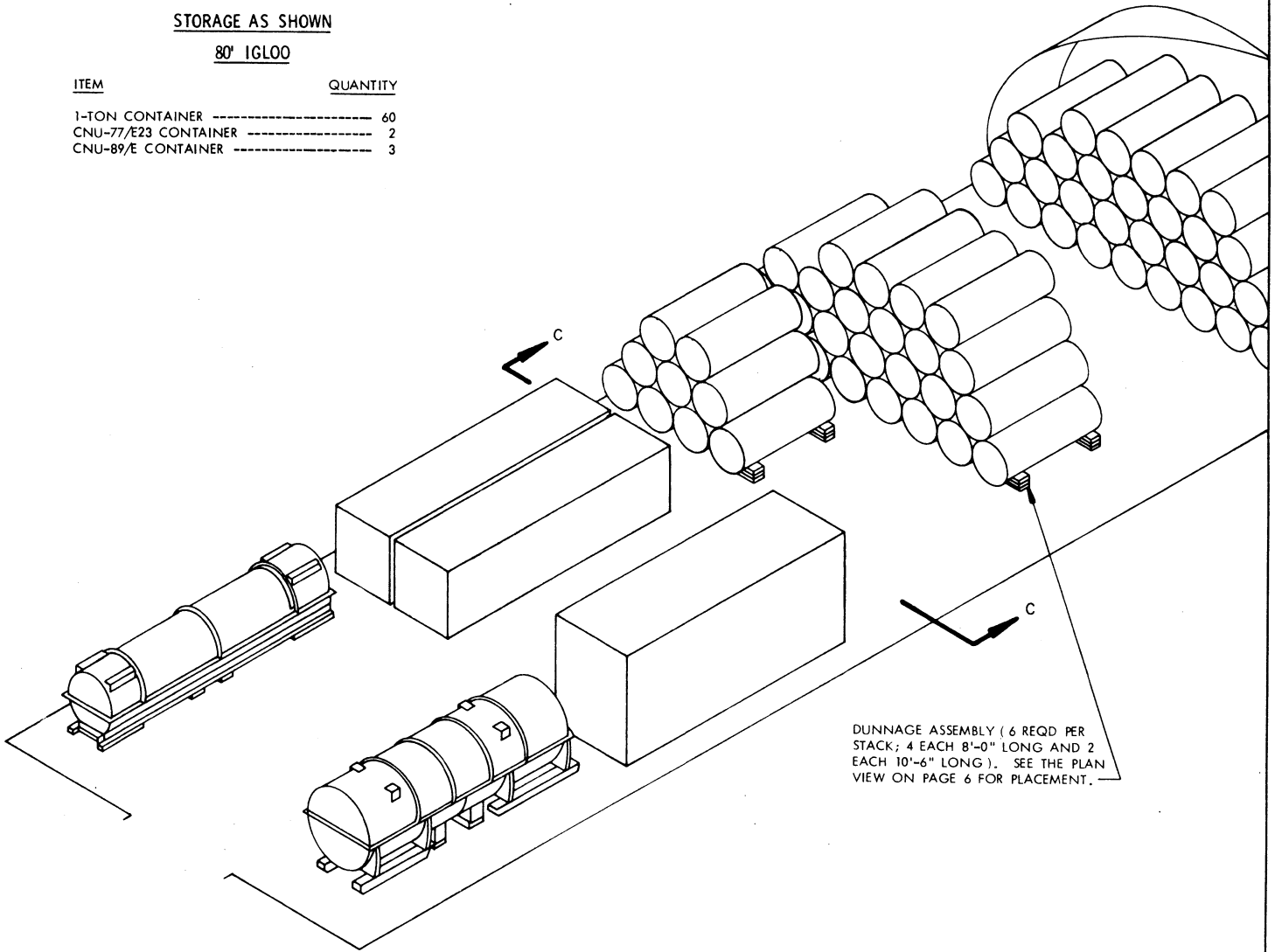
**STORAGE AS SHOWN**

**80' IGLOO**

**ITEM**

**QUANTITY**

1-TON CONTAINER -----	60
CNU-77/E23 CONTAINER -----	2
CNU-89/E CONTAINER -----	3



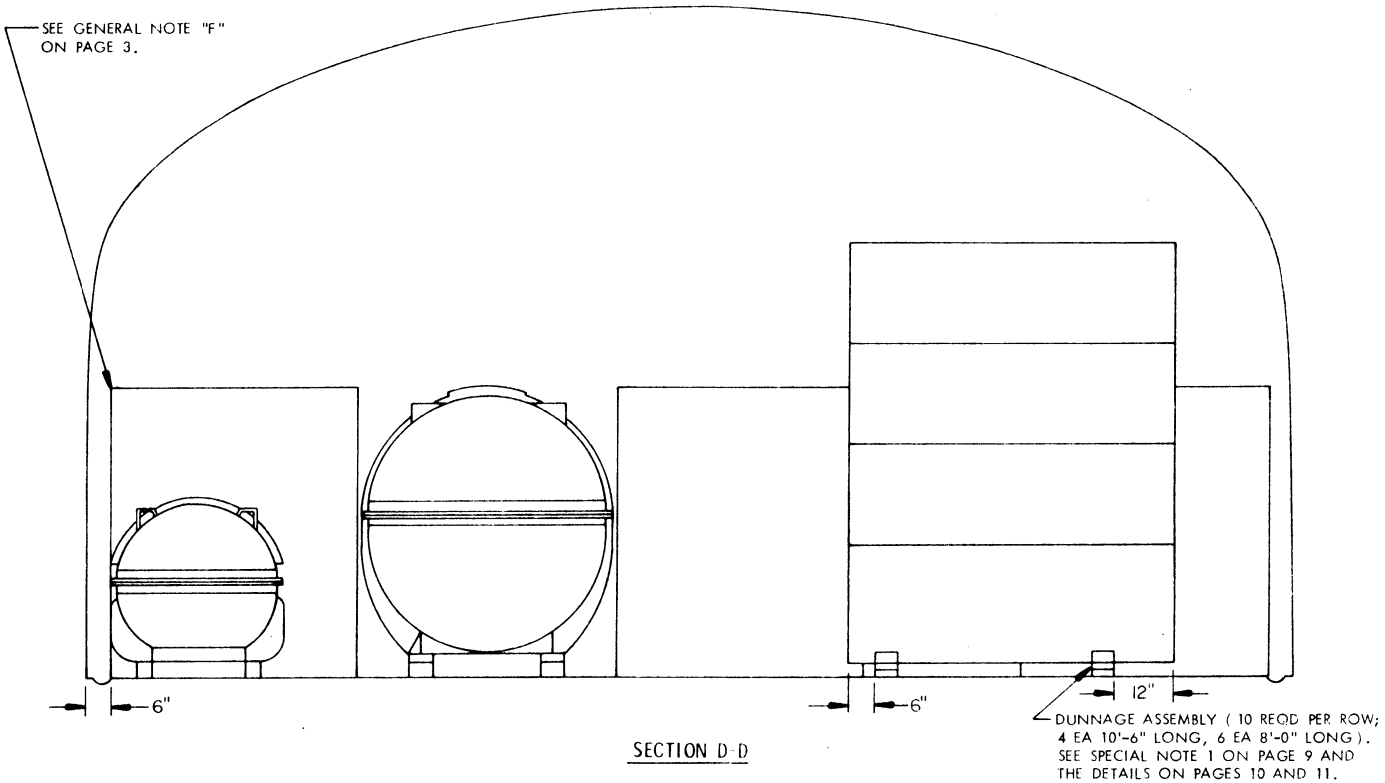
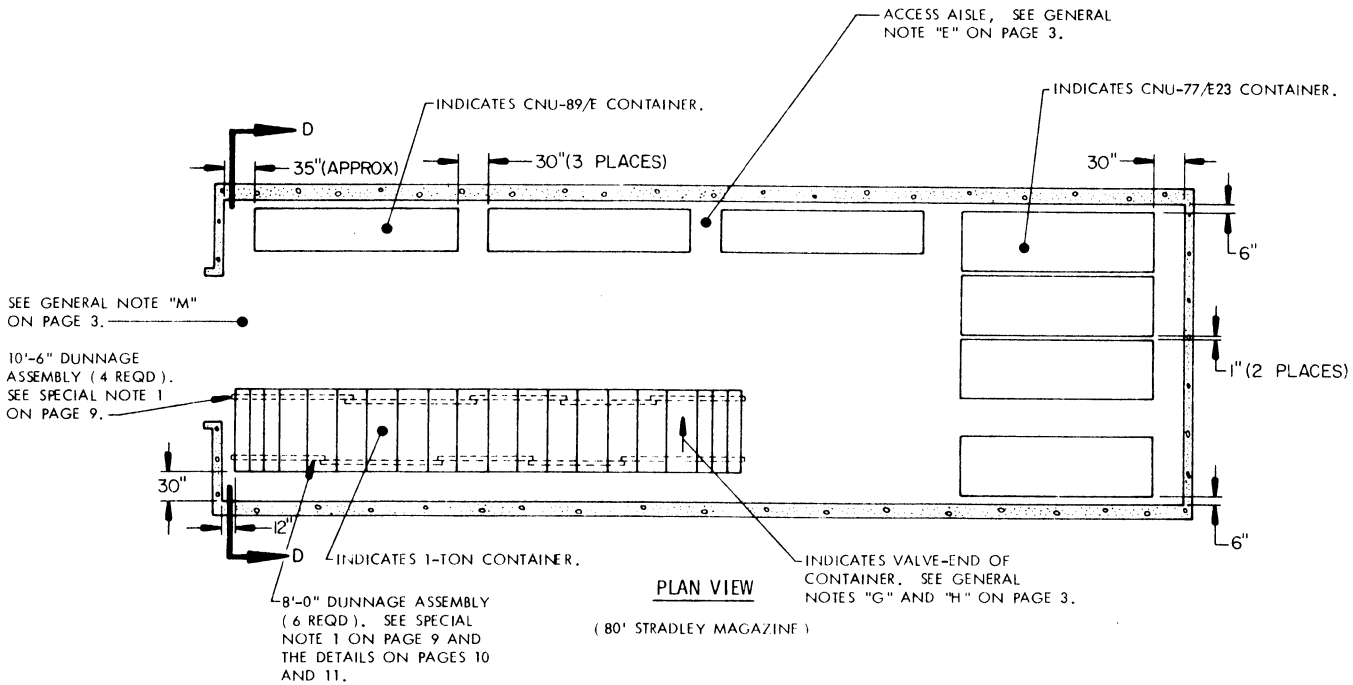
DUNNAGE ASSEMBLY ( 6 REQD PER STACK; 4 EACH 8'-0" LONG AND 2 EACH 10'-6" LONG). SEE THE PLAN VIEW ON PAGE 6 FOR PLACEMENT.

**ISOMETRIC VIEW**

( 80' IGLOO MAGAZINE )

FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS, SEE PAGE 3.

BILL OF MATERIAL PER STACK		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	106	106
4" X 6"	30	60
NAILS	NO. REQD	POUNDS
8d ( 2-1/2" )	52	1/2
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





STORAGE AS SHOWN

80' STRADLEY

<u>ITEM</u>	<u>QUANTITY</u>
1-TON CONTAINER -----	62
CNU-77/E23 CONTAINER -----	4
CNU-89/E CONTAINER -----	3



DUNNAGE ASSEMBLIES, ( 10 REQD PER ROW; 4 EA 10'-6" LONG, 6 EA 8'-0" LONG ). SEE SPECIAL NOTE 1 ON THIS PAGE.

ISOMETRIC VIEW

( 80' STRADLEY MAGAZINE )

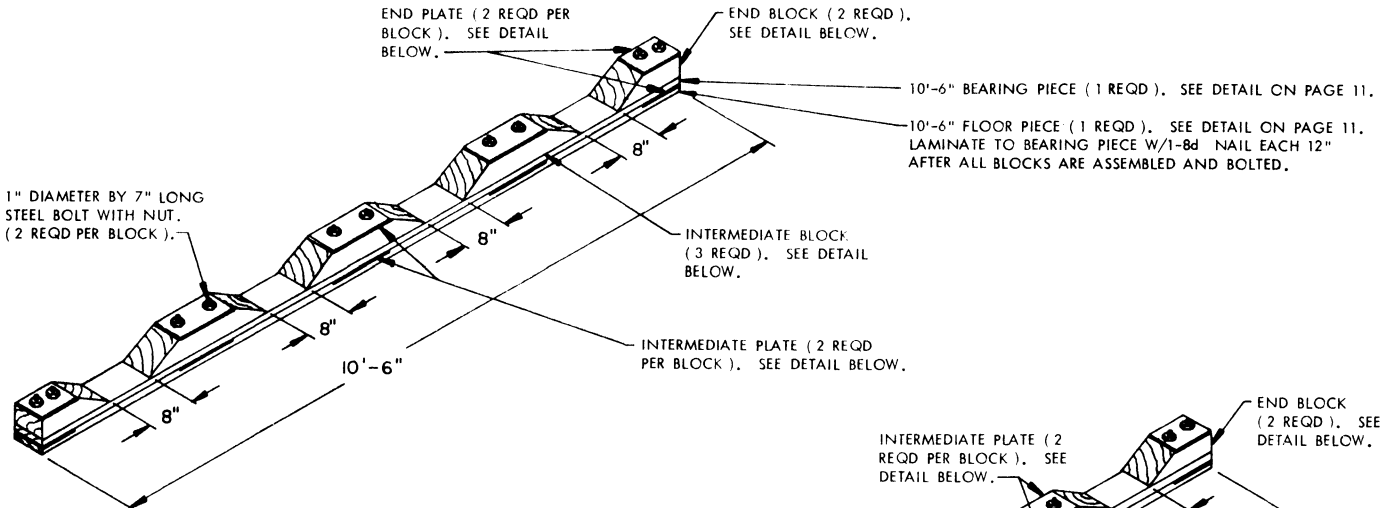
FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS, SEE PAGE 3.

BILL OF MATERIAL PER ROW

LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	180	180
4" X 6"	52	104
NAILS	NO. REQD	POUNDS
Bd ( 2-1/2" )	92	1
STEEL, FLAT, 1/4" X 5-1/2" X 6" -----		40 REQD
STEEL, FLAT, 1/4" X 5-1/2" X 10" -----		48 REQD
BOLT, MACHINE - 1" DIA. X 7" -----		88 REQD
NUT, HEX - 1" DIA. -----		80 REQD

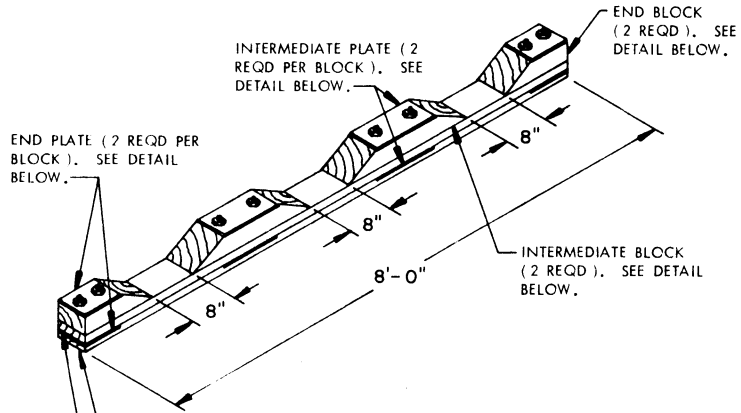
SPECIAL NOTE:

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 ON PAGE 8.

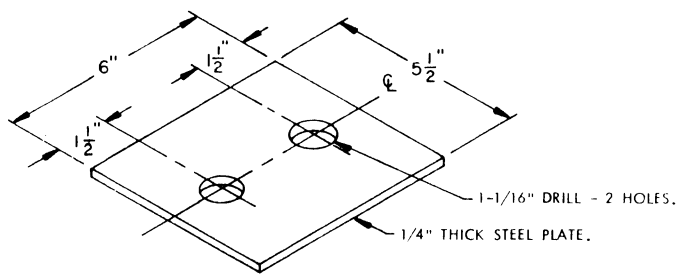


**10'-6" DUNNAGE ASSEMBLY**

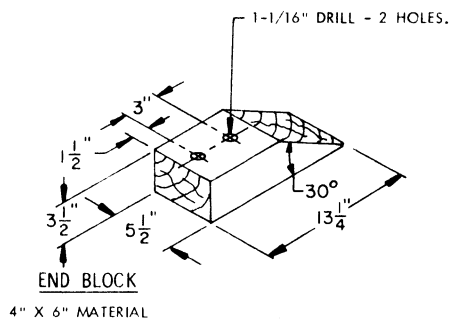
ASSEMBLE THE DUNNAGE ASSEMBLY BY PLACING A BOLT THROUGH A BOTTOM PLATE, THEN THROUGH A BEARING PIECE AND A BLOCK, AND THEN THROUGH A TOP PLATE. TIGHTEN THE NUT ON THE BOLT AND THEN LAMINATE THE FLOOR PIECE TO THE BEARING PIECE. THE NUT ON THE BOLT IS TO BE ON THE UPPER SURFACE. SEE THE "ALTERNATIVE DUNNAGE ASSEMBLIES" ON PAGE 12 THAT MAY BE USED IN LIEU OF THE SPECIFIED WOODEN DUNNAGE ASSEMBLIES.



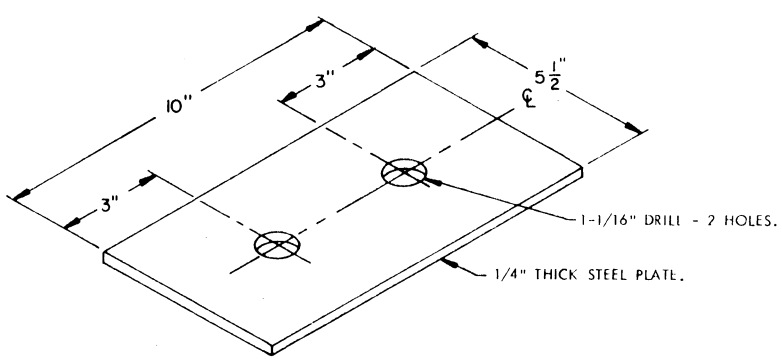
**8'-0" DUNNAGE ASSEMBLY**



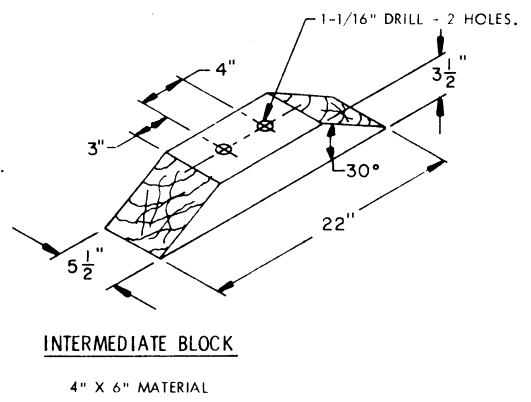
**END PLATE**  
(2 REQD PER END BLOCK)



**END BLOCK**

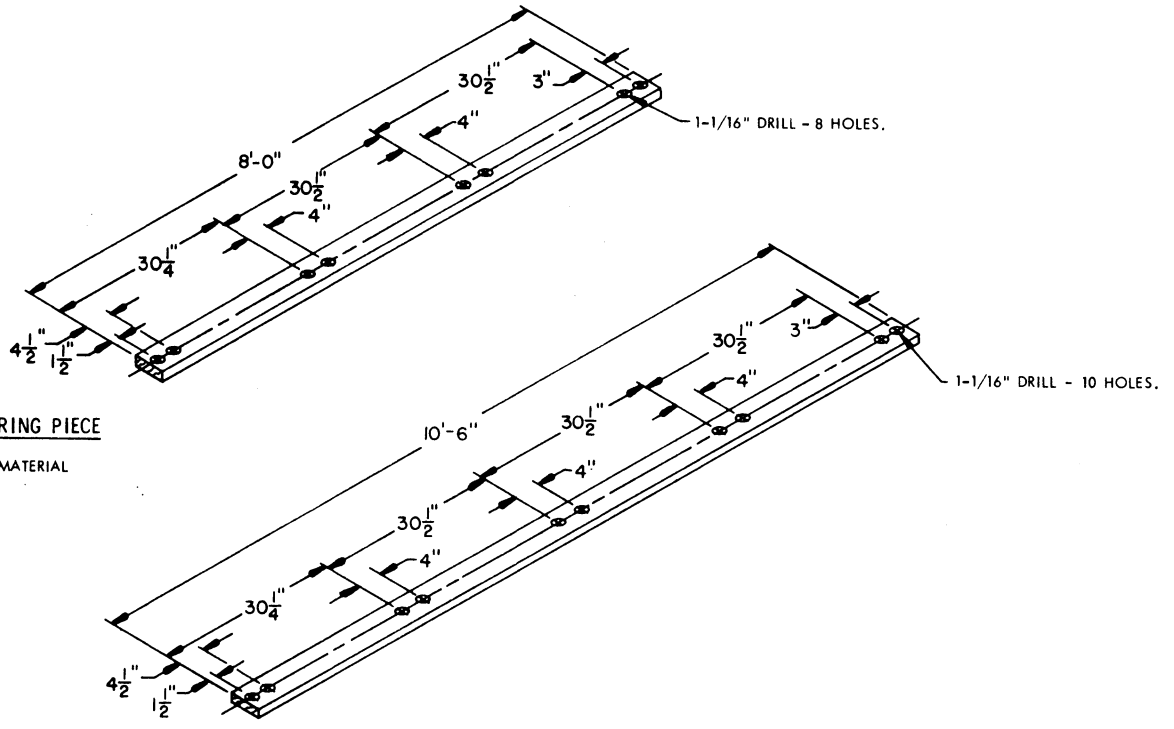


**INTERMEDIATE PLATE**  
(2 REQD PER INTERMEDIATE BLOCK)



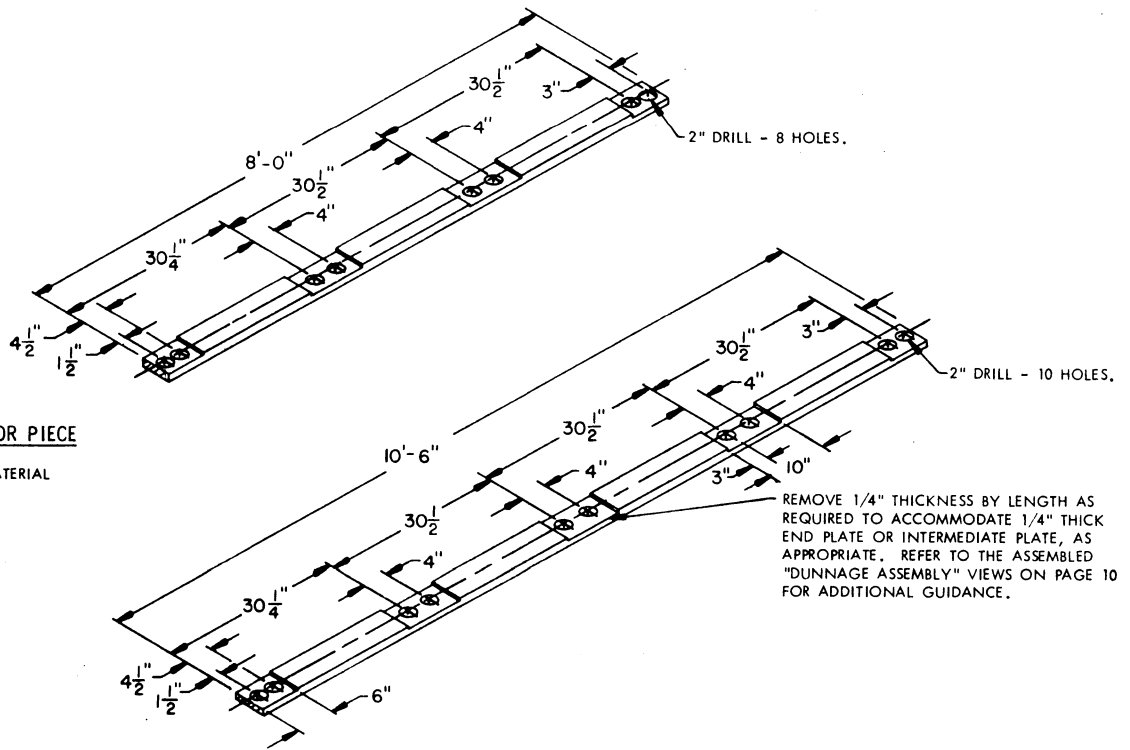
**INTERMEDIATE BLOCK**

**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

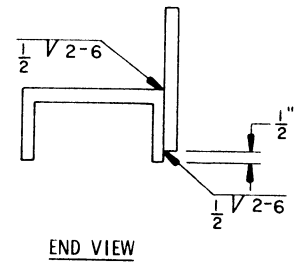
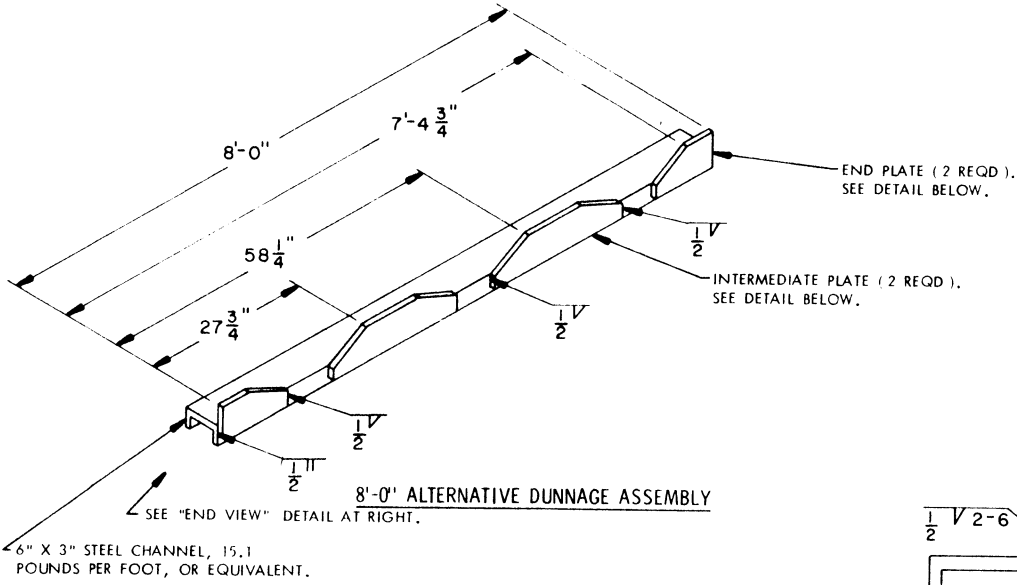
**10'-6" FLOOR PIECE**  
2" X 6" MATERIAL

REMOVE 1/4" THICKNESS BY LENGTH AS REQUIRED TO ACCOMMODATE 1/4" THICK END PLATE OR INTERMEDIATE PLATE, AS APPROPRIATE. REFER TO THE ASSEMBLED "DUNNAGE ASSEMBLY" VIEWS ON PAGE 10 FOR ADDITIONAL GUIDANCE.

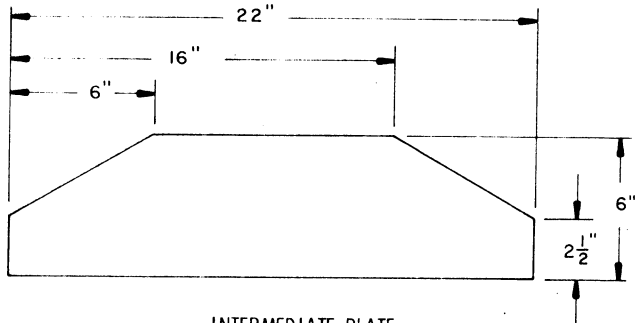
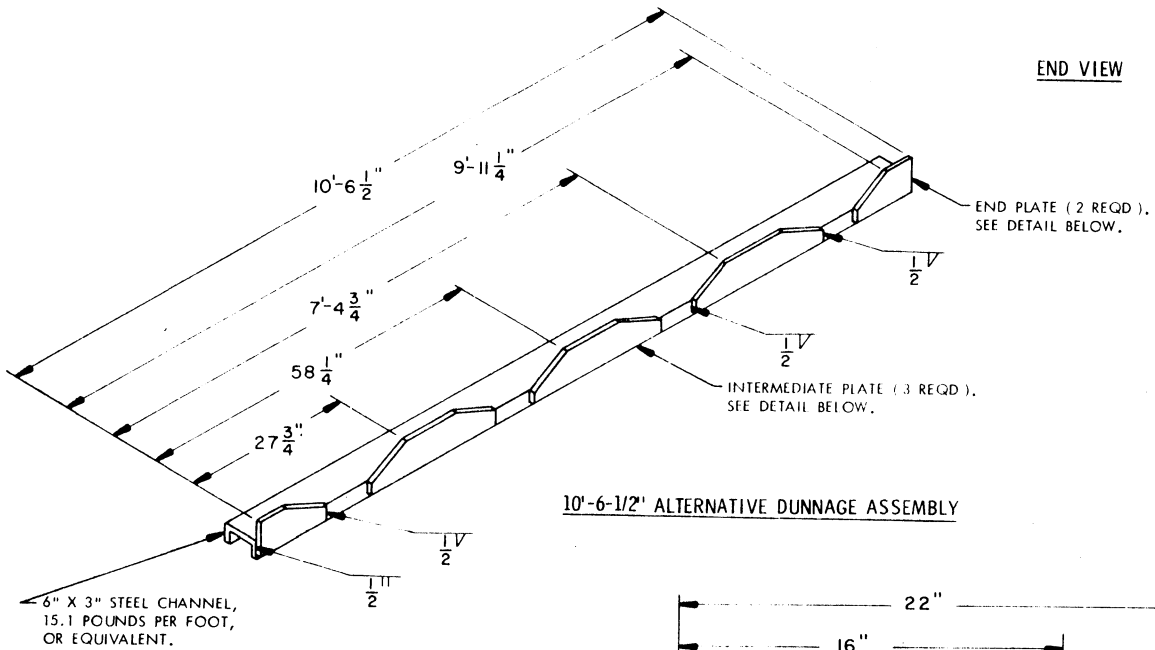
**DUNNAGE ASSEMBLY**

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.

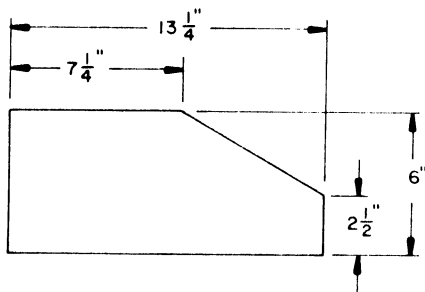


END VIEW



INTERMEDIATE PLATE

(1.2" THICK STEEL PLATE)



END PLATE

(1.2" THICK STEEL PLATE)