

STORAGE IN APPROVED MAGAZINES OF 155 MM SEPARATE LOADING PROJECTILES, UNITIZED 8 ROUNDS PER 14-5/8" L X 29-1/8" W X 39-1/4" H METAL PALLET UNIT (FAPP)

INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
DETAILS - - - - -	3
STORAGE PROCEDURES (EARTH-COVERED MAGAZINES):	
81'-0", 60'-8" AND 40'-4" L X 26'-6" W X 12'-9" H IGLOO MAGAZINES - - - -	4,5
80'-0" AND 40'-0" L X 25'-0" W X 10'-0" H ARCH TYPE MAGAZINES - - - -	6,7
80'-0" AND 40'-0" L X 25'-0" W X 11'-0" H ARCH TYPE MAGAZINES - - - -	8,9
80'-0" AND 40'-0" L X 25'-0" W X 12'-1-3/4" H ARCH TYPE MAGAZINES - -	10,11
81'-2" L X 26'-6" W X 12'-1-3/4" H ARCH TYPE MAGAZINE - - - - -	12,13
89'-0" L X 24'-11" W X 13'-6" H STEEL ARCH TYPE MAGAZINE - - - - -	14,15
80'-0" L X 25'-0" W X 14'-0" H STRADLEY MAGAZINE - - - - -	16,17
52'-0" DIA CORBETTA MAGAZINE - - - - -	18,19
100'-8" L X 50'-0" W RECTANGULAR MAGAZINE - - - - -	20,21
TYPICAL MULTIPLE-LOT STORAGE PROCEDURES:	
IGLOO AND ARCH TYPE MAGAZINES - - - - -	22,23
STRADLEY MAGAZINE - - - - -	24,25
CORBETTA MAGAZINE - - - - -	26,27
RECTANGULAR MAGAZINE - - - - -	28

● THE PROCEDURES HEREIN APPLY TO STANDARD 38-3/4" H THRU 39-1/4" H PALLET UNITS. HEIGHT OF UNITS MAY VARY SLIGHTLY FROM THE DIMENSIONS SHOWN, HOWEVER, PROCEDURES SPECIFIED HEREIN WILL APPLY. ALSO SEE GENERAL NOTE "T" ON PAGE 2.

U.S. ARMY MATERIEL COMMAND DRAWING			
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>David A. Pishouk</i> SMCAR-ESK	DRAFTSMAN	D. WHITMORE	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND <i>William F Ernst</i> U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL	ENGINEER	M. DAEUMER	
	SUPPLY ENGINEERING DIVISION	<i>Thomas J. Michalek</i>	
	LOGISTICS ENGINEERING OFFICE	<i>William F Ernst</i>	
	APRIL 1993		
	CLASS	DIVISION	DRAWING
	19	48	4102/ 24
	FILE		1-2-3-4-14 22PE1001

DO NOT SCALE

GENERAL NOTES

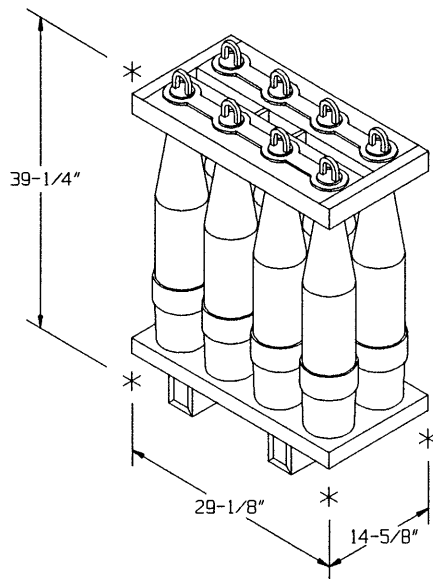
(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1, AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE STORAGE PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR STORAGE IN VARIOUS TYPES AND SIZES OF MAGAZINES. THE STORAGE PROCEDURES DEPICTED FOR THE SPECIFIC TYPES OF MAGAZINES MAY ALSO BE UTILIZED TO STORE PALLET UNITS 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 FOLLOWED.
- C. **CAUTION:** THE ALLOWABLE "EXPLOSIVE LIMIT" ESTABLISHED FOR A MAGAZINE IS NOT TO BE EXCEEDED. STORAGE OF SOME SPECIFIC TYPES OF SEPARATE LOADING PROJECTILES MUST ALSO COMPLY WITH CURRENT DIRECTIVES AND OTHER REGULATORY REQUIREMENTS, IN ADDITION TO THOSE SPECIFIED IN THIS DRAWING.
- D. THREE (3) PALLET UNITS CAN BE HANDLED BY A FORKLIFT TRUCK AS ONE LOAD, IF THE LENGTH OF THE FORK TINES IS ADEQUATE TO PROVIDE FULL-LENGTH OR NEARLY FULL-LENGTH BEARING UNDER THE LOAD BEING HANDLED. OTHER APPLICABLE SAFETY CONTROLS (DIRECTIVES, REGULATIONS, ECT.) MUST BE OBSERVED. TO FACILITATE STABLE AND SAFE HANDLING, BY A FORKLIFT TRUCK, IN STACKING THESE NARROW PALLET UNITS, THREE (3) PALLET UNITS SHOULD BE BUNDLED TOGETHER WITH TWO (2) STRAPS AS SPECIFIED IN AMC DRAWING 19-48-4076-20PE1001, REV. 1, TITLED "BUNDLING OF SEPARATE LOADING PROJECTILES FOR STORAGE AND TRANSPORT." USUALLY, PALLET UNITS WILL ALREADY BE BUNDLED WHEN THEY ARRIVE AT THE STORAGE LOCATION. THIS WILL NEGATE THE REQUIREMENT FOR BUNDLING UNITS PROVIDING THE UNITS ARE BUNDLED INTO THREE-PALLET BUNDLES WITH TWO (2) STRAPS AND ARE "ZINC COATED" STRAPS. LOOSE STRAPS SHOULD BE REPLACED. IN SOME INSTANCES, THE STORAGE PATTERN MAY REQUIRE SOME OF THE BUNDLED UNITS TO CONSIST OF ONLY TWO (2) PALLET UNITS, AS IN "C" STACKS IN THE FRONTAL AREA OF A MAGAZINE AND FOR STORAGE IN CORBETTA MAGAZINES. BUNDLING STRAPS ARE NOT REQUIRED FOR PALLET UNITS STORED ONE-LAYER HIGH.
- E. STACK-STABILIZING DUNNAGE PIECES CONSISTING OF 2" X 4" MATERIAL WILL BE USED BETWEEN LAYERS OF PALLET UNITS TO PROVIDE CLEARANCE FOR THE FORK TINES OF THE FORKLIFT TRUCK FOR SAFE PLACEMENT OR REMOVAL OF UPPER LAYER PALLET UNITS. USUALLY, MOST 2" X 4" DUNNAGE PIECES WILL BE 43" LONG, HOWEVER, SOME 28" LONG PIECES WILL BE REQUIRED TO ACHIEVE THE STORAGE ARRANGEMENTS DEPICTED IN THIS DRAWING.
- F. THE USE OF "FLOOR DUNNAGE" UNDER EACH FIRST-LAYER PALLET IS OPTIONAL, ALTHOUGH THE USE OF THIS TYPE OF DUNNAGE IS DELINEATED WITHIN THIS STORAGE PROCEDURE DRAWING. THE PURPOSE OF FLOOR DUNNAGE IS TO HELP KEEP THE RUNNERS OF A PALLET DRY, THUS AIDING IN PREVENTING DETERIORATION DUE TO CORROSION. THEREFORE, FLOOR DUNNAGE SHOULD BE USED WHEN STORING IN A MAGAZINE THAT IS KNOWN TO HAVE A "DAMP" FLOOR.
- G. IN CONJUNCTION WITH THE SPECIFIED STACK-LEVELING WEDGES, FLOOR DUNNAGE AND/OR STACK-STABILIZING DUNNAGE, ADDITIONAL STACK-STABILIZING DUNNAGE IN THE FORM OF "SHIMS" PROBABLY WILL BE REQUIRED TO ACHIEVE SOUND AND ACCEPTABLE STABLE STACKS. SHIM MATERIAL OF VARYING THICKNESSES WILL BE USED BETWEEN STACKED UNITS AS REQUIRED TO GAIN LEVEL OR NEARLY LEVEL STACKS AND SOLID BEARING WITHIN A STACK FROM THE FLOOR OF A MAGAZINE TO THE TOP OF THE STACK. ALSO, "SHIMS" WILL BE USED IN LIEU OF SPECIFIED WEDGES IN SOME ARCH TYPE MAGAZINES WHEN THE FLOOR SLOPES FROM THE REAR WALL TOWARD THE FRONT WALL. ADDITIONALLY, "SHIMS" CAN BE USED WITHIN A CONCRETE ARCH TYPE MAGAZINE INSTEAD OF THE SPECIFIED WEDGES, PROVIDING THE MAGAZINE FLOOR DOES NOT SLOPE MORE THAN 1-1/4" FROM THE CENTER TO A SIDEWALL.
- H. STORED PALLET UNITS MUST NOT CONTACT THE WALLS OF A MAGAZINE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, UNITS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.
- J. AISLE DIMENSIONS SHOWN FOR STORAGE PROCEDURES IN MAGAZINES MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS, VARIATIONS IN PALLET UNIT DIMENSIONS, AND/OR AVAILABLE MATERIALS HANDLING EQUIPMENT.
- K. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE AS PRESCRIBED BY LOCAL STANDARDS WILL NOT BE EXCEEDED.
- L. IF AVAILABLE MHE PERMITS, ADDITIONAL PALLETIZED UNITS MAY BE STORED WITHIN THE MHE AREA AND/OR OTHER AVAILABLE AREA OF THE MAGAZINE.
- M. PORTIONS OF THE MAGAZINES, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- N. 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.
- P. STORAGE OF MULTIPLE LOTS IN A MAGAZINE WILL REQUIRE CAREFUL PREPLANNING SO AS TO ENSURE MHE ACCESSIBILITY TO ANY LOT IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE APPLICABLE "SPECIAL NOTES" SECTIONS OF THE MULTIPLE-LOT STORAGE PROCEDURES TYPICALLY SHOWN ON PAGE 22 THRU 28.
- Q. ANY "LIGHT" PALLETIZED UNIT THAT DOES NOT CONTAIN A FULL QUANTITY OF SEPARATE LOADING PROJECTILES WILL NOT BE BURIED IN STORAGE. IT MUST BE POSITIONED ADJACENT TO AN AISLE, PREFERABLY IN FRONT OF THE LOT.
- R. IF THE QUANTITY OF PALLET UNITS FOR A MAGAZINE IS TO BE REDUCED FROM WHAT IS SHOWN HEREIN DUE TO THE PERMITTED "EXPLOSIVE LIMIT" OR FOR ANY OTHER REASON, SUCH AS A LIMITED QUANTITY TO BE STORED, THE DELINEATED PROCEDURES ARE TO BE ADJUSTED BY OMITTING STACKS RATHER THAN BY OMITTING LAYERS.
- S. OTHER COMPATIBLE ITEMS MAY BE STORED IN A MAGAZINE WHICH IS PARTIALLY FILLED WITH THE DESIGNATED ITEM.
- T. SOME METAL PALLET UNITS WHICH ARE ONLY 31-1/4" HIGH (APPROX) MAY BE OFFERED FOR STORAGE. THE PROCEDURES AS DEPICTED HEREIN WILL APPLY. HOWEVER, IN SOME MAGAZINES, DUE TO THE DECREASED HEIGHT OF THE UNITS, AN ADDITIONAL LAYER OF PALLET UNITS MAY BE ADDED TO THE DEPICTED STACKS.

(GENERAL NOTES CONTINUED AT RIGHT)

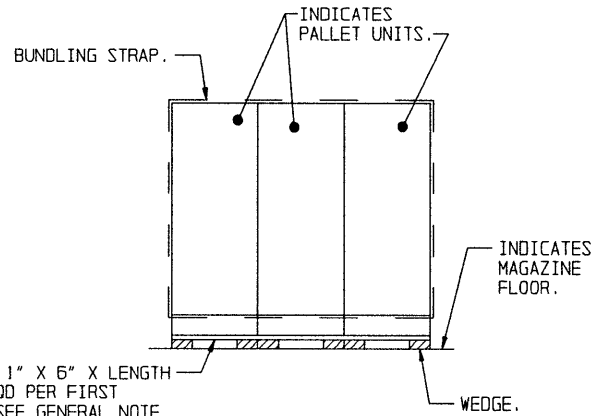
MATERIAL SPECIFICATIONS

- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND FED SPEC MM-L-751.
- STRAPPING, STEEL - - : ASTM D 3953; FLAT STRAPPING, TYPE 1 OR 2, HEAVY DUTY, FINISH B (GRADE 2).
- SEAL, STRAP - - - - : ASTM D 3953; CLASS H, FINISH B (GRADE 2), DOUBLE NOTCH TYPE, STYLE I, II, OR IV.



155MM 8/PALLET

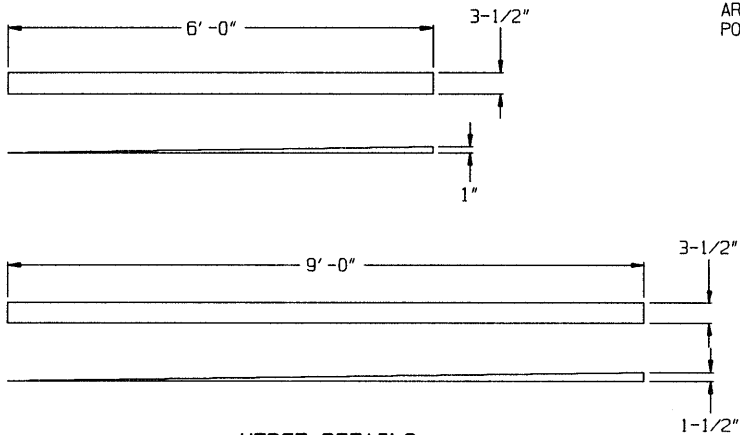
NOTE: HEIGHT OF UNIT MAY VARY SLIGHTLY.
 UNIT WEIGHT - - - - 885 LBS TO 901 LBS
 SEE GENERAL NOTE "T" ON PAGE 2.



FLOOR DUNNAGE, 1" X 6" X LENGTH TO SUIT. (2 REQD PER FIRST LAYER UNITS. SEE GENERAL NOTE "F" ON PAGE 2.

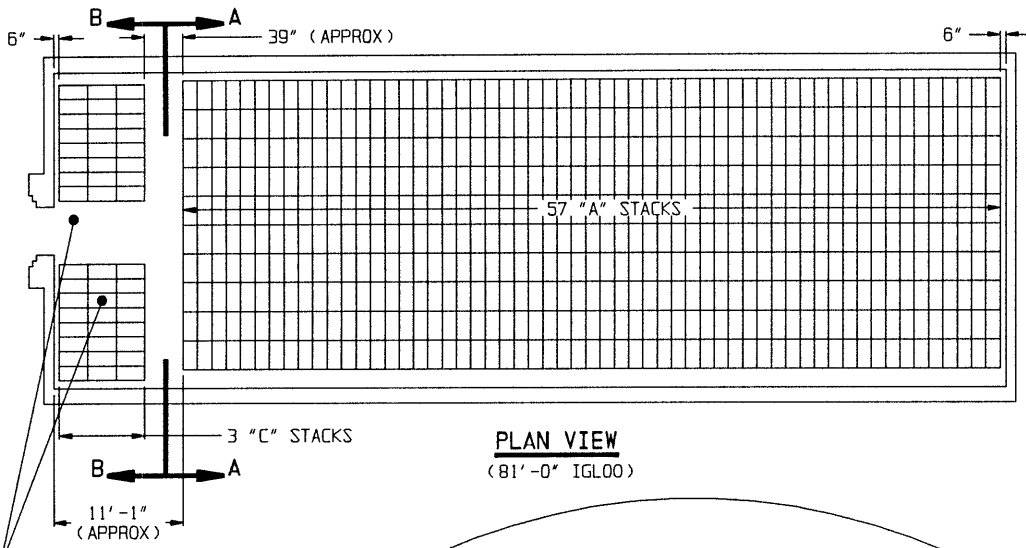
WEDGE AND FLOOR DUNNAGE LOCATION DETAIL

ISOMETRIC VIEWS WITHIN THIS DRAWING DO NOT DEPICT ALL WEDGES THAT ARE REQUIRED. WEDGES ARE SHOWN AT SOME LOCATIONS TO PROVIDE POSITIONING GUIDANCE.



WEDGE DETAILS
 2" X 4" MATERIAL

DETAILS



STORAGE IN 81'-0" IGLOO

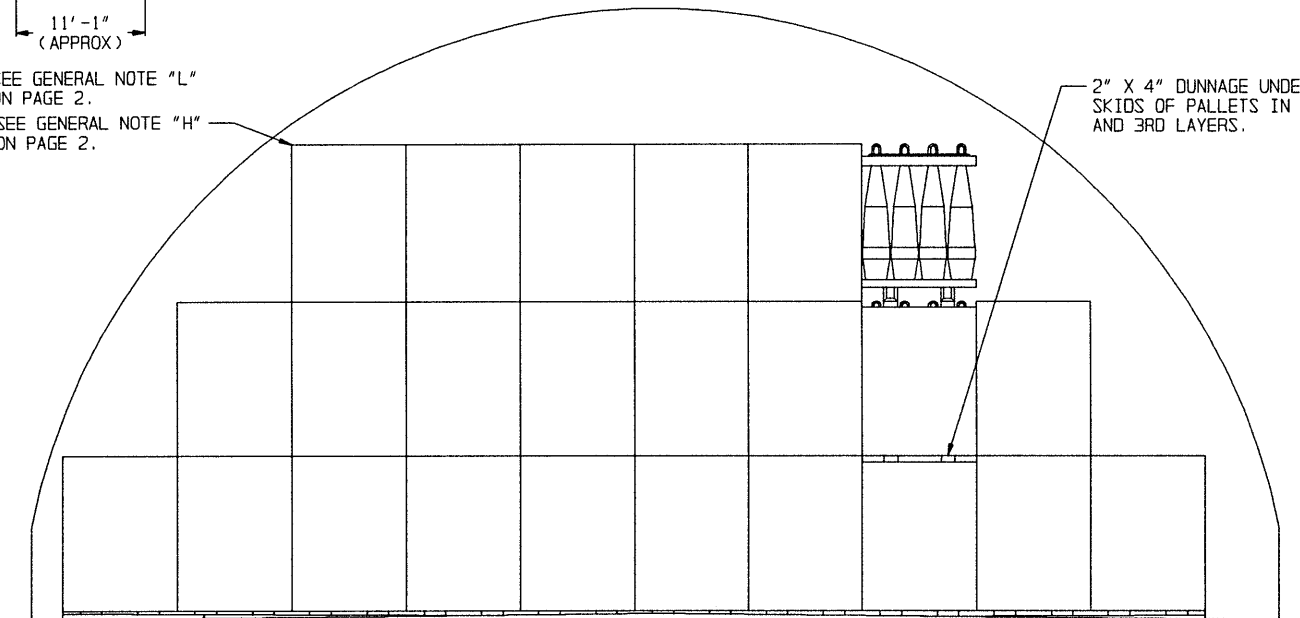
(12'-9" HIGH)

ITEM	QUANTITY
PALLET UNITS	1,449
PROJECTILES	11,592

PLAN VIEW
(81'-0" IGLOO)

SEE GENERAL NOTE "L"
ON PAGE 2.
SEE GENERAL NOTE "H"
ON PAGE 2.

2" X 4" DUNNAGE UNDER
SKIDS OF PALLETS IN 2ND
AND 3RD LAYERS.



SECTION A-A ("A" STACKS, 24 PALLET UNITS)

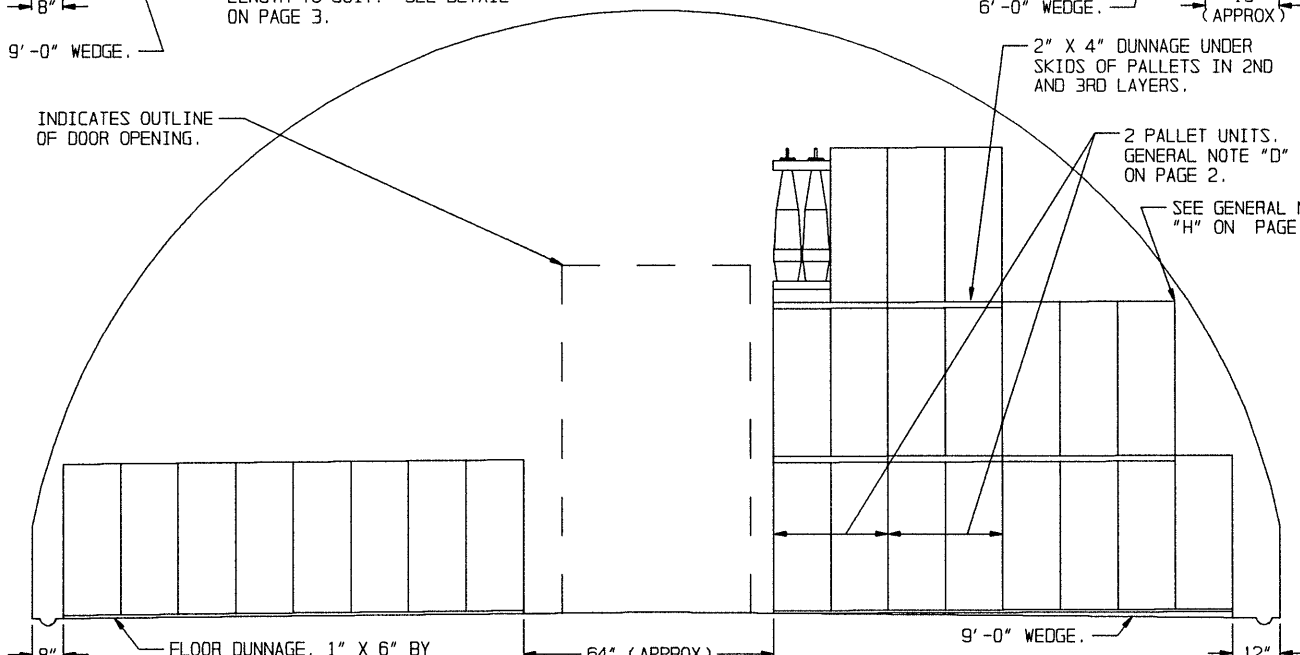
8" 9'-0" WEDGE. FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3. 6'-0" WEDGE. 19" (APPROX)

INDICATES OUTLINE
OF DOOR OPENING.

2" X 4" DUNNAGE UNDER
SKIDS OF PALLETS IN 2ND
AND 3RD LAYERS.

2 PALLET UNITS. SEE
GENERAL NOTE "D"
ON PAGE 2.

SEE GENERAL NOTE
"H" ON PAGE 2.



SECTION B-B ("C" STACKS, 27 PALLET UNITS)

8" FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3. 64" (APPROX) 9'-0" WEDGE. 12"

STORAGE IN 60'-8" IGLOO

(12'-9" HIGH)

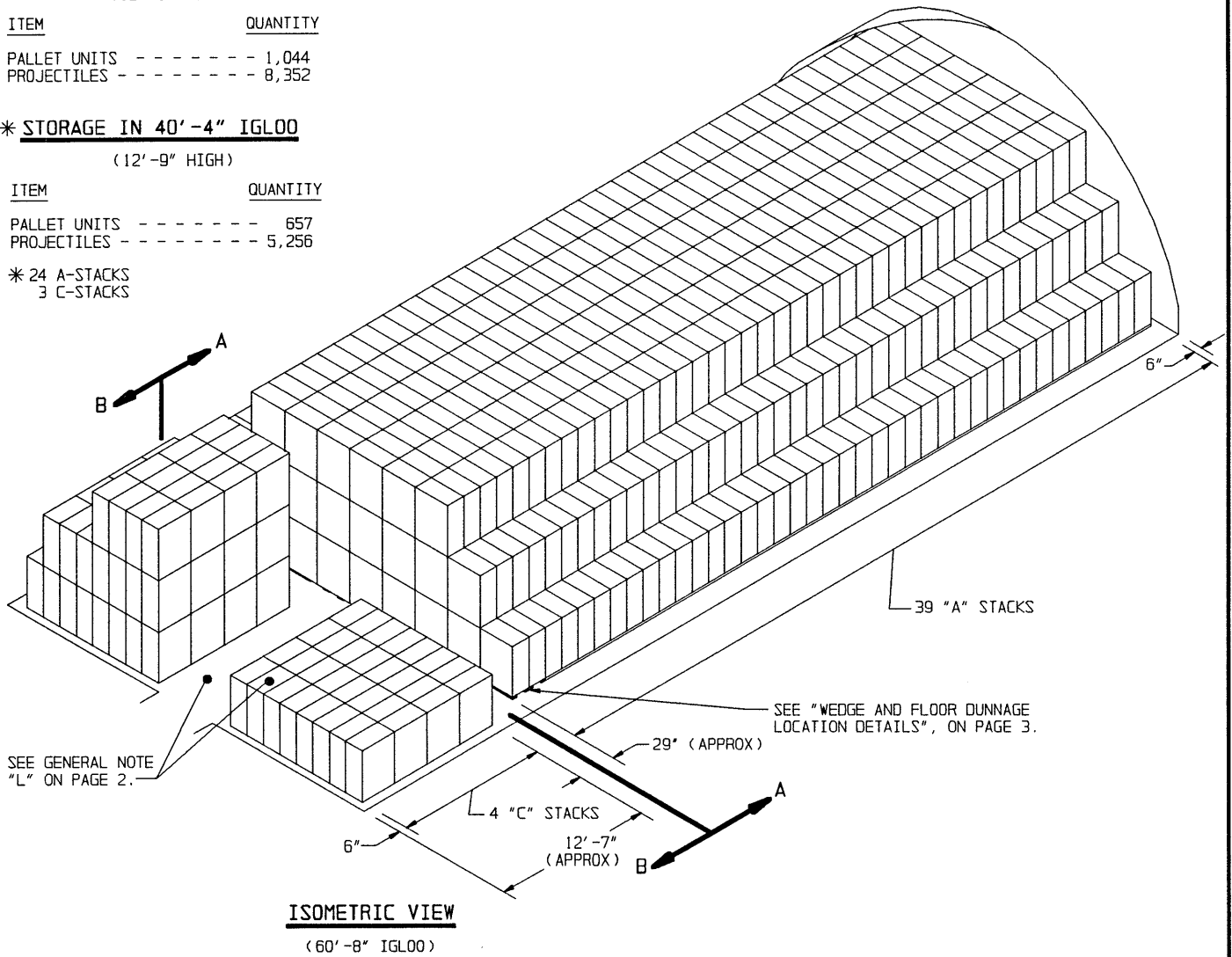
ITEM	QUANTITY
PALLET UNITS	1,044
PROJECTILES	8,352

*** STORAGE IN 40'-4" IGLOO**

(12'-9" HIGH)

ITEM	QUANTITY
PALLET UNITS	657
PROJECTILES	5,256

* 24 A-STACKS
3 C-STACKS



BILL OF MATERIAL (PER STACK) **						
TYPE STACK	WEDGES		2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	6'-0"	9'-0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	2 REOD	2 REOD	32.67	21.78	24.17	12.09
C		2 REOD	25.00	16.67	38.67	19.33

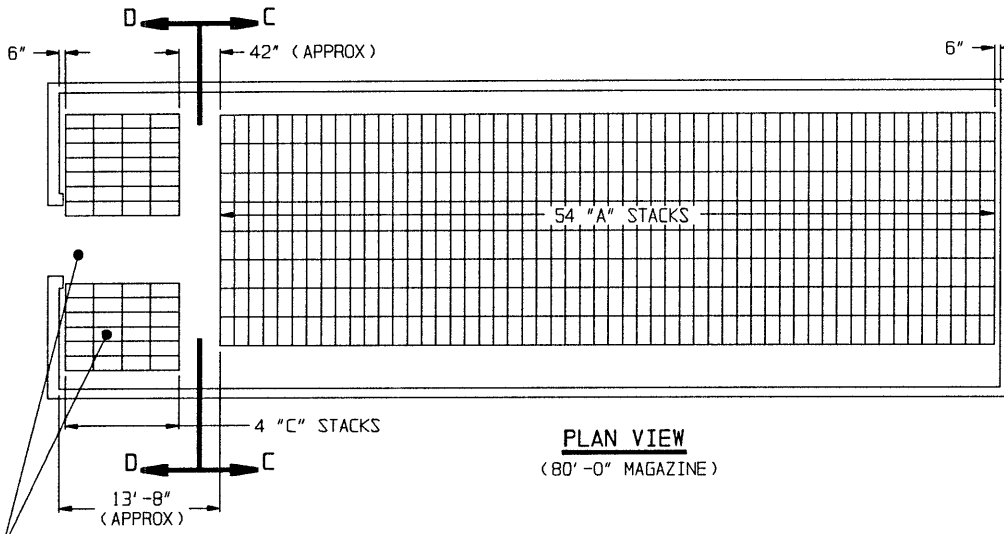
** SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.

STORAGE IN 80'-0" MAGAZINE

(10'-0" HIGH)

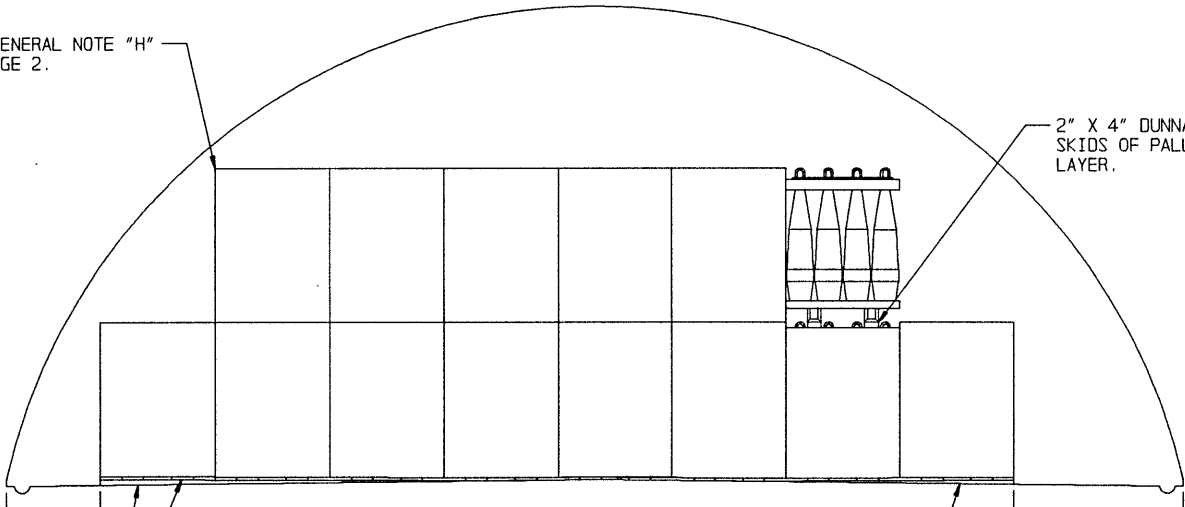
ITEM	QUANTITY
PALLET UNITS - - - - -	828
PROJECTILES - - - - -	6,624



PLAN VIEW
(80'-0" MAGAZINE)

SEE GENERAL NOTE "L" ON PAGE 2.

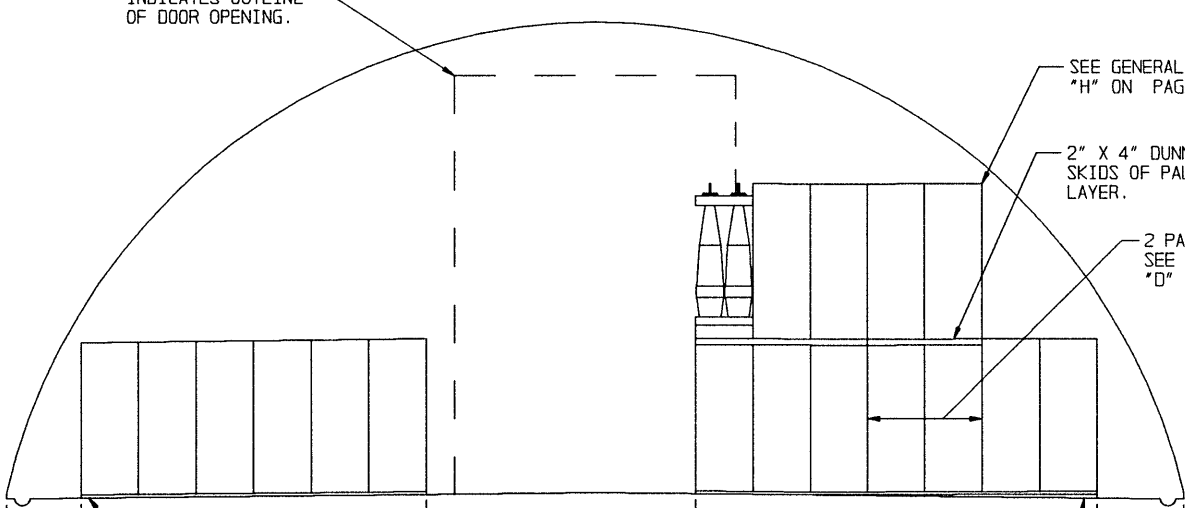
SEE GENERAL NOTE "H" ON PAGE 2.



SECTION C-C

("A" STACKS, 14 PALLET UNITS)

INDICATES OUTLINE OF DOOR OPENING.



SECTION D-D

("C" STACKS, 18 PALLET UNITS)

SEE GENERAL NOTE "H" ON PAGE 2.

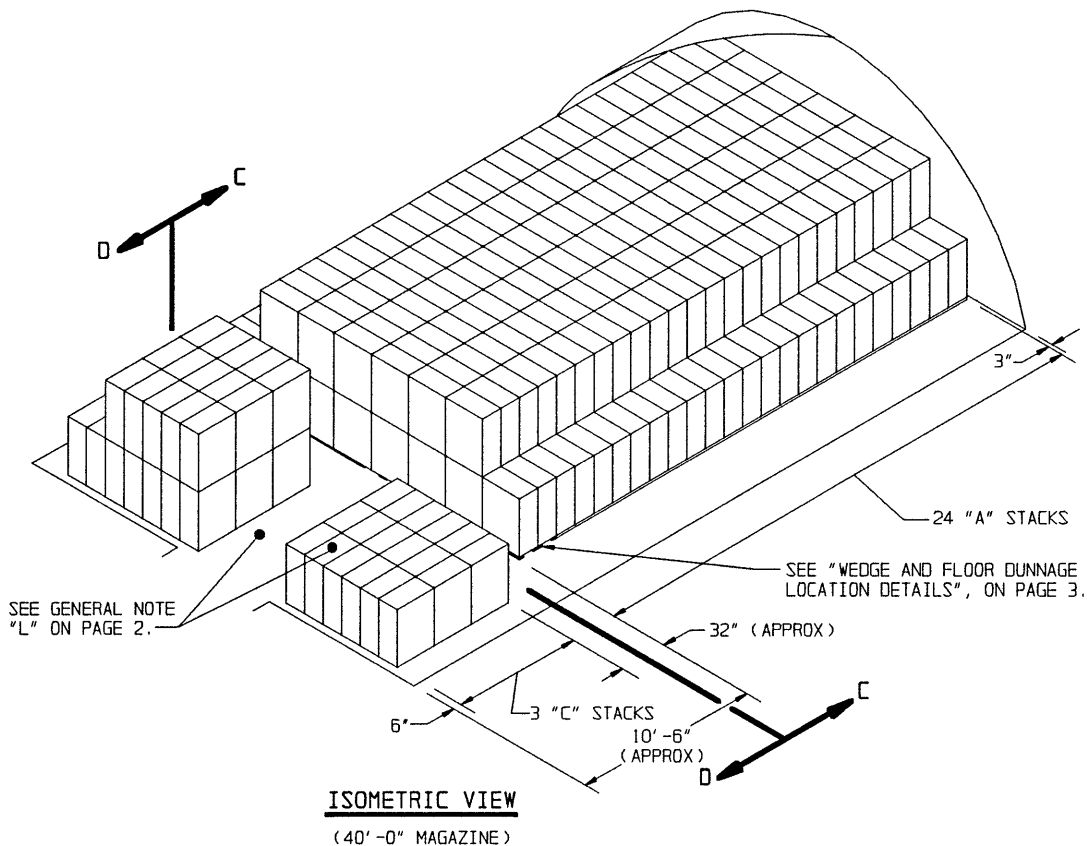
2" X 4" DUNNAGE UNDER SKIDS OF PALLETS IN 2ND LAYER.

2 PALLET UNITS. SEE GENERAL NOTE "D" ON PAGE 2.

STORAGE IN 40'-0" MAGAZINE

(10'-0" HIGH)

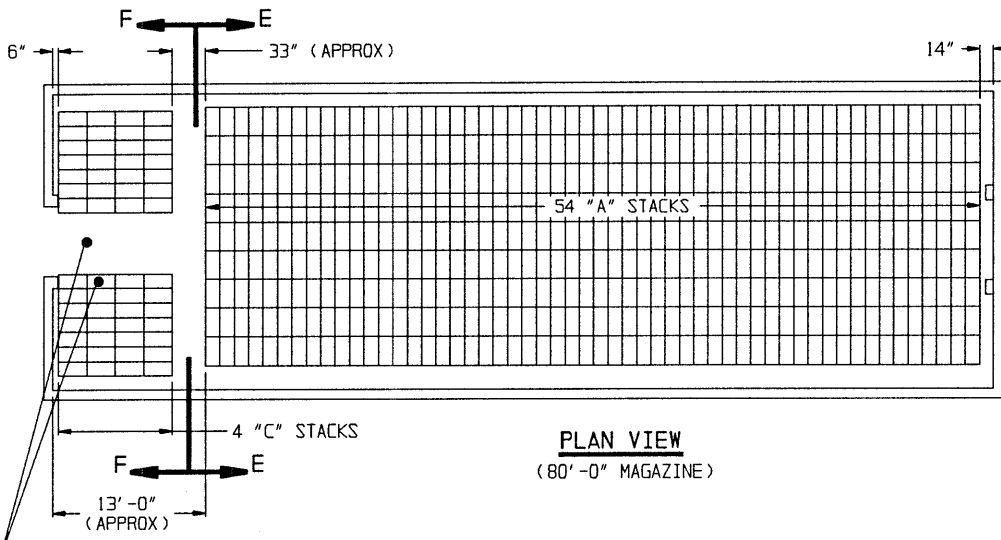
ITEM	QUANTITY
PALLET UNITS - - - - -	390
PROJECTILES - - - - -	3,120



BILL OF MATERIAL (PER STACK) *						
TYPE STACK	WEDGES		2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	6'-0"	9'-0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	2 REOD	2 REOD	14.00	9.33	19.33	9.66
C	2 REOD		11.50	7.67	31.42	15.71

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.



STORAGE IN 80'-0" MAGAZINE

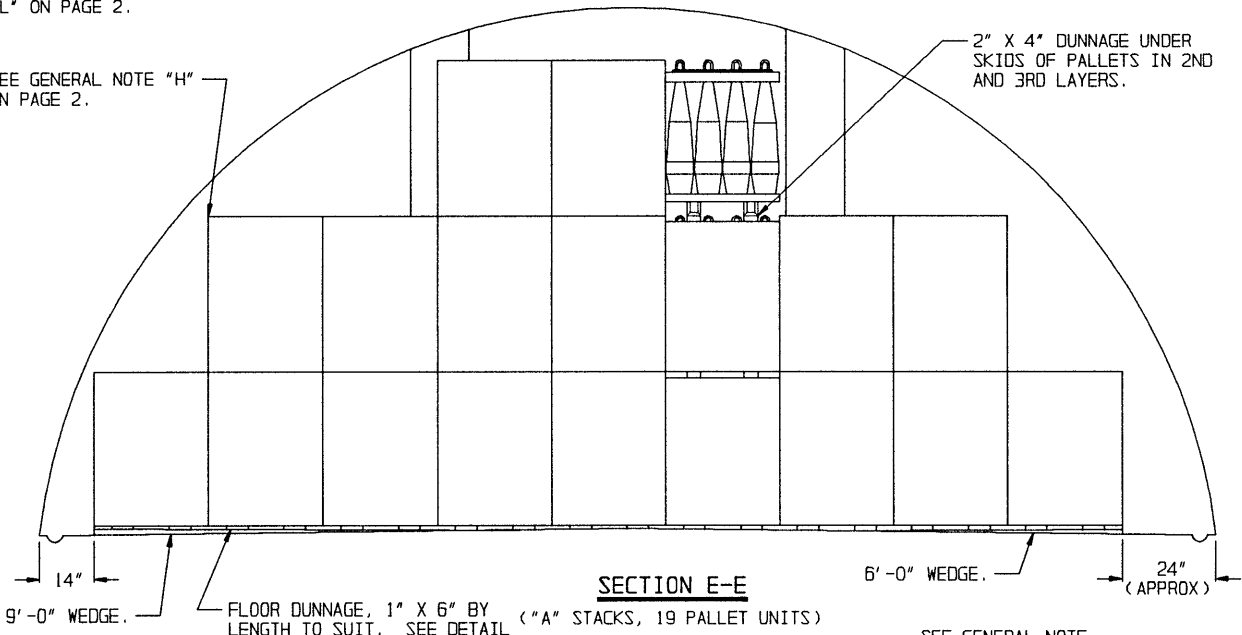
(11'-0" HIGH)

ITEM	QUANTITY
PALLET UNITS	1,110
PROJECTILES	8,880

PLAN VIEW
(80'-0" MAGAZINE)

SEE GENERAL NOTE "L" ON PAGE 2.

SEE GENERAL NOTE "H" ON PAGE 2.



SECTION E-E

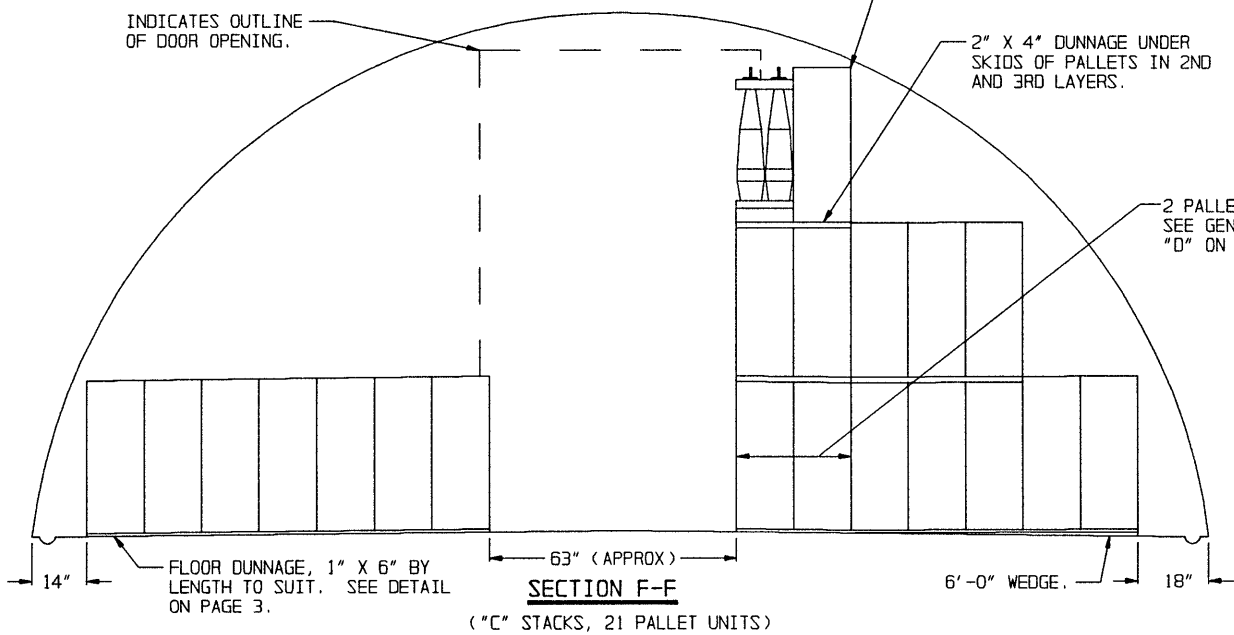
FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ("A" STACKS, 19 PALLET UNITS) ON PAGE 3.

INDICATES OUTLINE OF DOOR OPENING.

SEE GENERAL NOTE "H" ON PAGE 2.

2" X 4" DUNNAGE UNDER SKIDS OF PALLETS IN 2ND AND 3RD LAYERS.

2 PALLET UNITS. SEE GENERAL NOTE "D" ON PAGE 2.



SECTION F-F

("C" STACKS, 21 PALLET UNITS)

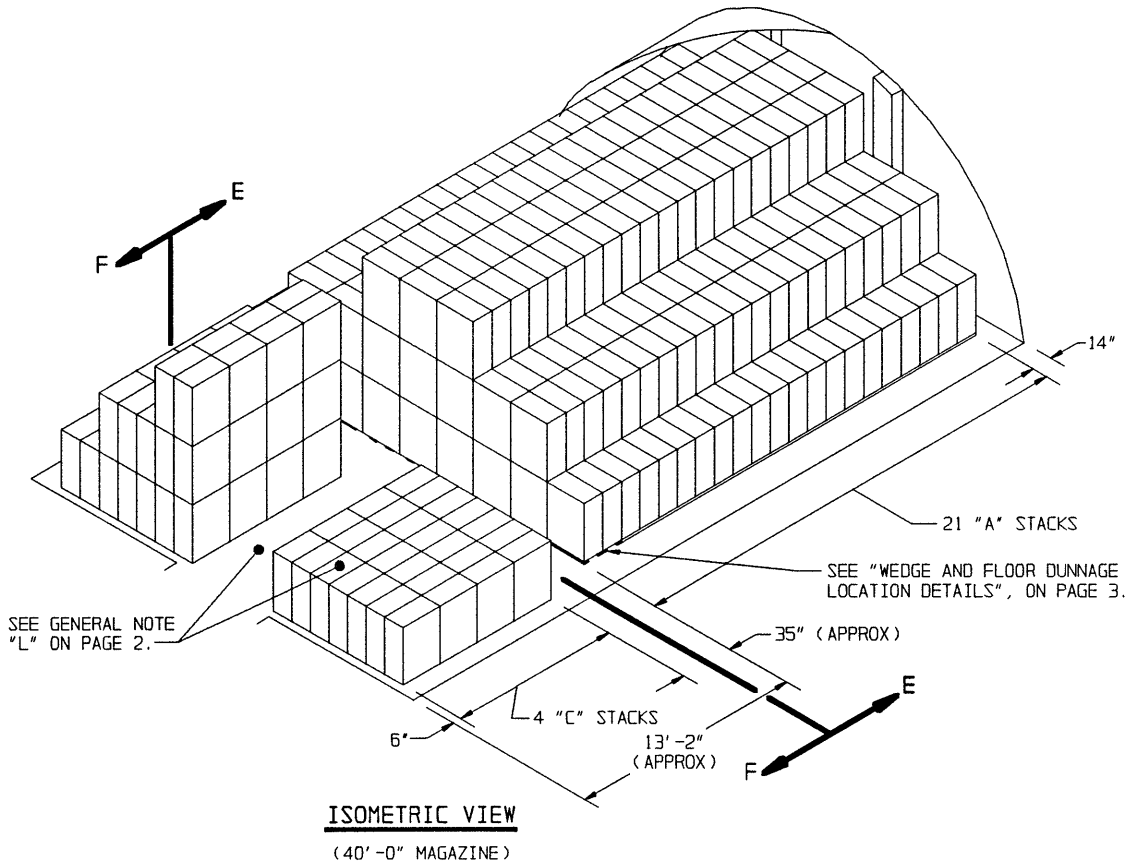
FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3.

6'-0" WEDGE.

STORAGE IN 40'-0" MAGAZINE

(11'-0" HIGH)

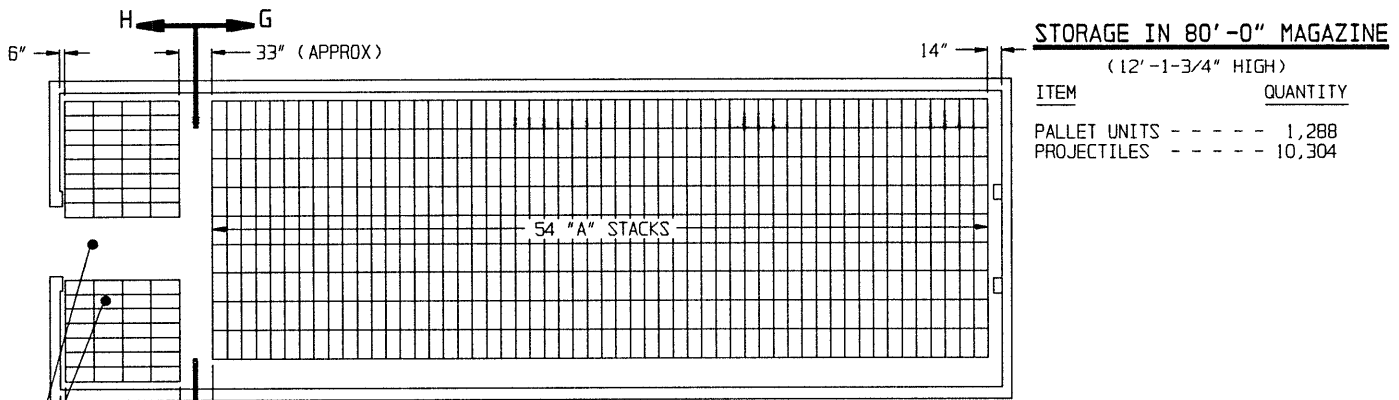
ITEM	QUANTITY
PALLET UNITS - - - - -	483
PROJECTILES - - - - -	3,864



BILL OF MATERIAL (PER STACK) *						
TYPE STACK	WEDGES		2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	6'-0"	9'-0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	2 REQD	2 REQD	23.33	15.55	21.75	10.88
C	2 REQD		16.00	10.67	33.83	16.92

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.



STORAGE IN 80'-0" MAGAZINE

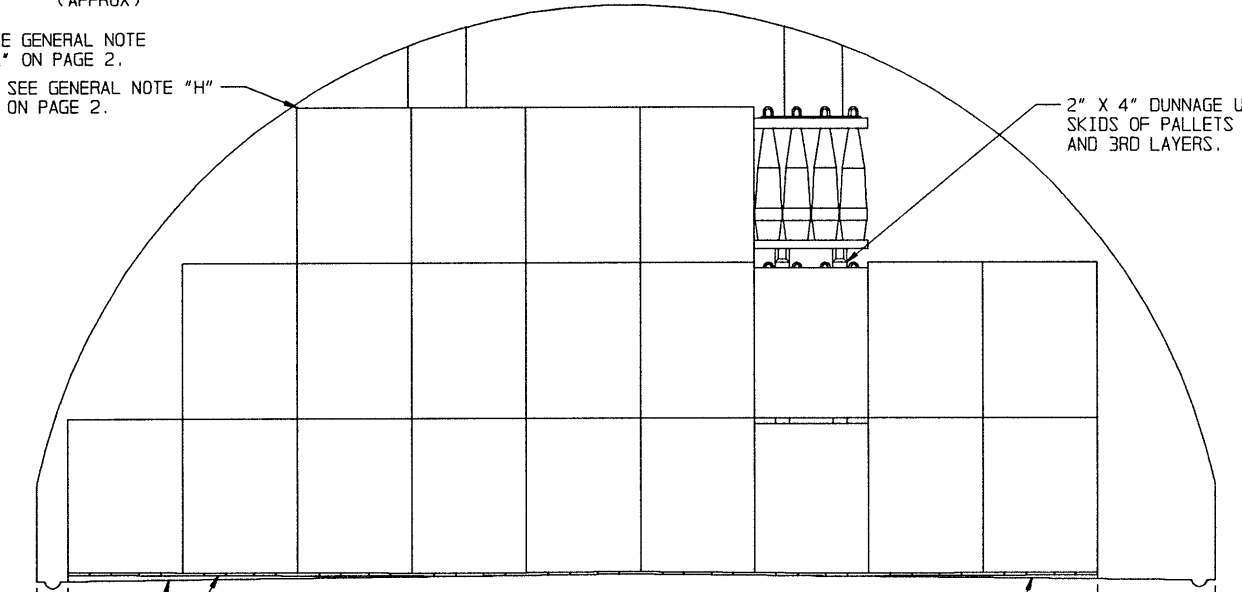
(12'-1-3/4" HIGH)

ITEM	QUANTITY
PALLET UNITS	1,288
PROJECTILES	10,304

PLAN VIEW
(80'-0" MAGAZINE)

SEE GENERAL NOTE "L" ON PAGE 2.

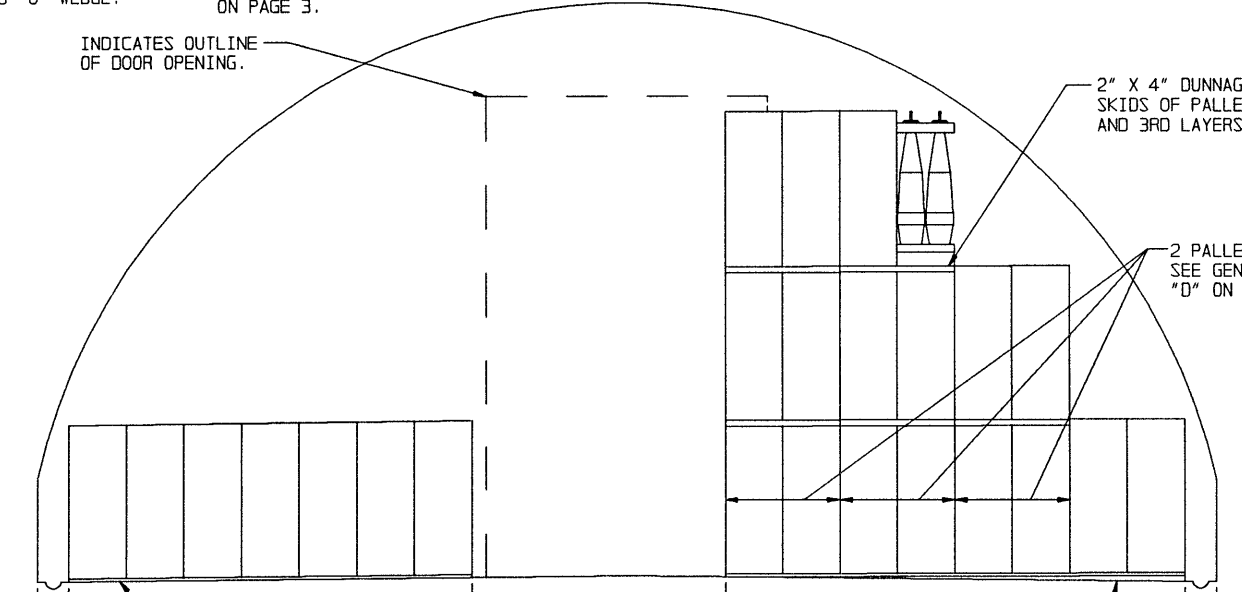
SEE GENERAL NOTE "H" ON PAGE 2.



SECTION G-G

FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3. ("A" STACKS, 22 PALLET UNITS)

INDICATES OUTLINE OF DOOR OPENING.



SECTION H-H

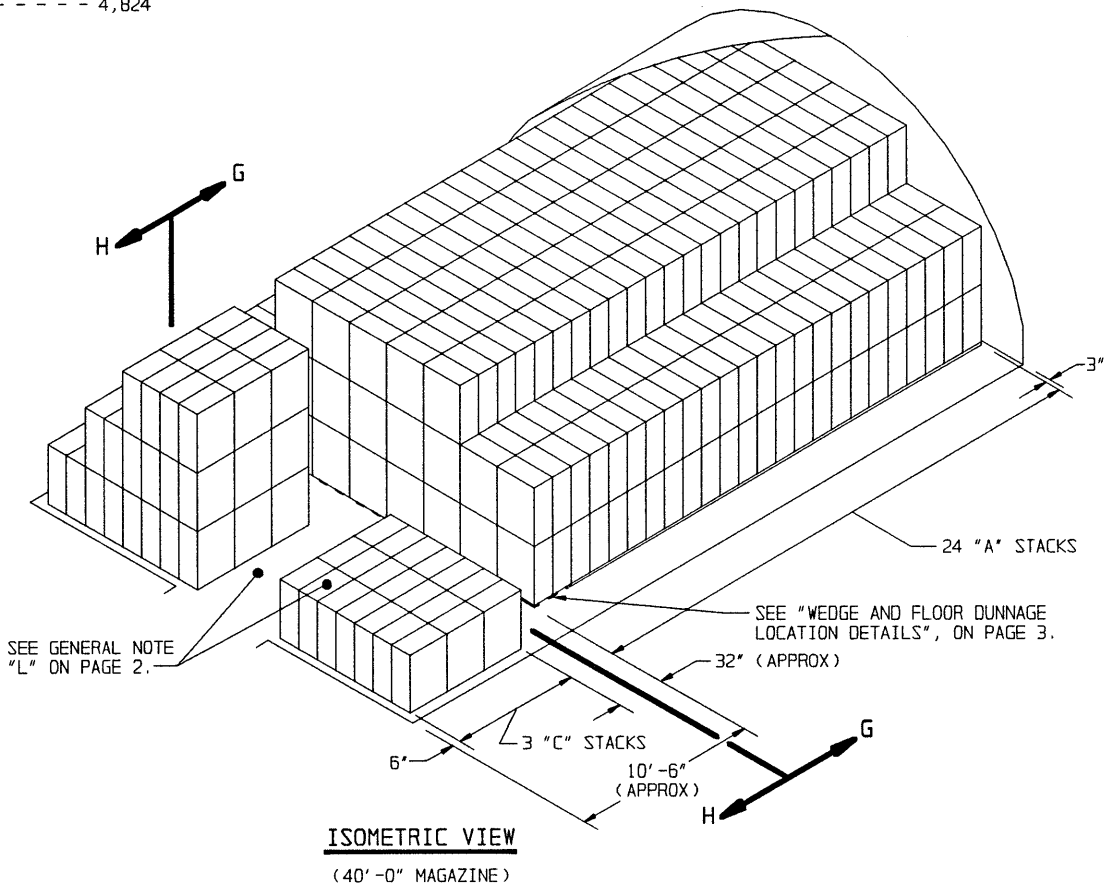
FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3.

("C" STACKS, 25 PALLET UNITS)

STORAGE IN 40'-0" MAGAZINE

(12'-1-3/4" HIGH)

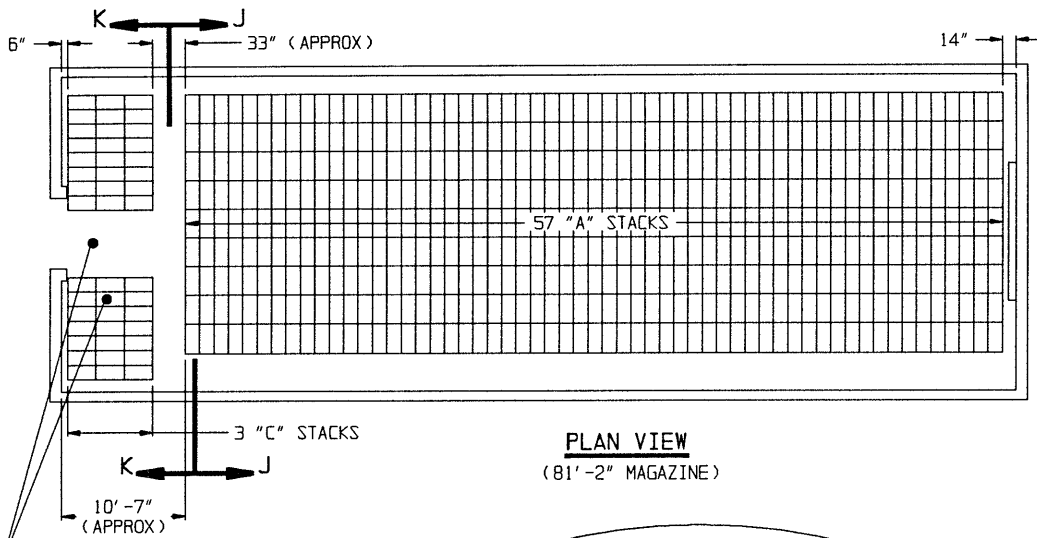
ITEM	QUANTITY
PALLET UNITS - - - - -	603
PROJECTILES - - - - -	4,824



BILL OF MATERIAL (PER STACK) *						
TYPE STACK	WEDGES		2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	6'-0"	9'-0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	2 REQD	2 REQD	30.33	20.22	21.75	10.88
C		2 REQD	22.50	15.00	36.25	18.13

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.

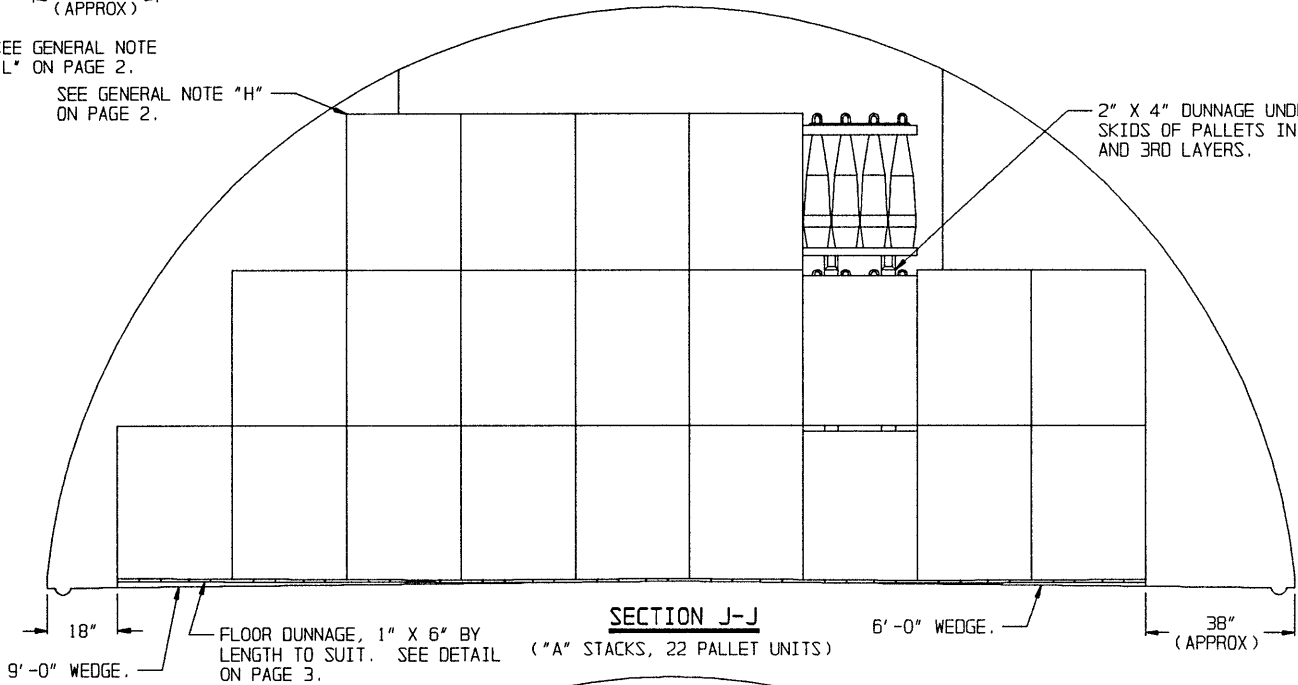


PLAN VIEW
(81'-2" MAGAZINE)

SEE GENERAL NOTE "L" ON PAGE 2.

SEE GENERAL NOTE "H" ON PAGE 2.

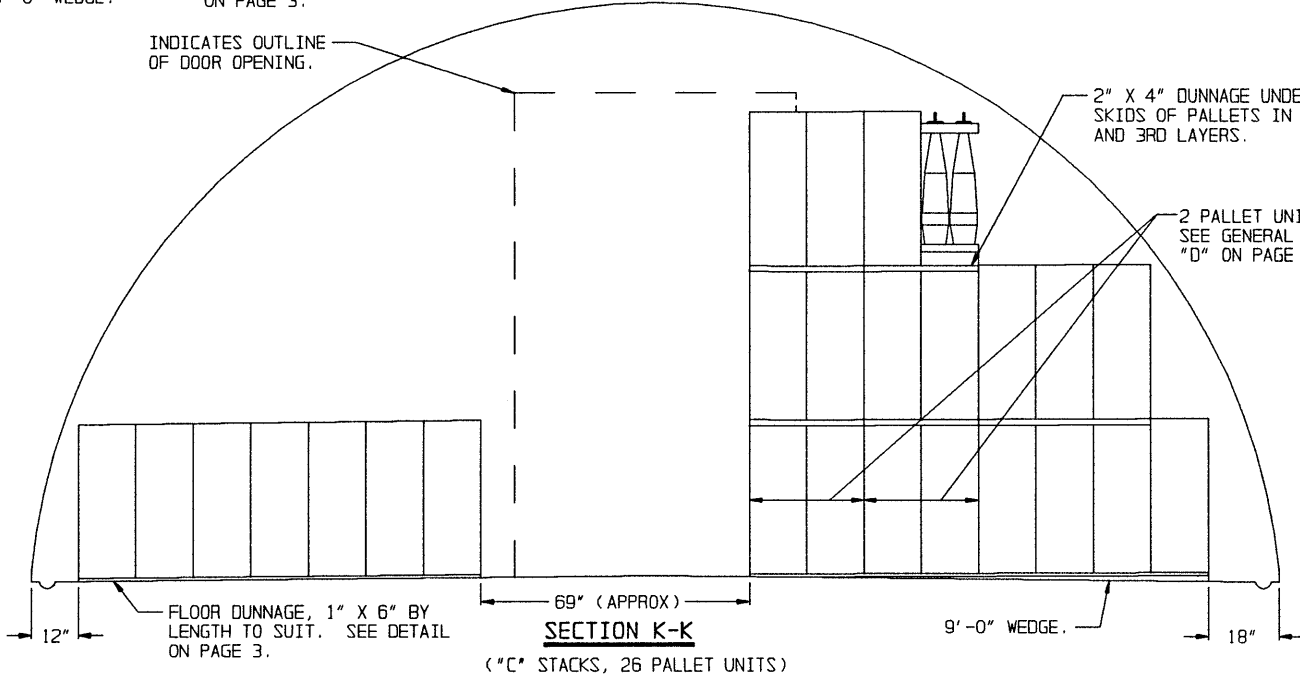
2" X 4" DUNNAGE UNDER SKIDS OF PALLETS IN 2ND AND 3RD LAYERS.



INDICATES OUTLINE OF DOOR OPENING.

2" X 4" DUNNAGE UNDER SKIDS OF PALLETS IN 2ND AND 3RD LAYERS.

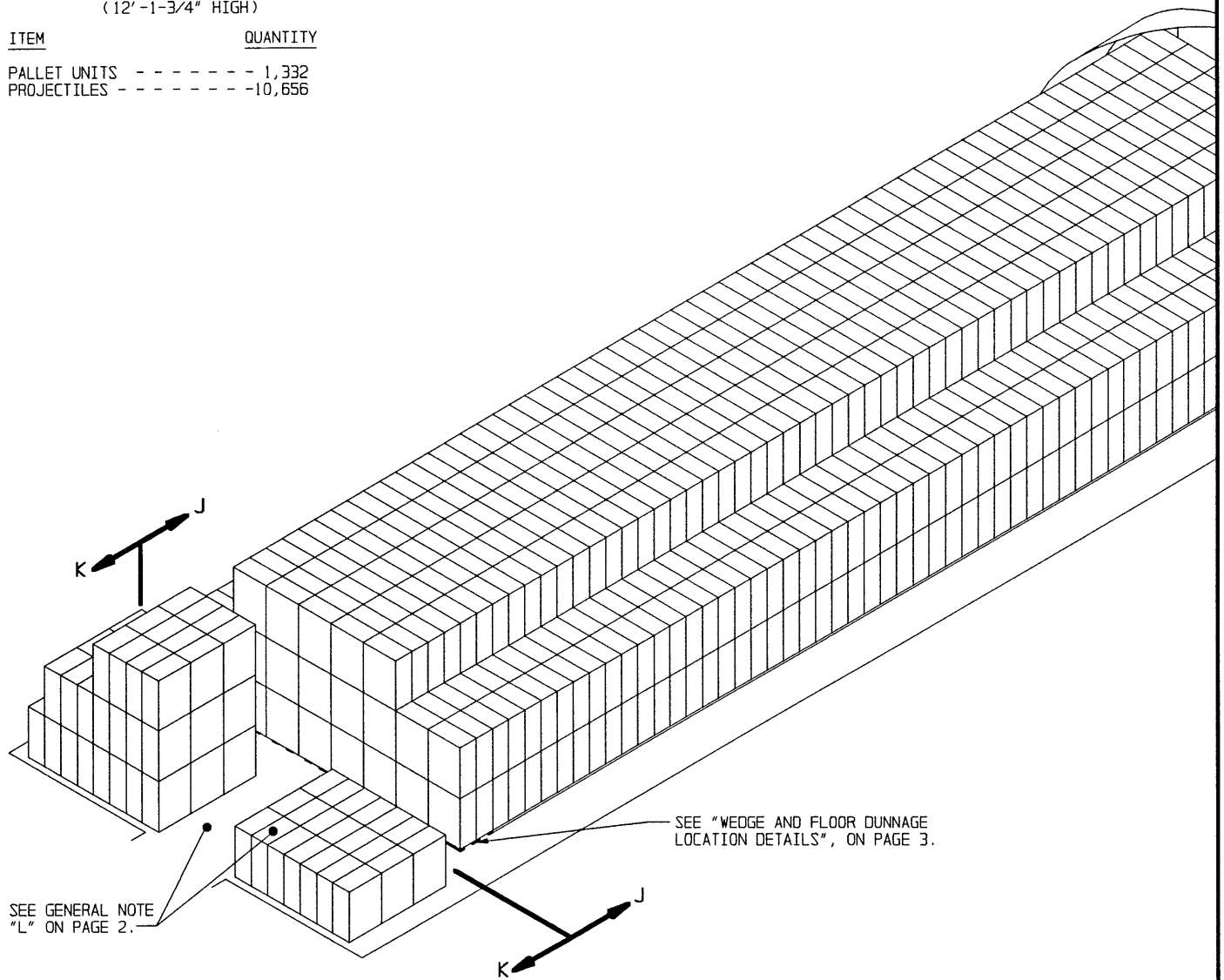
2 PALLET UNITS. SEE GENERAL NOTE "D" ON PAGE 2.



STORAGE IN 81'-2" MAGAZINE

(12'-1-3/4" HIGH)

ITEM	QUANTITY
PALLET UNITS - - - - -	1,332
PROJECTILES - - - - -	10,656

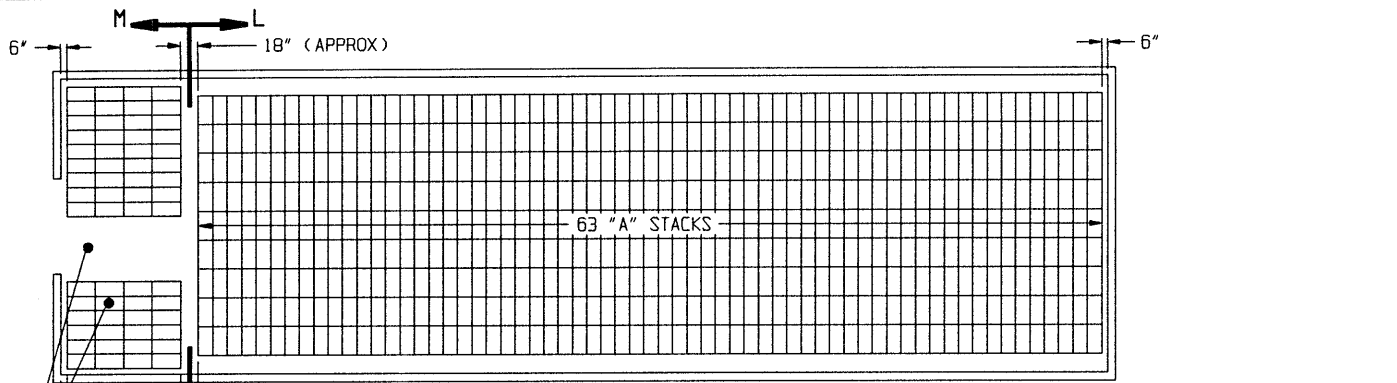


ISOMETRIC VIEW
(81'-2" MAGAZINE)

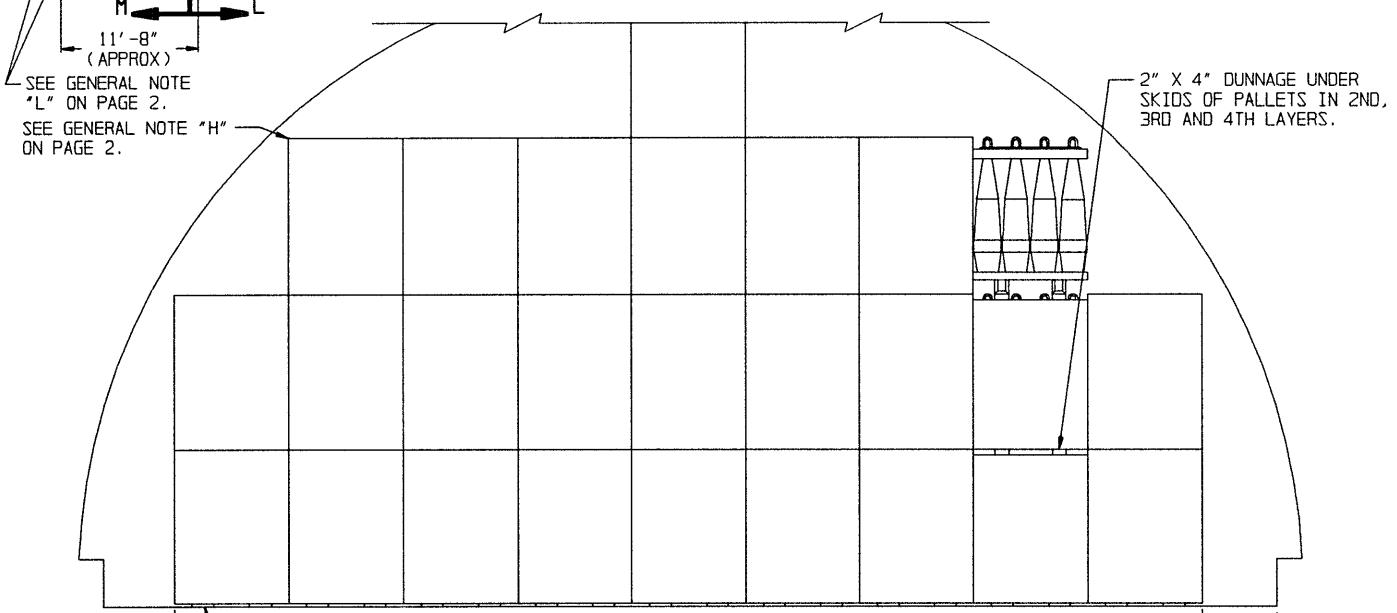
BILL OF MATERIAL (PER STACK) *						
TYPE STACK	WEDGES		2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	6'-0"	9'-0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	2 REOD	2 REOD	30.33	20.22	21.75	10.88
C		2 REOD	25.00	16.67	36.25	18.13

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

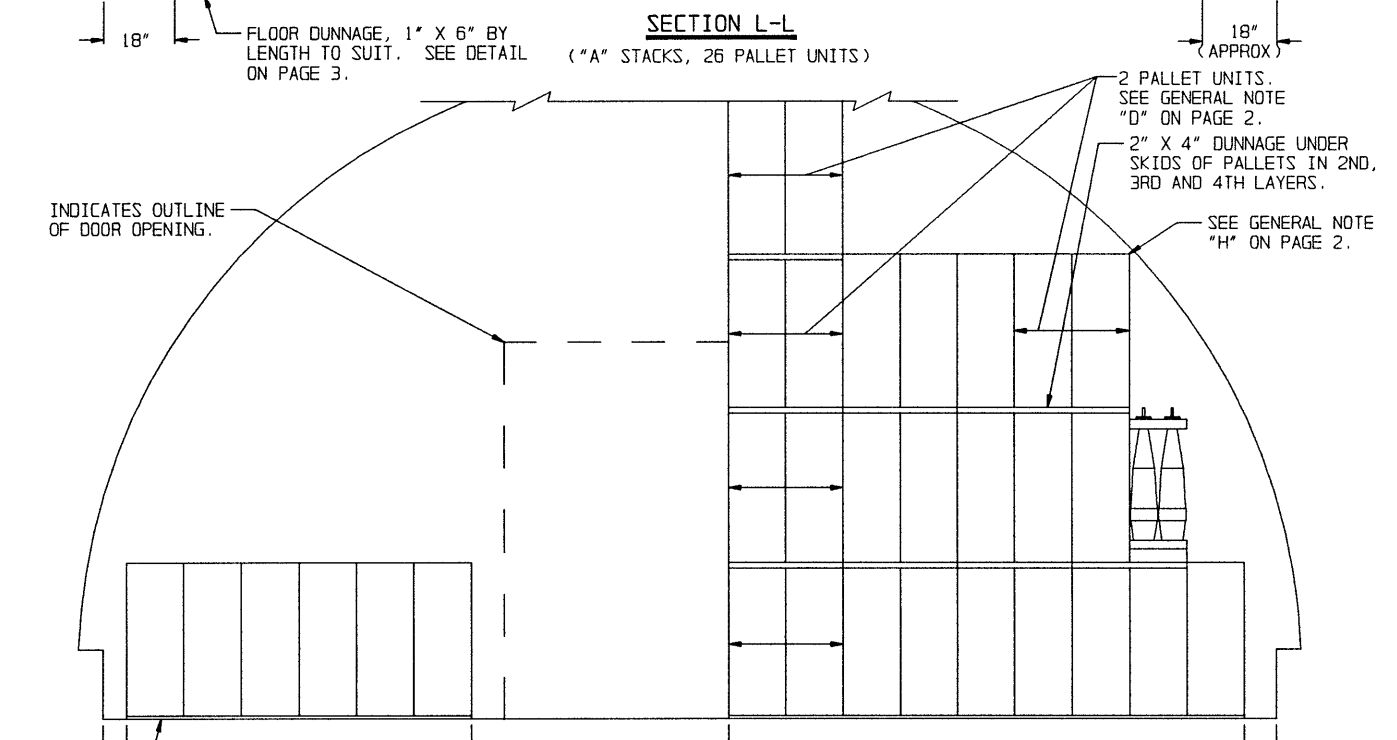
FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.



PLAN VIEW
(89'-0" MAGAZINE)



SECTION L-L
("A" STACKS, 26 PALLET UNITS)

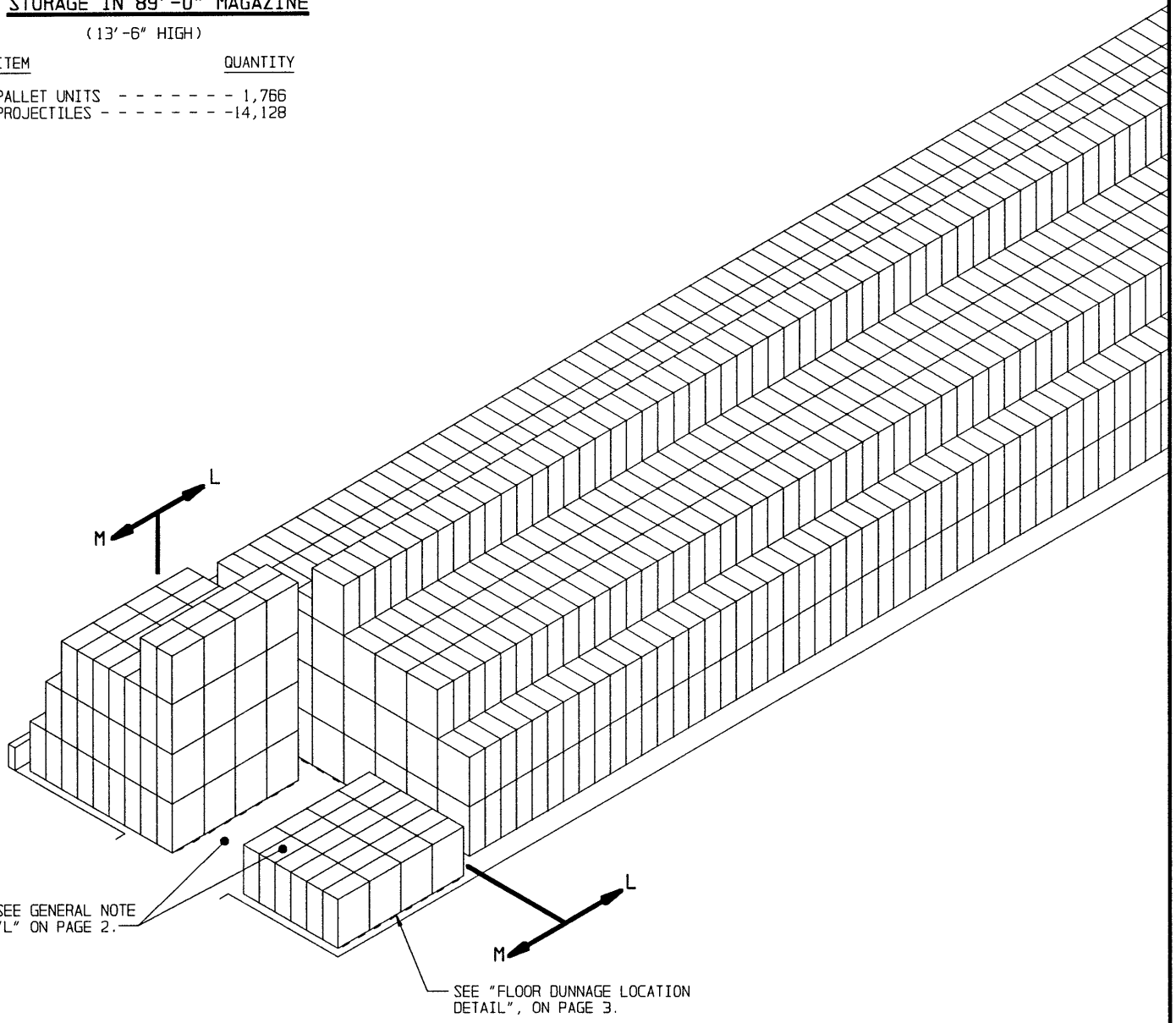


SECTION M-M
("C" STACKS, 32 PALLET UNITS)

STORAGE IN 89'-0" MAGAZINE

(13'-6" HIGH)

ITEM	QUANTITY
PALLET UNITS - - - - -	1,766
PROJECTILES - - - - -	14,128



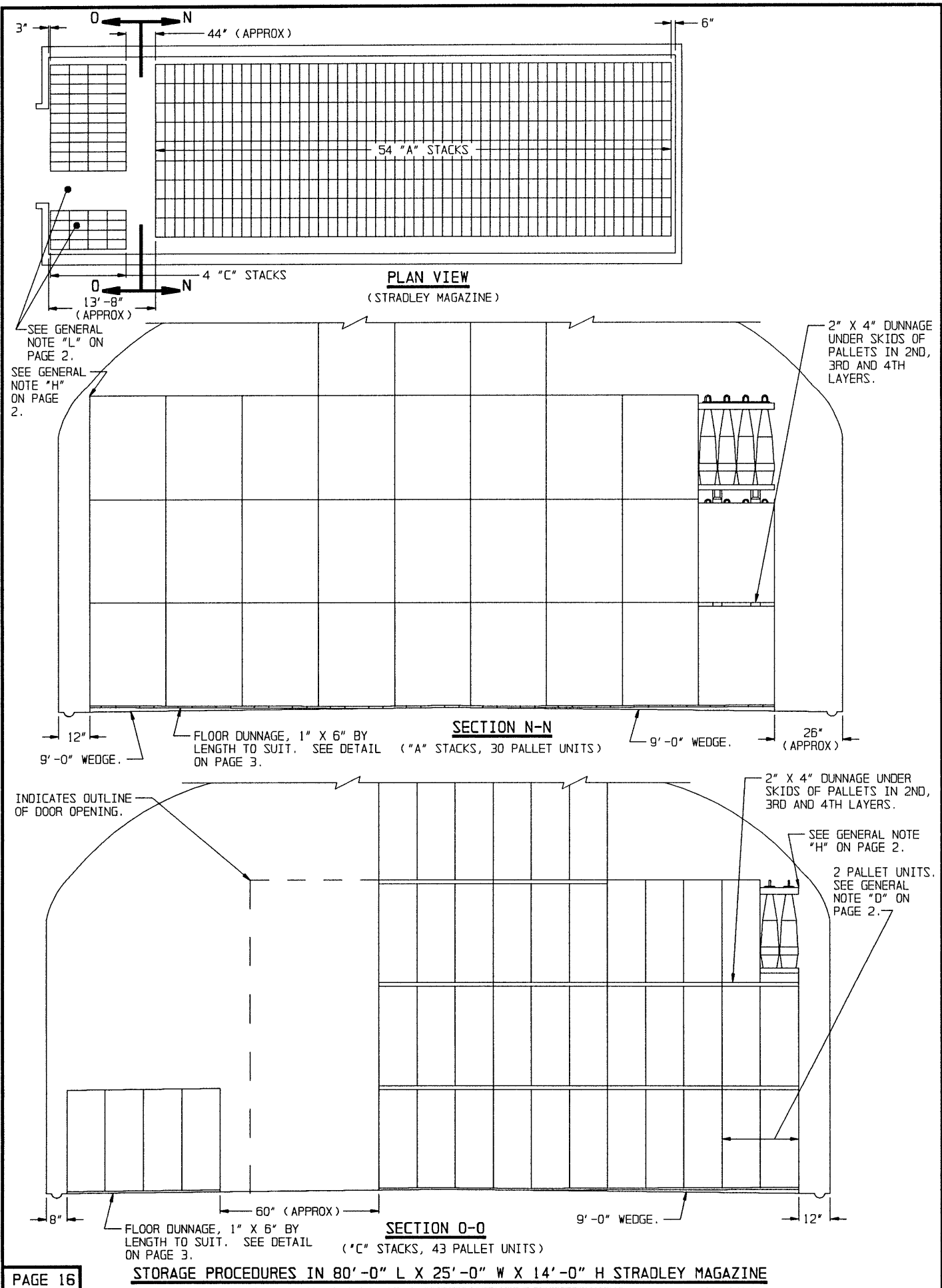
ISOMETRIC VIEW

(89'-0" MAGAZINE)

BILL OF MATERIAL (PER STACK) *				
TYPE STACK	2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	41.08	27.52	21.75	10.88
C	41.08	27.52	36.25	18.13

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

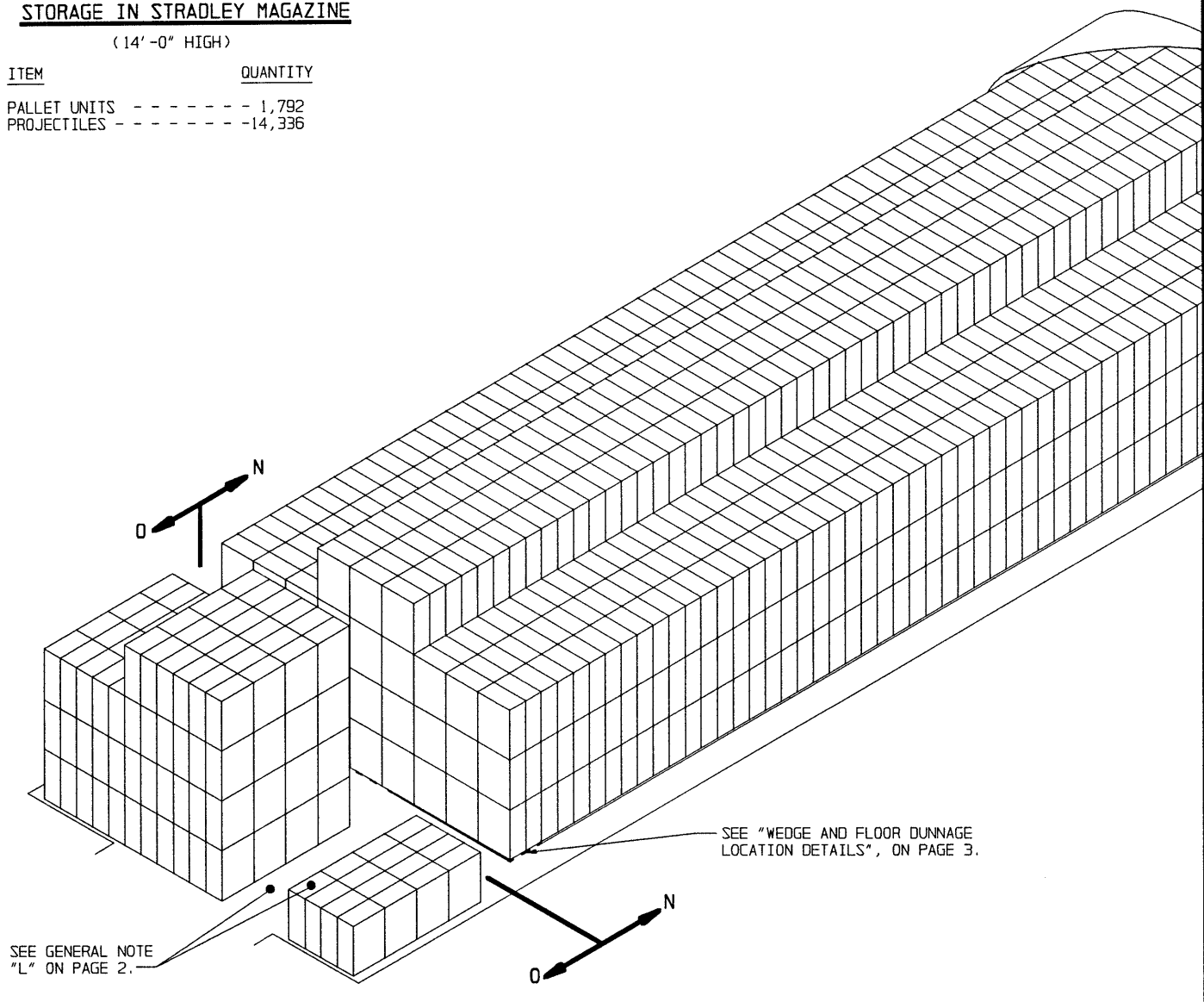
FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS",
SEE PAGE 2. FOR "FLOOR DUNNAGE LOCATION DETAIL",
SEE PAGE 3.



STORAGE IN STRADLEY MAGAZINE

(14'-0" HIGH)

ITEM	QUANTITY
PALLET UNITS - - - - -	1,792
PROJECTILES - - - - -	14,336



ISOMETRIC VIEW
(STRADLEY MAGAZINE)

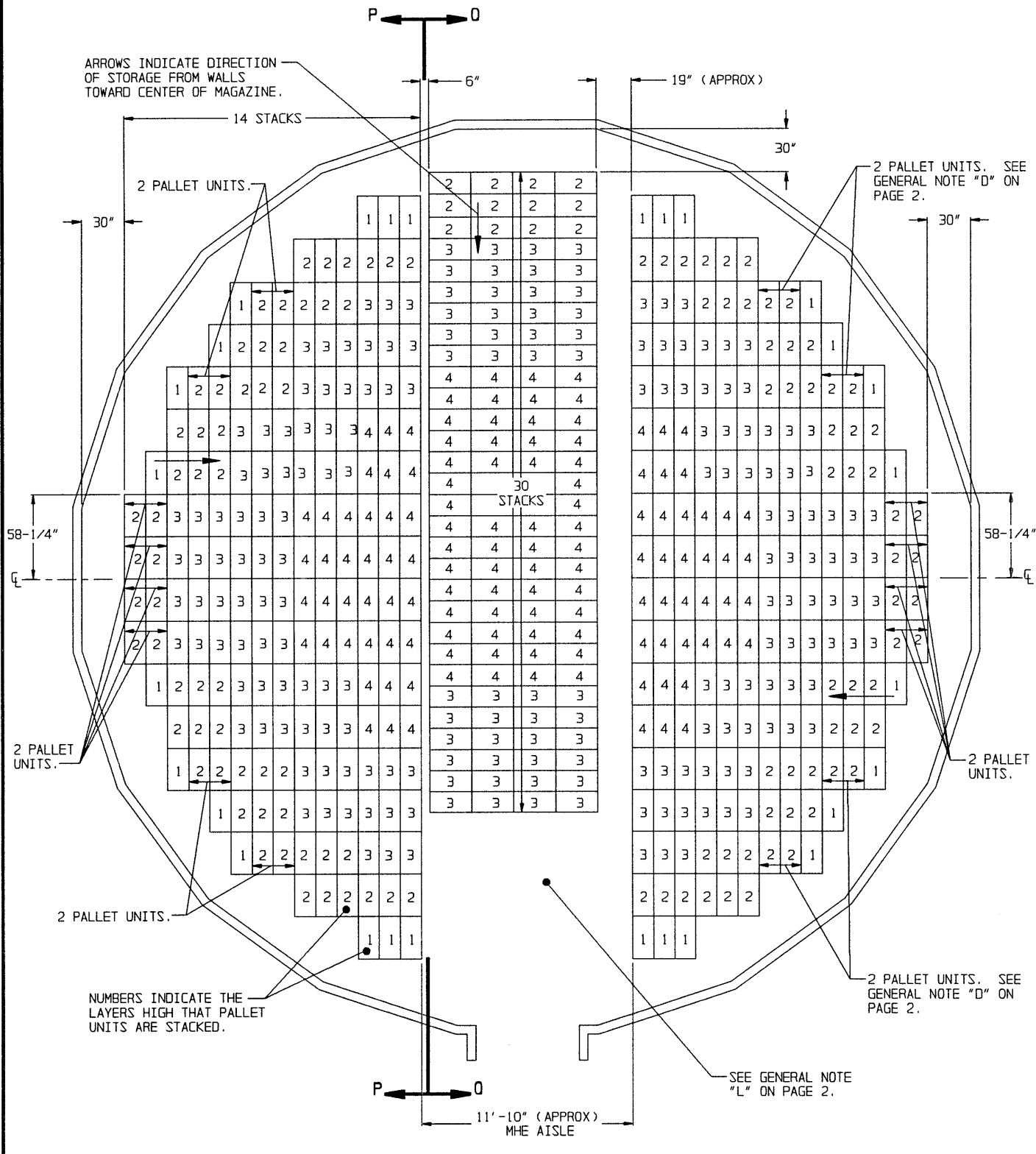
BILL OF MATERIAL (PER STACK) *					
TYPE STACK	WEDGES	2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	9' -0"	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
A	4 REQD	49.00	32.67	21.75	10.88
C	2 REQD	65.00	43.33	36.25	18.13

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

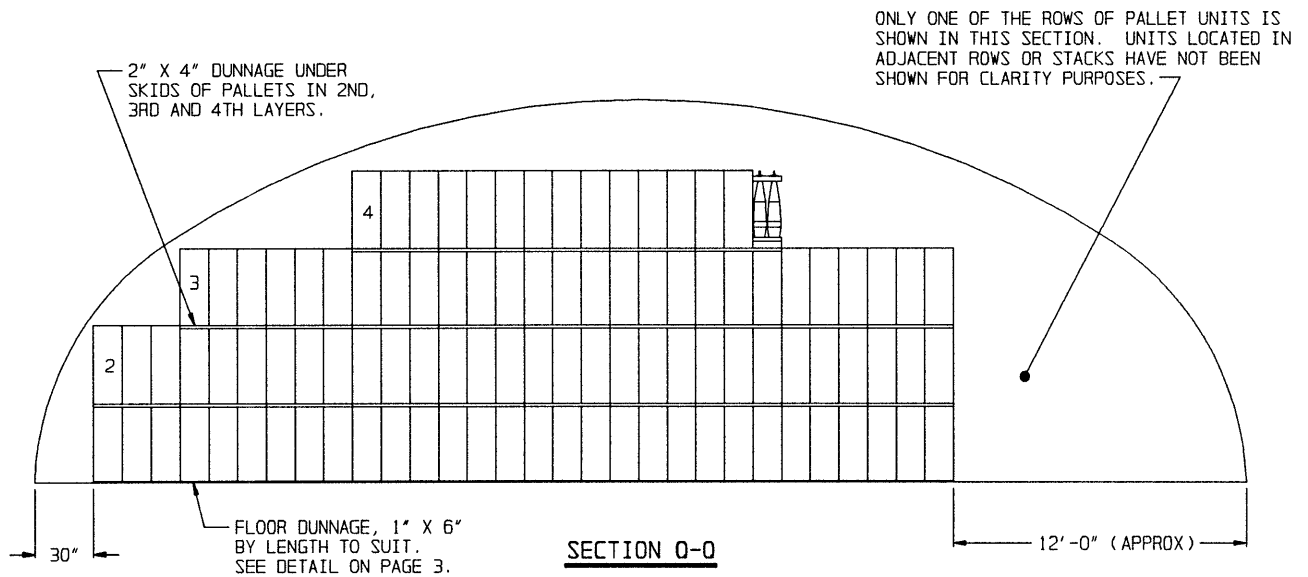
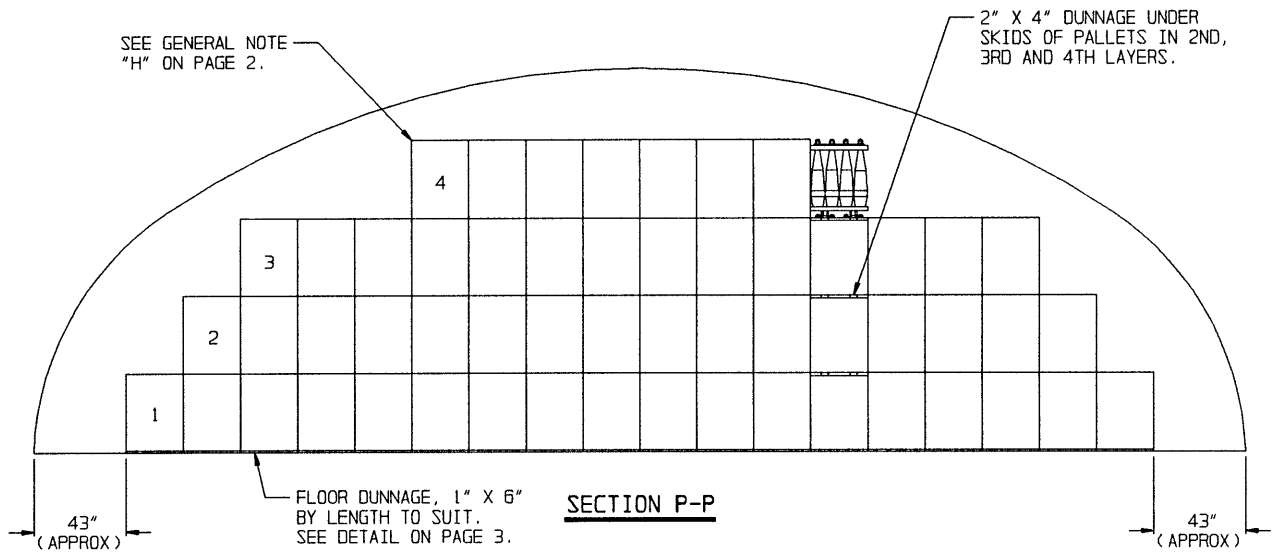
FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS",
SEE PAGE 2. FOR "WEDGE AND FLOOR DUNNAGE
LOCATION DETAILS", SEE PAGE 3.

STORAGE IN 52'-0" DIA MAGAZINE

ITEM	QUANTITY
PALLET UNITS	1,424
PROJECTILES	11,392



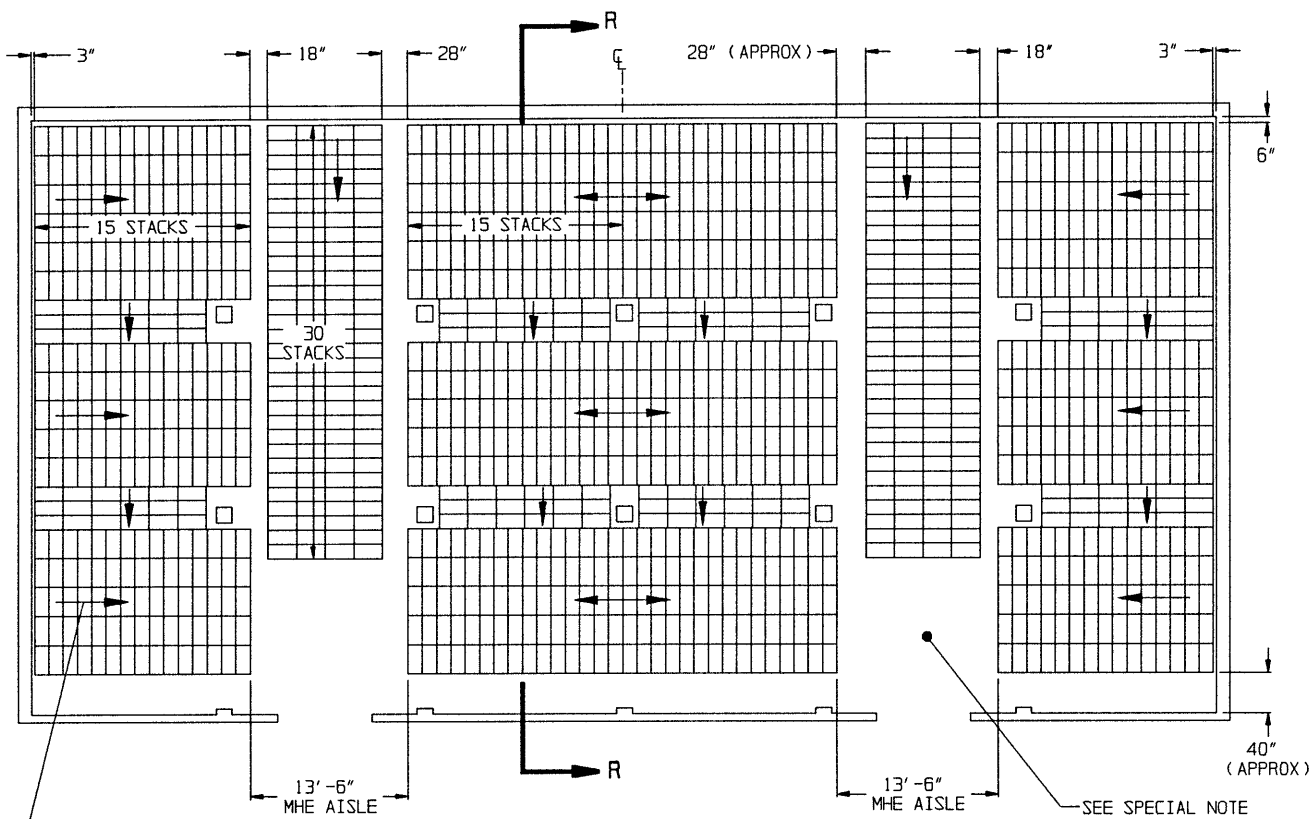
PLAN VIEW



BILL OF MATERIAL (PER PALLET STACK) *				
TYPE STACK	2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
2	2.33	1.55	2.42	1.21
3	4.66	3.11	2.42	1.21
4	7.00	4.67	2.42	1.21

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.



ARROWS INDICATE DIRECTION OF STORAGE FROM WALLS TOWARD MHE AISLE.

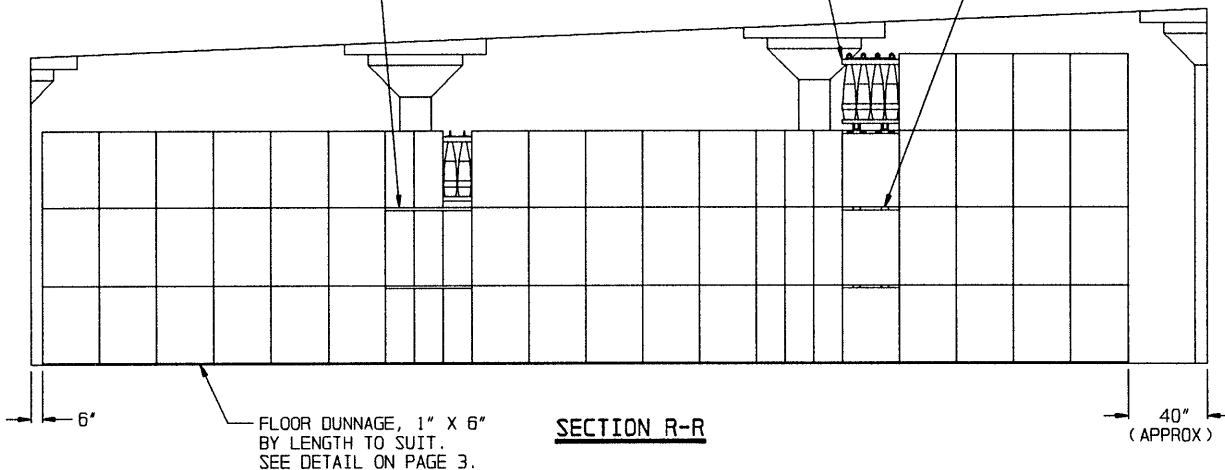
PLAN VIEW
(100'-8" L X 50'-0" W MAGAZINE)

SEE SPECIAL NOTE "L" ON PAGE 2.

PALLET UNITS IN TOP LAYER WILL BE OMITTED AS REQUIRED TO CLEAR ROOF SUPPORT CAPS AT TOP OF COLUMNS.

2" X 4" DUNNAGE UNDER SKIDS OF PALLET IN 2ND AND 3RD LAYERS.

2" X 4" DUNNAGE UNDER SKIDS OF PALLET IN THE 2ND, 3RD AND 4TH LAYERS.



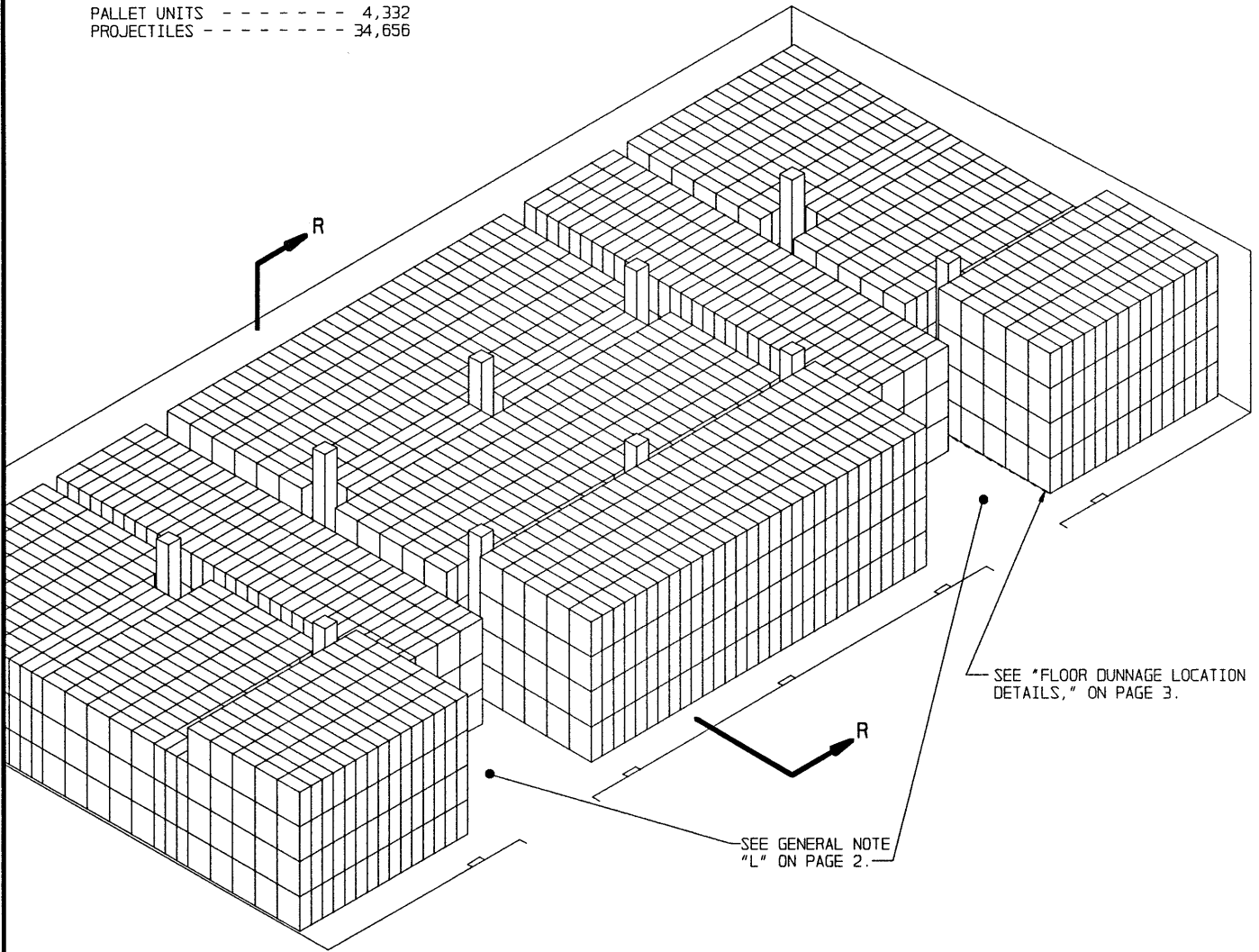
FLOOR DUNNAGE, 1" X 6" BY LENGTH TO SUIT. SEE DETAIL ON PAGE 3.

SECTION R-R

40" (APPROX)

STORAGE IN 100'-8" X 50'-0" MAGAZINE

ITEM	QUANTITY
PALLET UNITS - - - - -	4,332
PROJECTILES - - - - -	34,656

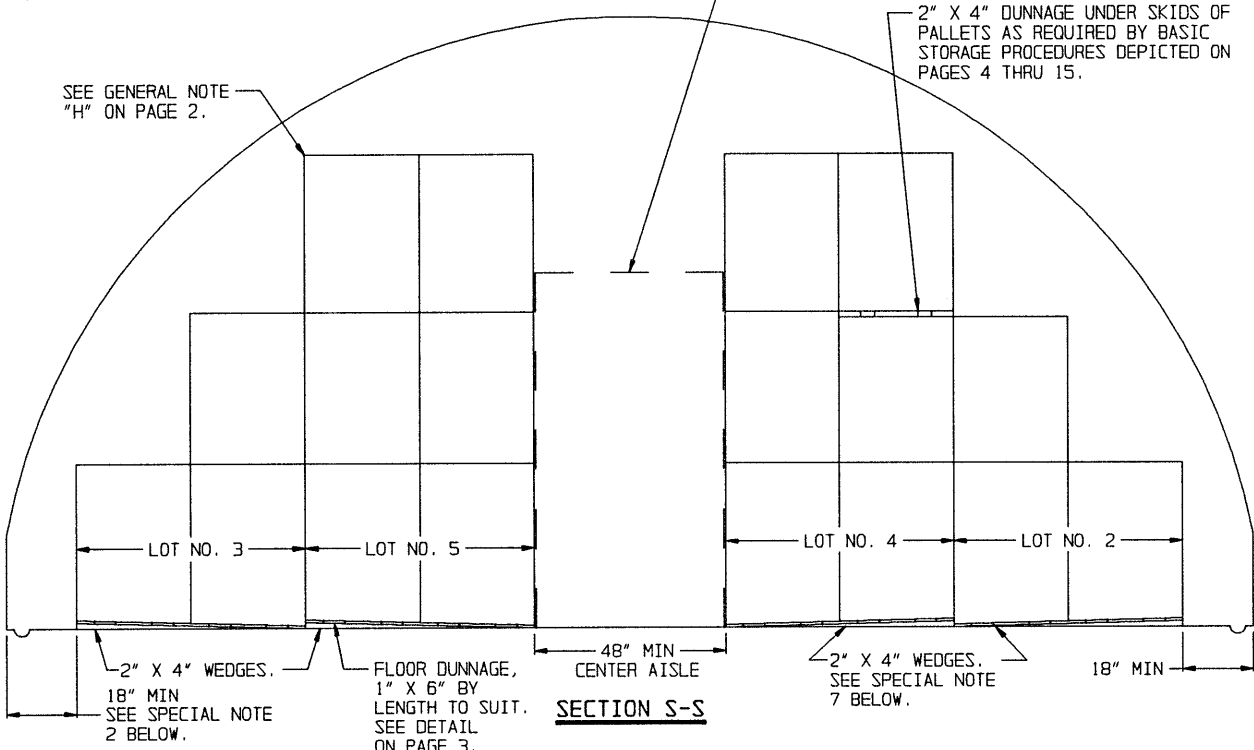
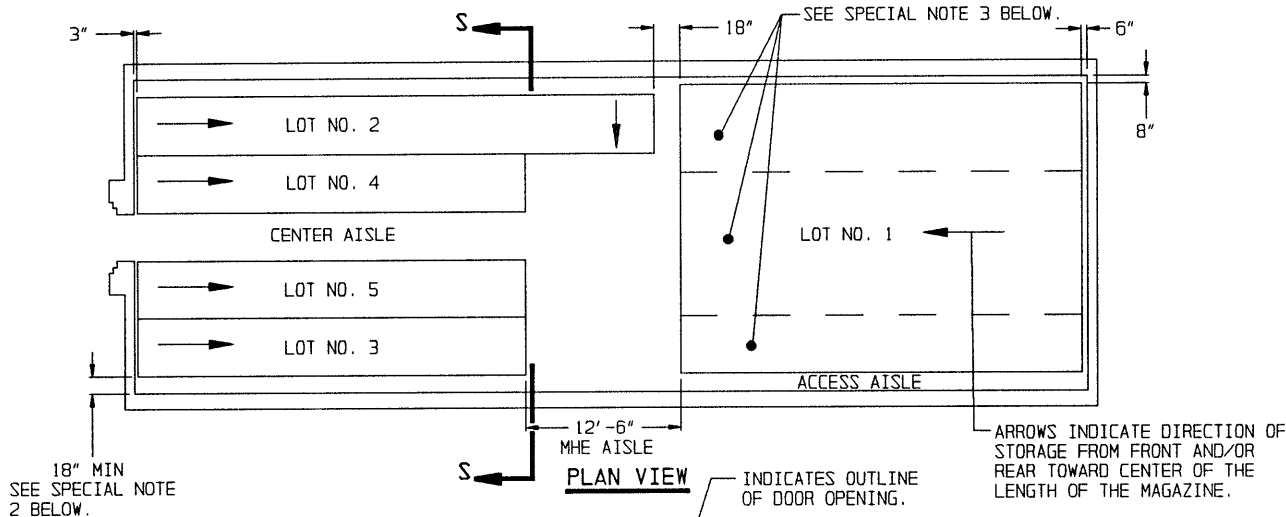


ISOMETRIC VIEW
(100'-8" L X 50'-0" W MAGAZINE)

BILL OF MATERIAL (PER PALLET STACK) *				
TYPE STACK	2" X 4" DUNNAGE LUMBER		1" X 6" FLOOR DUNNAGE	
	LINEAR FEET	BOARD FEET	LINEAR FEET	BOARD FEET
3	4.66	3.11	2.42	1.21
4	7.00	4.67	2.42	1.21

* SEE GENERAL NOTES "E", "F" AND "G" ON PAGE 2.

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2. FOR "FLOOR DUNNAGE LOCATION DETAILS", SEE PAGE 3.



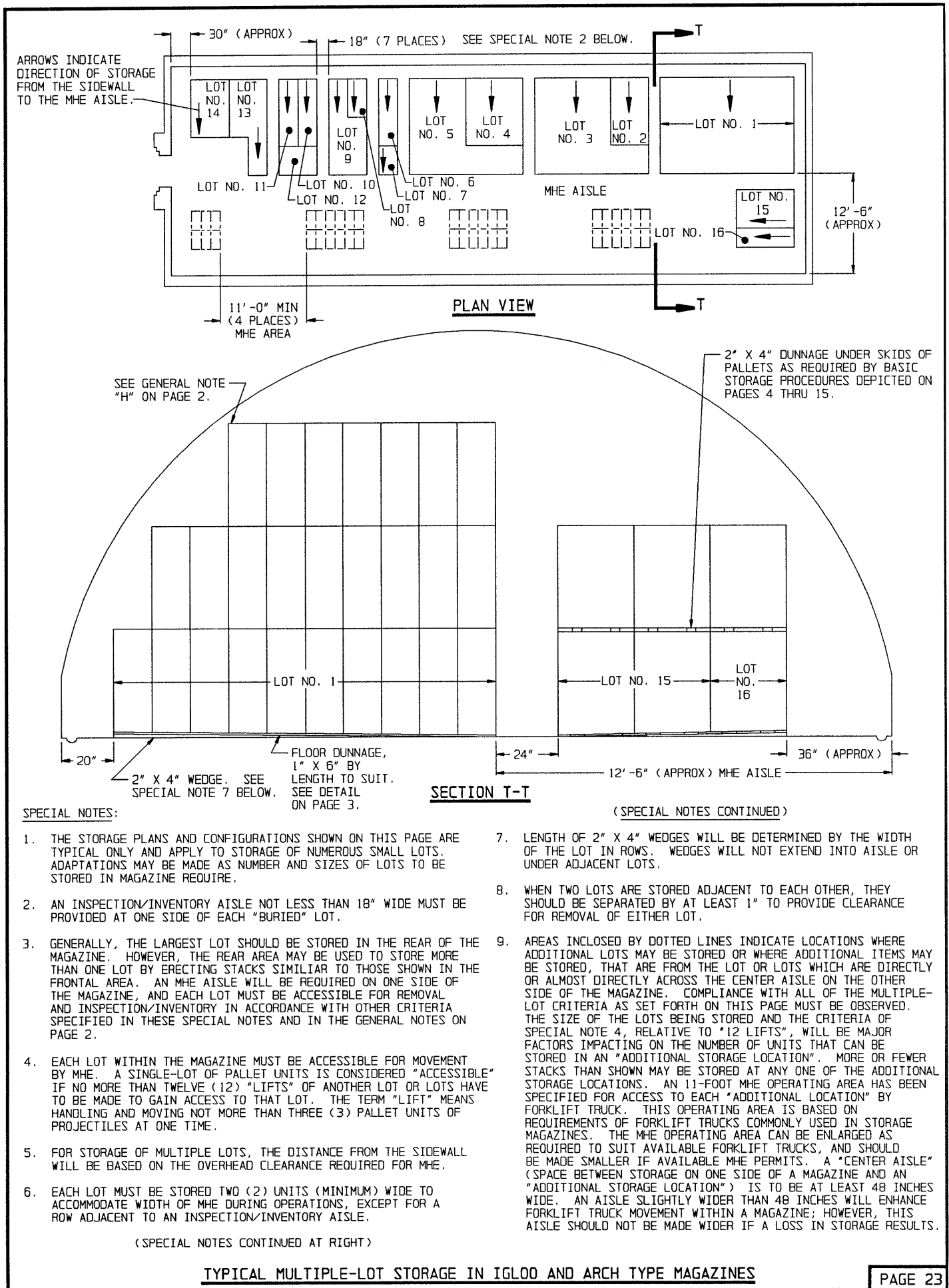
SPECIAL NOTES:

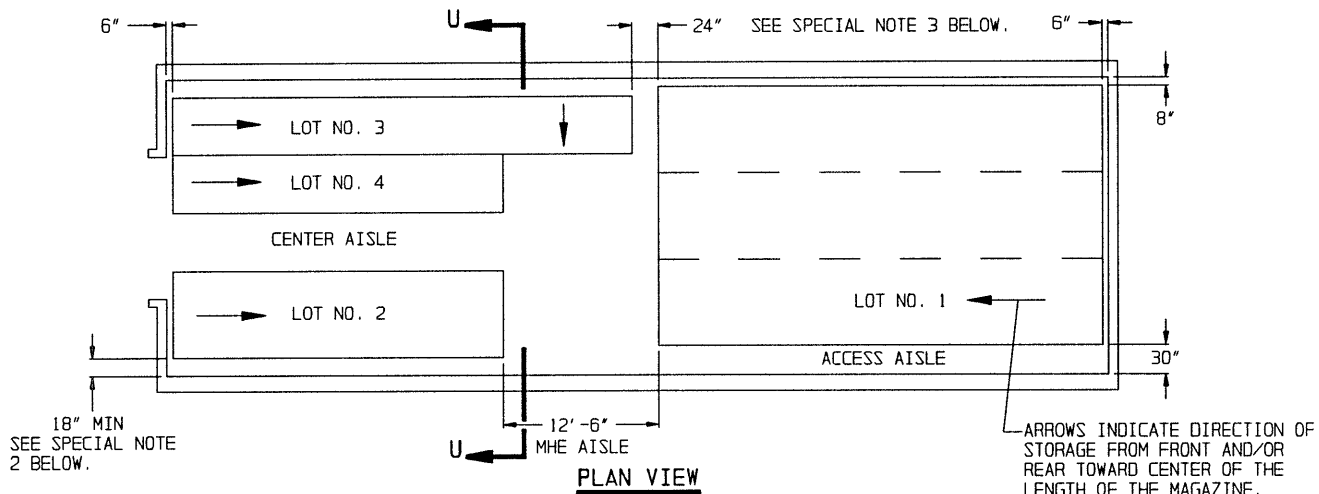
1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO RELATIVELY LARGER LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZES OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE MUST BE PROVIDED AT ONE SIDE OR END OF EACH LOT.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED IN THE REAR OF THE MAGAZINE. HOWEVER, THE REAR AREA MAY BE USED TO STORE MORE THAN ONE LOT BY ERECTING ROWS SIMILAR TO THOSE SHOWN IN THE FRONTAL AREA. A CENTER AISLE WILL NOT BE REQUIRED IN THE REAR AREA AS LONG AS EACH LOT IS ACCESSIBLE FOR REMOVAL AND INSPECTION/INVENTORY IN ACCORDANCE WITH OTHER CRITERIA SPECIFIED IN THESE SPECIAL NOTES AND IN THE GENERAL NOTES ON PAGE 2.
4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NO MORE THAN TWELVE (12) "LIFTS" OF ANOTHER LOT OR LOTS HAVE TO BE MADE TO GAIN ACCESS TO THAT LOT. THE TERM "LIFT" MEANS HANDLING AND MOVING NOT MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.
5. FOR STORAGE OF MULTIPLE LOTS, THE DISTANCE FROM THE SIDEWALL WILL BE BASED ON THE OVERHEAD CLEARANCE REQUIRED FOR MHE.

(SPECIAL NOTES CONTINUED)

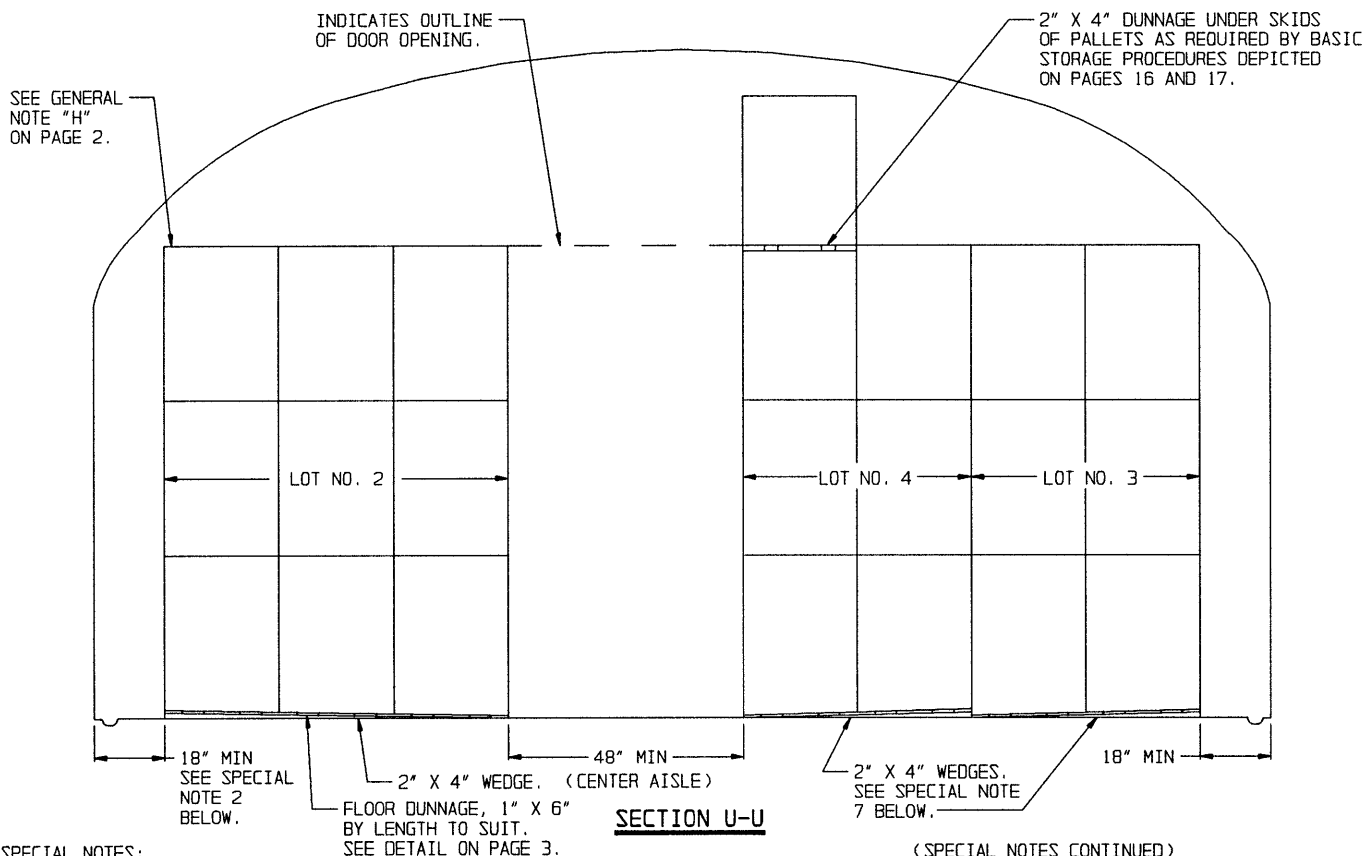
6. EACH LOT MUST BE STORED TWO (2) UNITS (MINIMUM) WIDE TO ACCOMMODATE WIDTH OF MHE DURING OPERATIONS, EXCEPT FOR A ROW ADJACENT TO A CENTER AISLE.
7. LENGTH OF 2" X 4" WEDGES WILL BE DETERMINED BY THE WIDTH OF THE LOT IN ROWS. WEDGES WILL NOT EXTEND INTO AISLE OR UNDER ADJACENT LOTS.
8. WHEN TWO LOTS ARE STORED ADJACENT TO EACH OTHER, THEY SHOULD BE SEPARATED BY AT LEAST 1" TO PROVIDE CLEARANCE FOR REMOVAL OF EITHER LOT.

(SPECIAL NOTES CONTINUED AT RIGHT)





PLAN VIEW



SECTION U-U

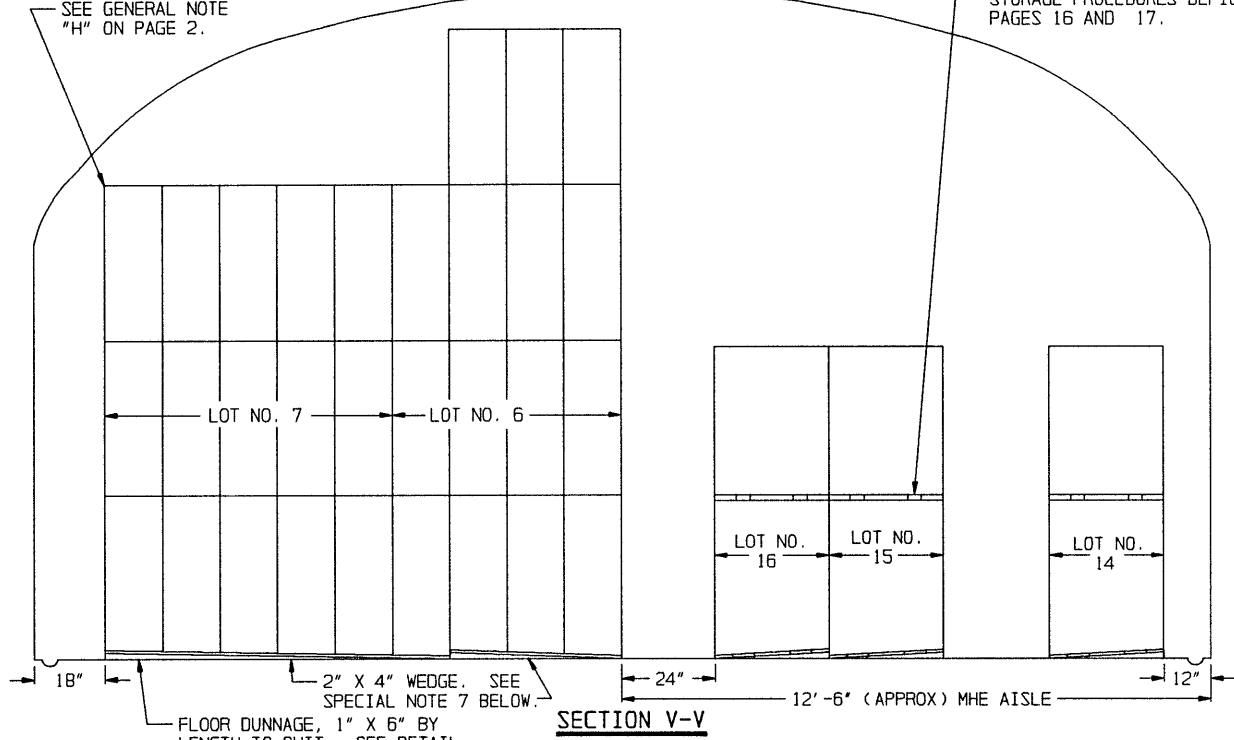
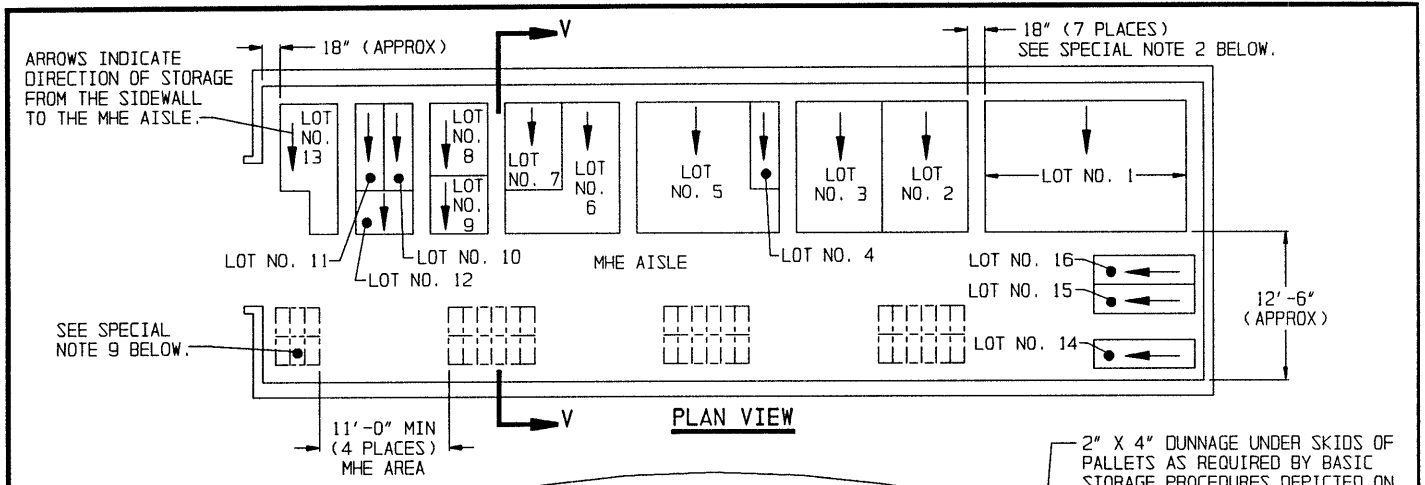
SPECIAL NOTES:

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO RELATIVELY LARGE LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZES OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE MUST BE PROVIDED AT ONE SIDE OR END OF EACH LOT.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED IN THE REAR OF THE MAGAZINE. HOWEVER, THE REAR AREA MAY BE USED TO STORE MORE THAN ONE LOT BY ERECTING ROWS SIMILAR TO THOSE SHOWN IN THE FRONTAL AREA. A CENTER AISLE WILL NOT BE REQUIRED IN THE REAR AREA AS LONG AS EACH LOT IS ACCESSIBLE FOR REMOVAL AND INSPECTION/INVENTORY IN ACCORDANCE WITH OTHER CRITERIA SPECIFIED IN THESE SPECIAL NOTES AND IN THE GENERAL NOTES ON PAGE 2.
4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NO MORE THAN TWELVE (12) "LIFTS" OF ANOTHER LOT OR LOTS HAVE TO BE MADE TO GAIN ACCESS TO THAT LOT. THE TERM "LIFT" MEANS HANDLING AND MOVING NOT MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.

(SPECIAL NOTES CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. FOR STORAGE OF MULTIPLE LOTS, THE DISTANCE FROM THE SIDEWALL WILL BE BASED ON THE OVERHEAD CLEARANCE REQUIRED FOR MHE.
6. EACH LOT MUST BE STORED TWO (2) UNITS (MINIMUM) WIDE TO ACCOMMODATE WIDTH OF MHE DURING OPERATIONS, EXCEPT FOR A ROW ADJACENT TO A CENTER AISLE.
7. LENGTH OF 2" X 4" WEDGES WILL BE DETERMINED BY THE WIDTH OF THE LOT IN ROWS. WEDGES WILL NOT EXTEND INTO AISLES OR UNDER ADJACENT LOTS.
8. WHEN TWO LOTS ARE STORED ADJACENT TO EACH OTHER, THEY SHOULD BE SEPARATED BY AT LEAST 1" TO PROVIDE CLEARANCE FOR REMOVAL OF EITHER LOT.



SPECIAL NOTES:

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO STORAGE OF NUMEROUS SMALL LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZES OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE NOT LESS THAN 18" WIDE MUST BE PROVIDED AT ONE SIDE OF EACH "BURIED" LOT.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED IN THE REAR OF THE MAGAZINE. HOWEVER, THE REAR AREA MAY BE USED TO STORE MORE THAN ONE LOT BY ERECTING STACKS SIMILAR TO THOSE SHOWN IN THE FRONTAL AREA. AN MHE AISLE WILL BE REQUIRED ON ONE SIDE OF THE MAGAZINE, AND EACH LOT MUST BE ACCESSIBLE FOR REMOVAL AND INSPECTION/INVENTORY IN ACCORDANCE WITH OTHER CRITERIA SPECIFIED IN THESE SPECIAL NOTES AND IN THE GENERAL NOTES ON PAGE 2.
4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NO MORE THAN TWELVE (12) "LIFTS" OF ANOTHER LOT OR LOTS HAVE TO BE MADE TO GAIN ACCESS TO THAT LOT. THE TERM "LIFT" MEANS HANDLING AND MOVING NOT MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.
5. FOR STORAGE OF MULTIPLE LOTS, THE DISTANCE FROM THE SIDEWALL WILL BE BASED ON THE OVERHEAD CLEARANCE REQUIRED FOR MHE.
6. EACH LOT MUST BE STORED TWO (2) UNITS (MINIMUM) WIDE TO ACCOMMODATE WIDTH OF MHE DURING OPERATIONS, EXCEPT FOR A ROW ADJACENT TO AN INSPECTION/INVENTORY AISLE.

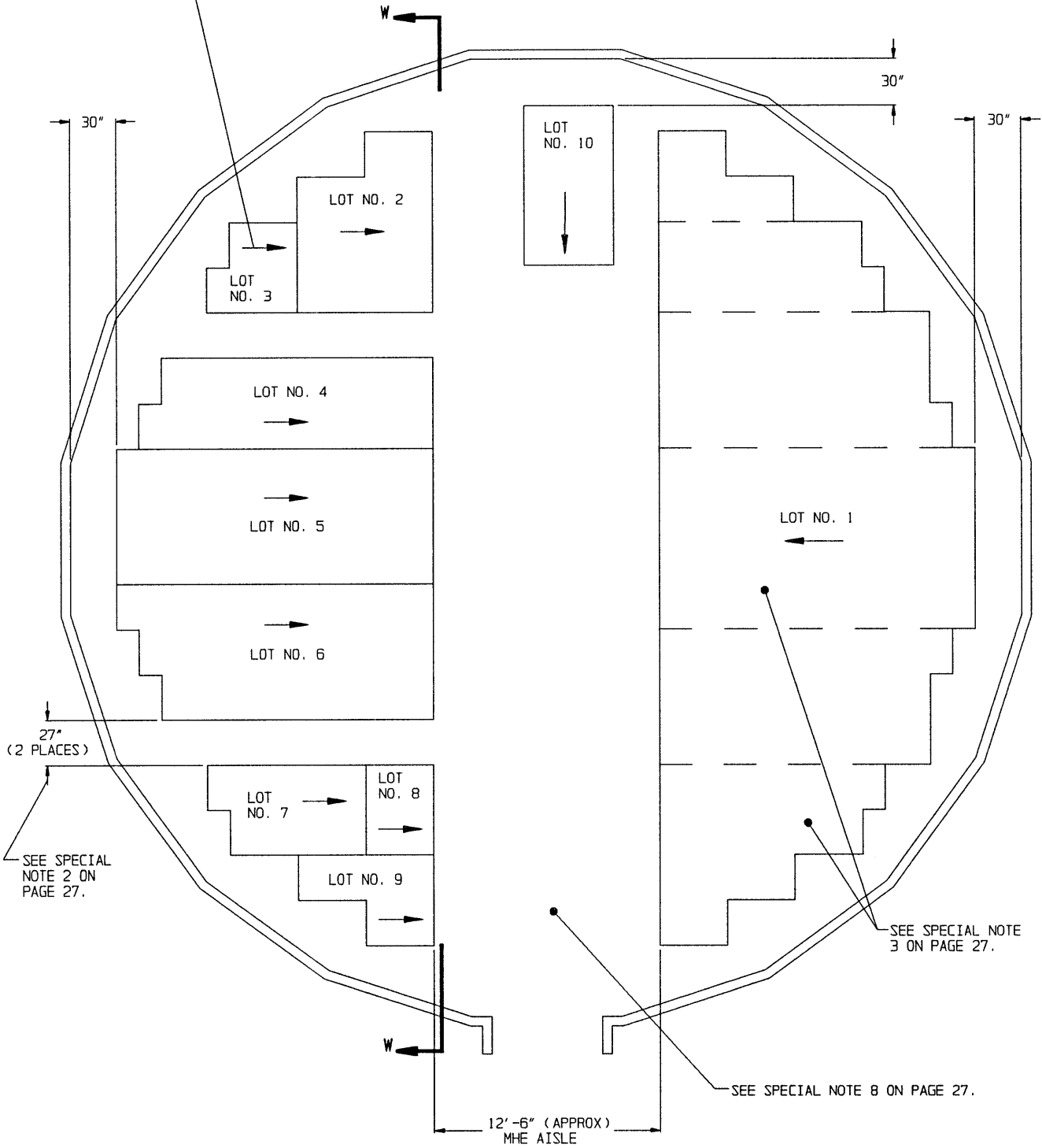
(SPECIAL NOTES CONTINUED)

7. LENGTH OF 2" X 4" WEDGES WILL BE DETERMINED BY THE WIDTH OF THE LOT IN ROWS. WEDGES WILL NOT EXTEND INTO AISLE OR UNDER ADJACENT LOTS.
8. WHEN TWO LOTS ARE STORED ADJACENT TO EACH OTHER, THEY SHOULD BE SEPARATED BY AT LEAST 1" TO PROVIDE CLEARANCE FOR REMOVAL OF EITHER LOT.
9. AREAS INCLOSED BY DOTTED LINES INDICATE LOCATIONS WHERE ADDITIONAL LOTS MAY BE STORED OR WHERE ADDITIONAL ITEMS MAY BE STORED, THAT ARE FROM THE LOT OR LOTS WHICH ARE DIRECTLY OR ALMOST DIRECTLY ACROSS THE CENTER AISLE ON THE OTHER SIDE OF THE MAGAZINE. COMPLIANCE WITH ALL OF THE MULTIPLE-LOT CRITERIA AS SET FORTH ON THIS PAGE MUST BE OBSERVED. THE SIZE OF THE LOTS BEING STORED AND THE CRITERIA OF SPECIAL NOTE 4, RELATIVE TO "12 LIFTS", WILL BE MAJOR FACTORS IMPACTING ON THE NUMBER OF UNITS THAT CAN BE STORED IN AN "ADDITIONAL STORAGE LOCATION". MORE OR FEWER STACKS THAN SHOWN MAY BE STORED AT ANY ONE OF THE ADDITIONAL STORAGE LOCATIONS. AN 11-FOOT MHE OPERATING AREA HAS BEEN SPECIFIED FOR ACCESS TO EACH "ADDITIONAL LOCATION" BY FORKLIFT TRUCK. THIS OPERATING AREA IS BASED ON REQUIREMENTS OF FORKLIFT TRUCKS COMMONLY USED IN STORAGE MAGAZINES. THE MHE OPERATING AREA CAN BE ENLARGED AS REQUIRED TO SUIT AVAILABLE FORKLIFT TRUCKS, AND SHOULD BE MADE SMALLER IF AVAILABLE MHE PERMITS. A "CENTER AISLE" (SPACE BETWEEN STORAGE ON ONE SIDE OF A MAGAZINE AND AN "ADDITIONAL STORAGE LOCATION") IS TO BE AT LEAST 48 INCHES WIDE. AN AISLE SLIGHTLY WIDER THAN 48 INCHES WILL ENHANCE FORKLIFT TRUCK MOVEMENT WITHIN A MAGAZINE; HOWEVER, THIS AISLE SHOULD NOT BE MADE WIDER IF A LOSS IN STORAGE RESULTS.

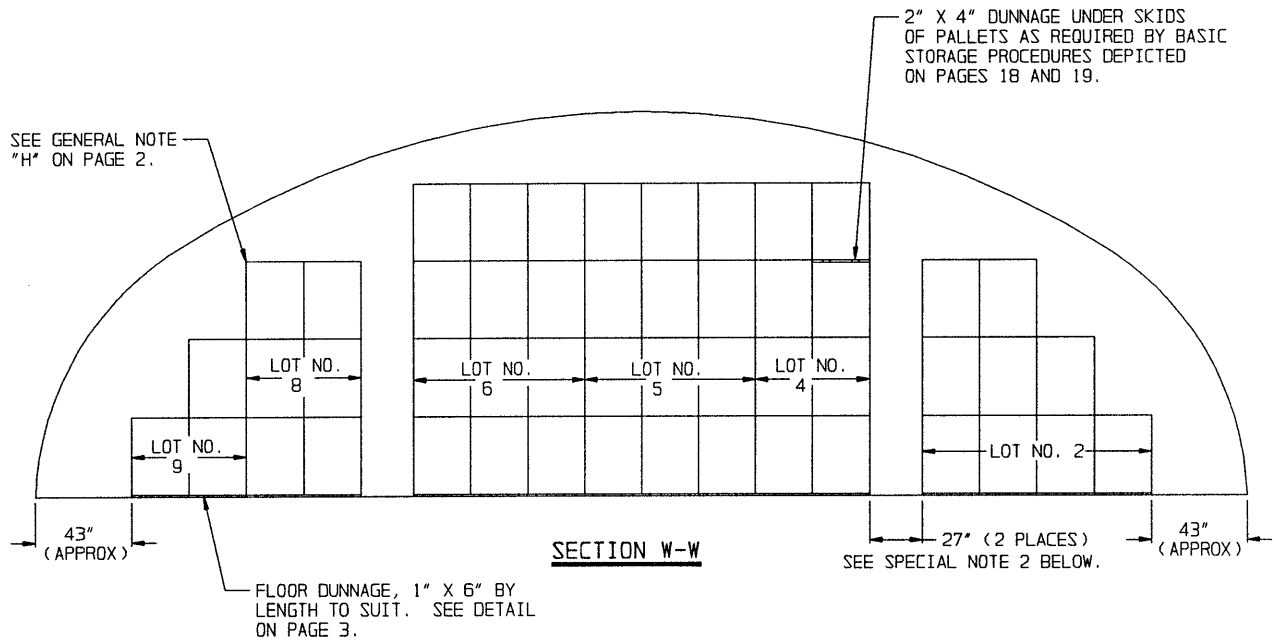
(SPECIAL NOTES CONTINUED AT RIGHT)

TYPICAL MULTIPLE-LOT STORAGE IN STRADLEY MAGAZINE

ARROWS INDICATE DIRECTION OF STORAGE FROM WALLS TOWARD MHE AISLE.

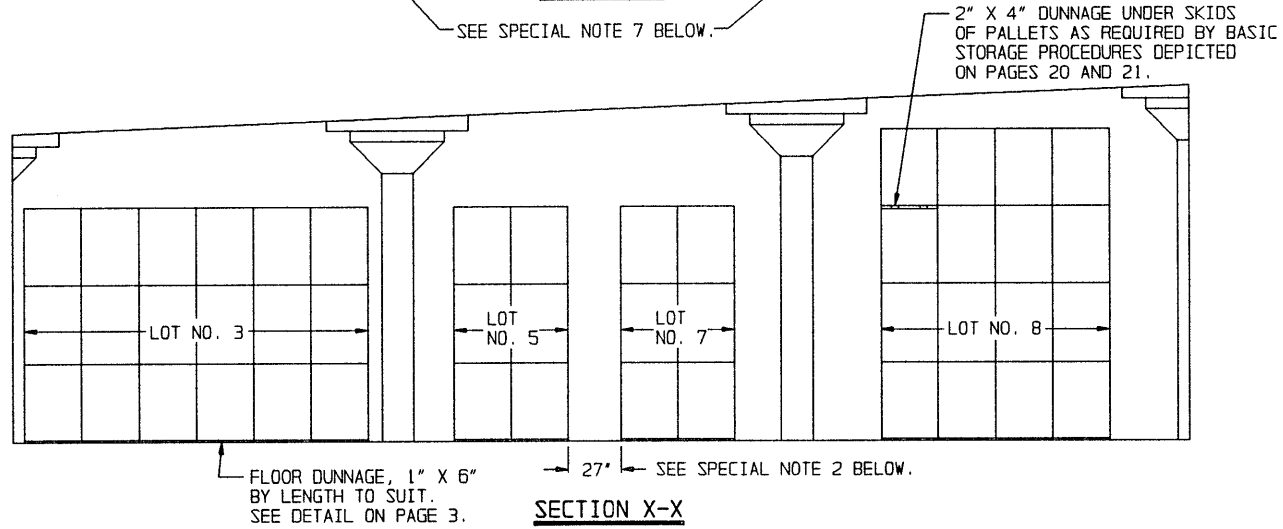
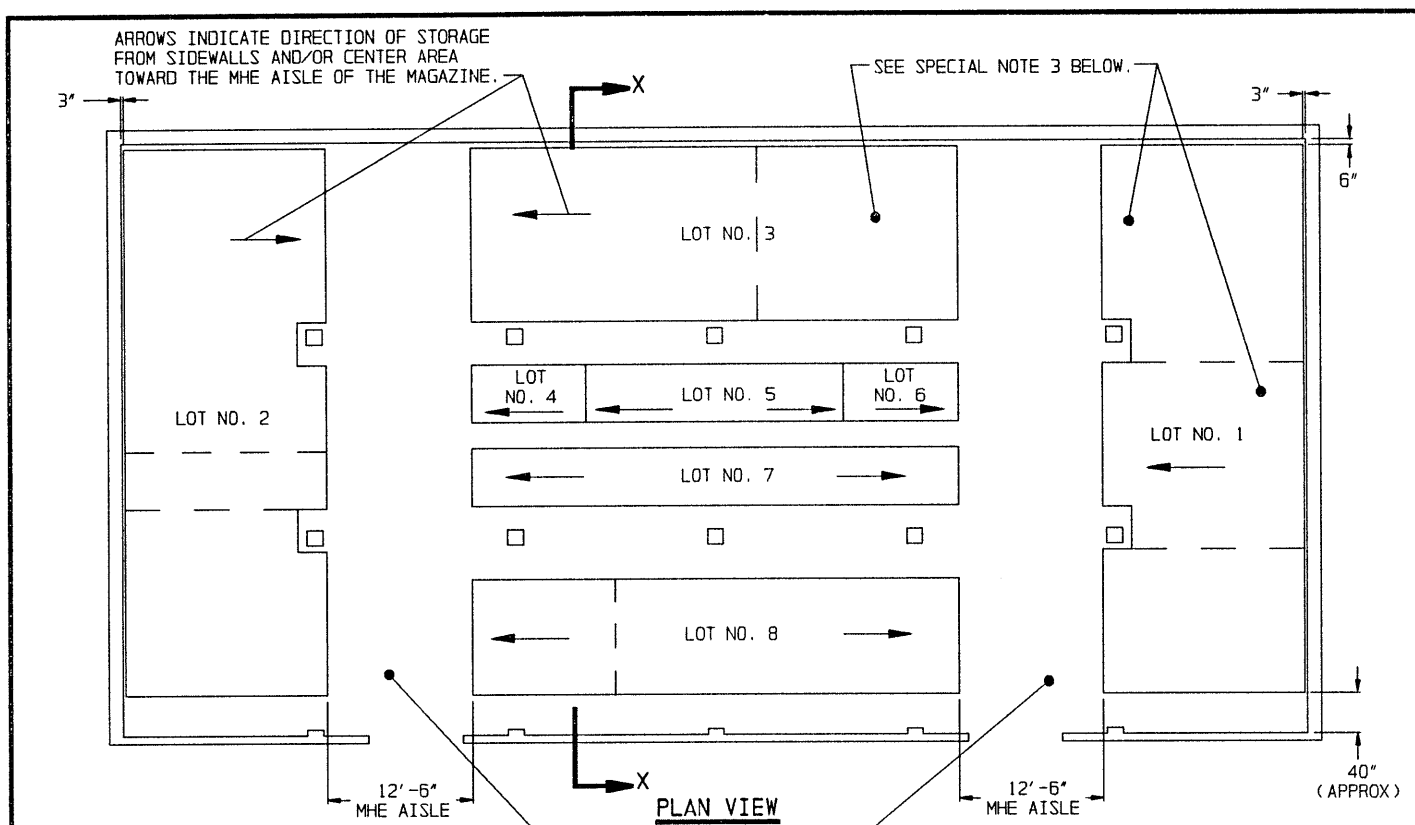


PLAN VIEW



SPECIAL NOTES:

1. THE STORAGE PLANS SHOWN ARE TYPICAL ONLY. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZES OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE NOT LESS THAN 18" WIDE MUST BE PROVIDED AT ONE SIDE OF EACH "BURIED" LOT.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED IN THE REAR OF THE MAGAZINE. HOWEVER, BOTH SIDES MAY BE USED TO STORE MORE THAN ONE LOT BY ERECTING ROWS SIMILAR TO THOSE SHOWN ON THE LEFT SIDE. EACH ADDITIONAL LOT MUST BE ACCESSIBLE FOR REMOVAL AND INSPECTION/INVENTORY IN ACCORDANCE WITH OTHER CRITERIA SPECIFIED IN THESE SPECIAL NOTES AND IN THE GENERAL NOTES ON PAGE 2.
4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NO MORE THAN TWELVE (12) "LIFTS" OF ANOTHER LOT OR LOTS HAVE TO BE MADE TO GAIN ACCESS TO THAT LOT. THE TERM "LIFT" MEANS HANDLING AND MOVING NOT MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.
5. FOR STORAGE OF MULTIPLE LOTS, THE DISTANCE FROM THE SIDEWALL WILL BE BASED ON THE OVERHEAD CLEARANCE REQUIRED FOR MHE.
6. EACH LOT MUST BE STORED TWO (2) UNITS (MINIMUM) WIDE TO ACCOMMODATE WIDTH OF MHE DURING OPERATIONS, EXCEPT FOR A ROW ADJACENT TO AN INSPECTION/INVENTORY AISLE.
7. WHEN TWO LOTS ARE STORED ADJACENT TO EACH OTHER, THEY SHOULD BE SEPARATED BY AT LEAST 1" TO PROVIDE CLEARANCE FOR REMOVAL OF EITHER LOT.
8. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL ITEMS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THIS ADDITIONAL STORAGE IS TO BE ARRANGED IN A MANNER SIMILAR TO ARRANGEMENTS DEPICTED ON PAGES 23 AND 25 FOR THE "ADDITIONAL STORAGE LOCATIONS" (SHOWN BY DOTTED LINES). ADEQUATE SPACE FOR MHE OPERATION, AS REQUIRED ON PAGES 23 AND 25, MUST BE AVAILABLE FOR THE ADDITIONAL STORAGE. ALSO, COMPLIANCE WITH ALL OF THE MULTIPLE-LOT CRITERIA AS SET FORTH ON THIS PAGE MUST BE OBSERVED.



SPECIAL NOTES:

1. THE STORAGE PLANS SHOWN ARE TYPICAL ONLY. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZES OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE NOT LESS THAN 18" WIDE MUST BE PROVIDED AT ONE SIDE OF EACH "BURIED" LOT.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED IN THE REAR OR ON ONE SIDE OF THE MAGAZINE. HOWEVER, THESE AREAS MAY BE USED TO STORE MORE THAN ONE LOT BY ERECTING ROWS SIMILAR TO THOSE SHOWN IN THE CENTER AREA, OR AS TYPICALLY INDICATED BY DOTTED LINES. EACH ADDITIONAL LOT MUST BE ACCESSIBLE FOR REMOVAL AND INSPECTION/INVENTORY IN ACCORDANCE WITH OTHER CRITERIA SPECIFIED IN THESE SPECIAL NOTES AND IN THE GENERAL NOTES ON PAGE 2.
4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NO MORE THAN TWENTY-FOUR (24) "LIFTS" OF ANOTHER LOT OR LOTS HAVE TO BE MADE TO GAIN ACCESS TO THAT LOT. THE TERM "LIFT" MEANS HANDLING AND MOVING NOT MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.

(SPECIAL NOTES CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

5. WHEN TWO LOTS ARE STORED ADJACENT TO EACH OTHER, THEY SHOULD BE SEPARATED BY AT LEAST 1" TO PROVIDE CLEARANCE FOR REMOVAL OF EITHER LOT.
6. EACH LOT MUST BE STORED TWO (2) UNITS (MINIMUM) WIDE TO ACCOMMODATE WIDTH OF MHE DURING OPERATIONS, EXCEPT FOR A ROW ADJACENT TO AN INSPECTION/INVENTORY AISLE.
7. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL ITEMS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THIS ADDITIONAL STORAGE IS TO BE ARRANGED IN A MANNER SIMILAR TO ARRANGEMENTS DEPICTED ON PAGES 23 AND 25 FOR THE "ADDITIONAL STORAGE LOCATIONS" (SHOWN BY DOTTED LINES). ADEQUATE SPACE FOR MHE OPERATION, AS DESCRIBED ON PAGES 23 AND 25 MUST BE MADE AVAILABLE FOR THE ADDITIONAL STORAGE. ALSO, COMPLIANCE WITH ALL OF THE MULTIPLE-LOT CRITERIA AS SET FORTH ON THIS PAGE MUST BE OBSERVED.