

# STORAGE IN APPROVED MAGAZINES OF PALLETIZED BINARY CHEMICAL PROJECTILE, 155MM, GB2, M687, UPLOADED WITH M21 (OPA) CANISTER

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REVISIONS				DRAFTSMAN <i>W</i>	PROJ ENG <i>MWD/WRF</i>	WLH
				CHECKER <i>ERG</i>	LOG ENGR OFFICE <i>WJ Ernst</i>	
APPROVED, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND <i>D Martin</i>						
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIAL COMMAND (AMC) <i>William A Ernst</i> U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL						
U.S. ARMY AMC DRAWING						
JUNE 1987						
				CLASS	DIVISION	DRAWING
				19	48	4522
						FILE
						CBI-3-4 14-22PEI

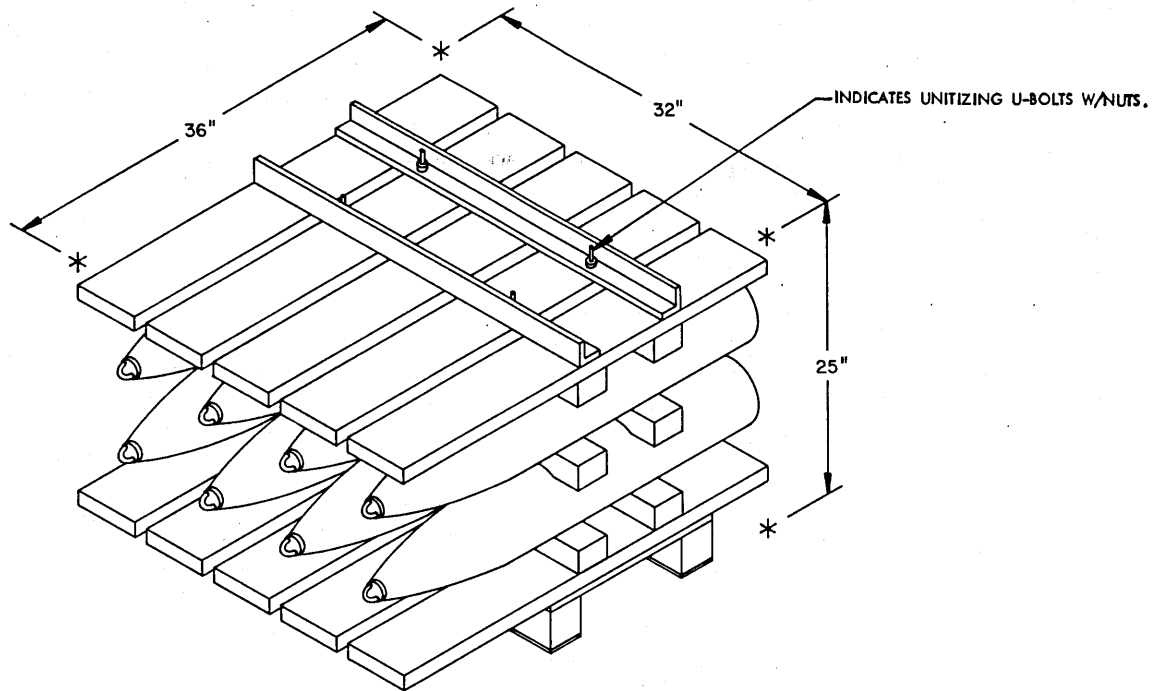
**DO NOT SCALE**

## 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 3-250, AND TM 9-1300-206 ( CHAPTER 4 ). HOWEVER, THE REQUIREMENTS OF TM 9-1300-206 DO NOT APPLY TO SUBCOMMANDS, INSTALLATIONS, AND ACTIVITIES UNDER DIRECT CONTROL OF THE U.S. ARMY MATERIEL COMMAND (AMC).
- B. 8-PROJECTILE PALLET UNIT DETAILS (SEE PAGE 3):
- DIMENSIONS ----- 36" LONG X 32" WIDE X 25" HIGH (APPROX) (23" STACKING HEIGHT)  
GROSS WEIGHT ----- 784 POUNDS (APPROX)  
CUBE-----16.7 CUBIC FEET (APPROX)
- CAUTION:** PRIOR TO STACKING PALLET S, THE NUTS OF THE UNITIZING U-BOLTS OF EACH UNIT SHOULD BE TIGHTENED WITH A WRENCH TO PROVIDE FOR STABILITY OF THE STACK AND SAFETY IN HANDLING. PALLET UNITS WILL NOT BE STACKED MORE THAN SEVEN (7) UNITS HIGH.
- C. AISLE DIMENSIONS SHOWN IN THIS DRAWING MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS AND/OR AVAILABLE MATERIALS HANDLING EQUIPMENT. HOWEVER, TWENTY-FOUR INCH (24") MINIMUM WIDTH AISLES WILL BE PROVIDED, AS SHOWN, TO FACILITATE INSPECTION OF THE BASE-END OF ALL PROJECTILES.
- D. THE MAGAZINE MUST COMPLY WITH ALL REQUIREMENTS AND BE APPROVED FOR THE STORAGE OF CHEMICAL ITEMS.
- E. IN MAGAZINES WITH SLOPING FLOORS, TWO WEDGES MUST BE PLACED UNDER ALL FIRST-LAYER UNITS OF ALL UNIT STACKS TO PROVIDE FOR STABILITY AND VERTICAL ALIGNMENT OF EACH UNIT STACK. WHEN PROJECTILES OF A UNIT ARE POSITIONED TO POINT TOWARD A SIDE WALL OF THE MAGAZINE, A WEDGE WILL BE PLACED UNDER EACH END OF THE SKIDS. WHEN PROJECTILES OF A UNIT ARE POSITIONED TO POINT TOWARD THE REAR OR FRONT WALL OF THE MAGAZINE, THE WEDGES WILL BE PLACED UNDER AND IN ALIGNMENT WITH EACH SKID; THE LENGTH OF THE WEDGES REQUIRED WILL DEPEND ON THE DIRECTION OF STORAGE, THE LOCATION WITHIN THE MAGAZINE AND THE LENGTH AND/OR WIDTH OF THE STACK AS DEPICTED IN THE VARIOUS SECTION VIEWS OF MAGAZINES ON PAGES 4 THRU 15. WEDGES MUST NOT EXTEND INTO INSPECTION AISLES OR MHE OPERATING AREAS AND AISLES.
- F. STORED PALLET UNITS MUST NOT CONTACT THE WALLS, COLUMNS OR BEAMS OF A MAGAZINE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, UNITS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.
- G. IF THE CAPACITY OF THE FORKLIFT TRUCK PERMITS, TWO (2) OR THREE (3) PALLET UNITS CAN BE HANDLED AS ONE LOAD OR "SINGLE LIFT". OTHER APPLICABLE SAFETY CONTROLS (DIRECTIVES, REGULATIONS, ETC.) MUST BE OBSERVED.
- H. IF AVAILABLE MHE PERMITS, ADDITIONAL PALLET UNITS MAY BE STORED WITHIN THE MHE AREA AND/OR OTHER AVAILABLE AREA OF THE MAGAZINE.
- J. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE, AS PRESCRIBED BY LOCAL STANDARDS, WILL NOT BE EXCEEDED.
- K. **CAUTION:** THE ALLOWABLE "EXPLOSIVE LIMIT" ESTABLISHED FOR A MAGAZINE IS NOT TO BE EXCEEDED.
- L. THE STORAGE PROCEDURES DEPICTED HEREIN FOR VARIOUS TYPES AND SIZES 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 COMPLIED WITH.
- M. STORAGE OF MULTIPLE LOTS IN A MAGAZINE WILL REQUIRE CAREFUL PRE-PLANNING SO AS TO INSURE 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 PAGES 28 THRU 37.
- N. ANY "LIGHT" PALLETIZED UNIT THAT DOES NOT CONTAIN A FULL QUANTITY OF PROJECTILES WILL NOT BE BURIED IN STORAGE. IT MUST BE POSITIONED ADJACENT TO AN AISLE, PREFERABLY IN FRONT OF THE LOT.
- O. PORTIONS OF THE MAGAZINES, SUCH AS SIDE WALLS, END WALLS AND ROOFS, HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- P. 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.

## MATERIAL SPECIFICATIONS

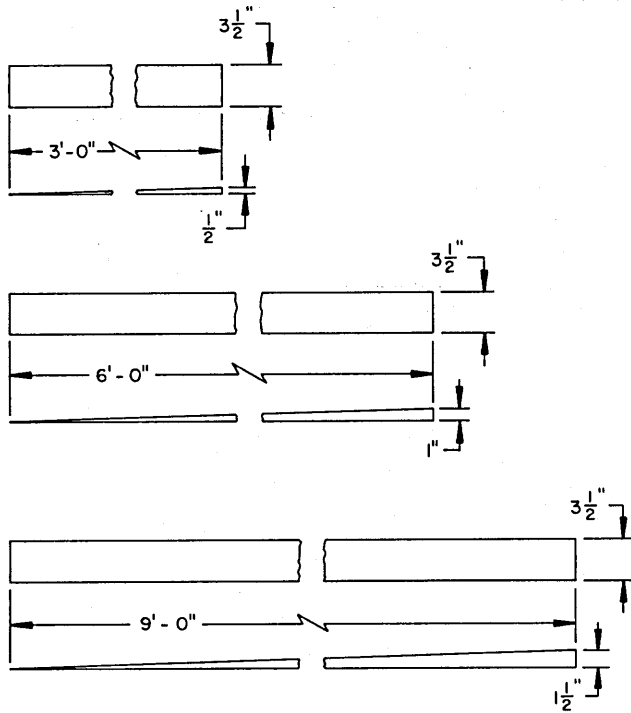
**LUMBER** ----- SEE TM 743-200-1, DUNNAGE LUMBER, FED SPEC MM-L-751



**8-PROJECTILE  
PALLET UNIT**

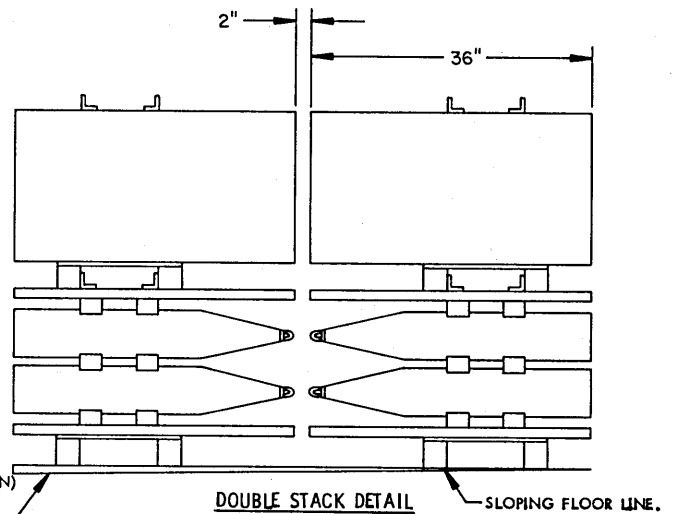
STACKING HEIGHT 23".

SEE GENERAL NOTE "B"  
ON PAGE 2.



**WEDGE DETAILS**

2" X 4" MATERIAL

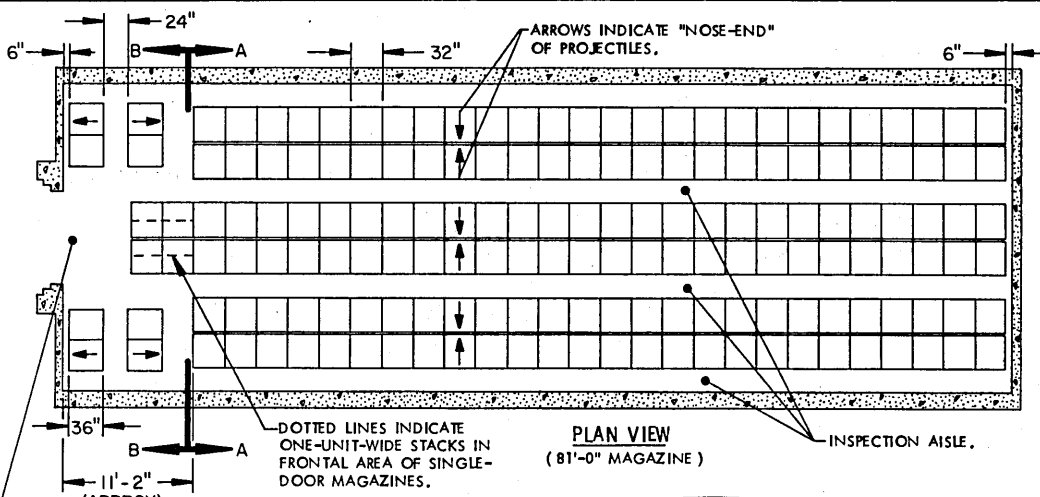


**DOUBLE STACK DETAIL**

SLOPING FLOOR LINE.

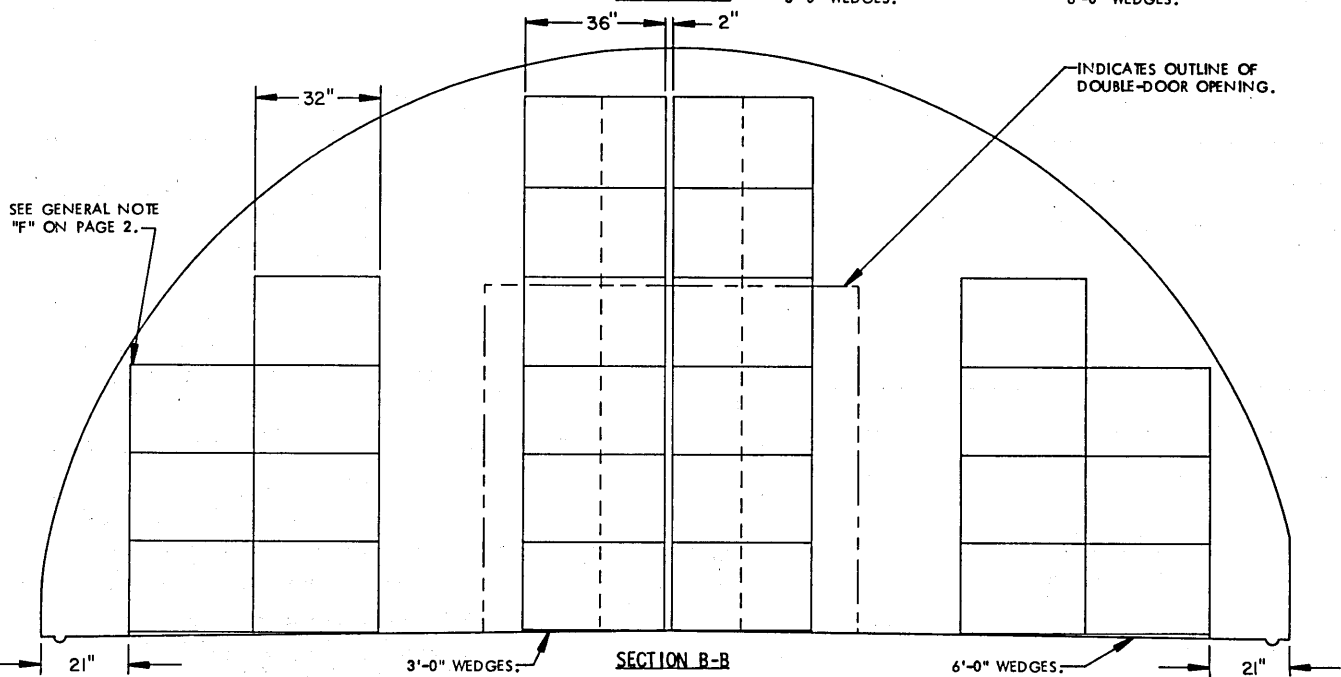
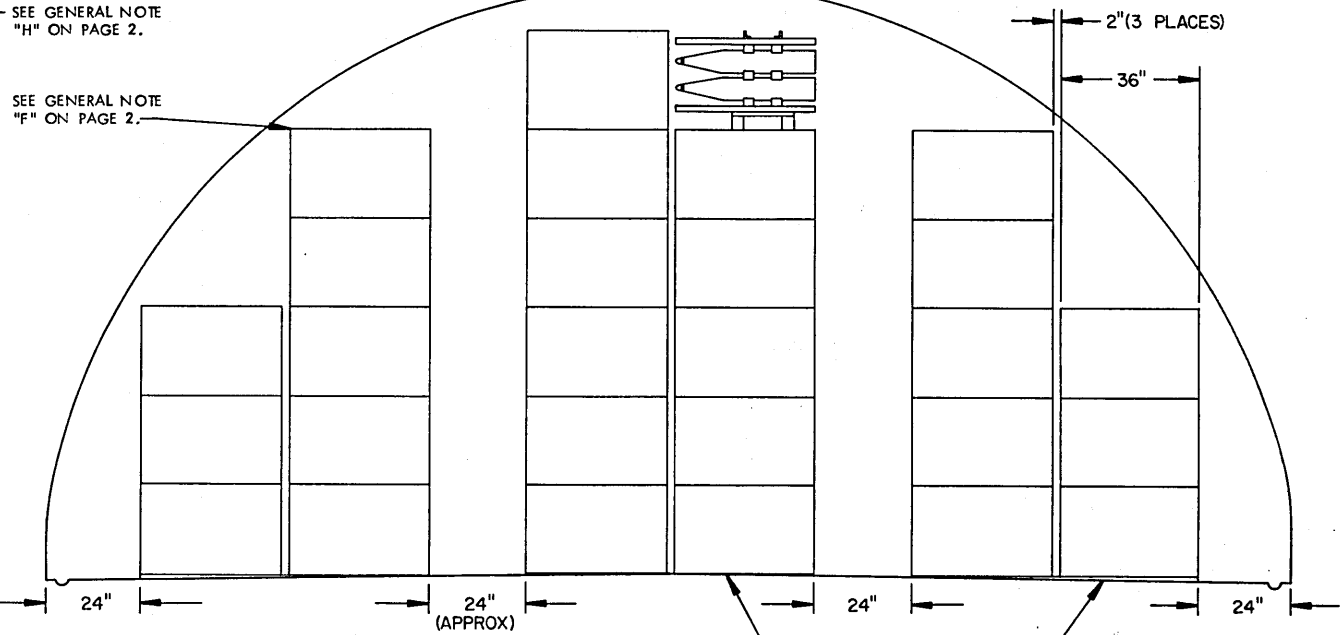
A TYPICAL DOUBLE STACK IS SHOWN WITH PROJECTILES POINTING TOWARD THE SIDE WALL OF THE MAGAZINE AND REQUIRING 2 WEDGES 6'-0" LONG. SEE GENERAL NOTE "E" ON PAGE 2.

**DETAILS**



**STORAGE IN 81'-0" MAGAZINE**

ITEM	DOUBLE-DOOR MAG	QUANTITY
PALLET UNITS	-----	780
PROJECTILES	-----	6,240
PALLET UNITS	SINGLE-DOOR MAG	768
PROJECTILES	-----	6,144

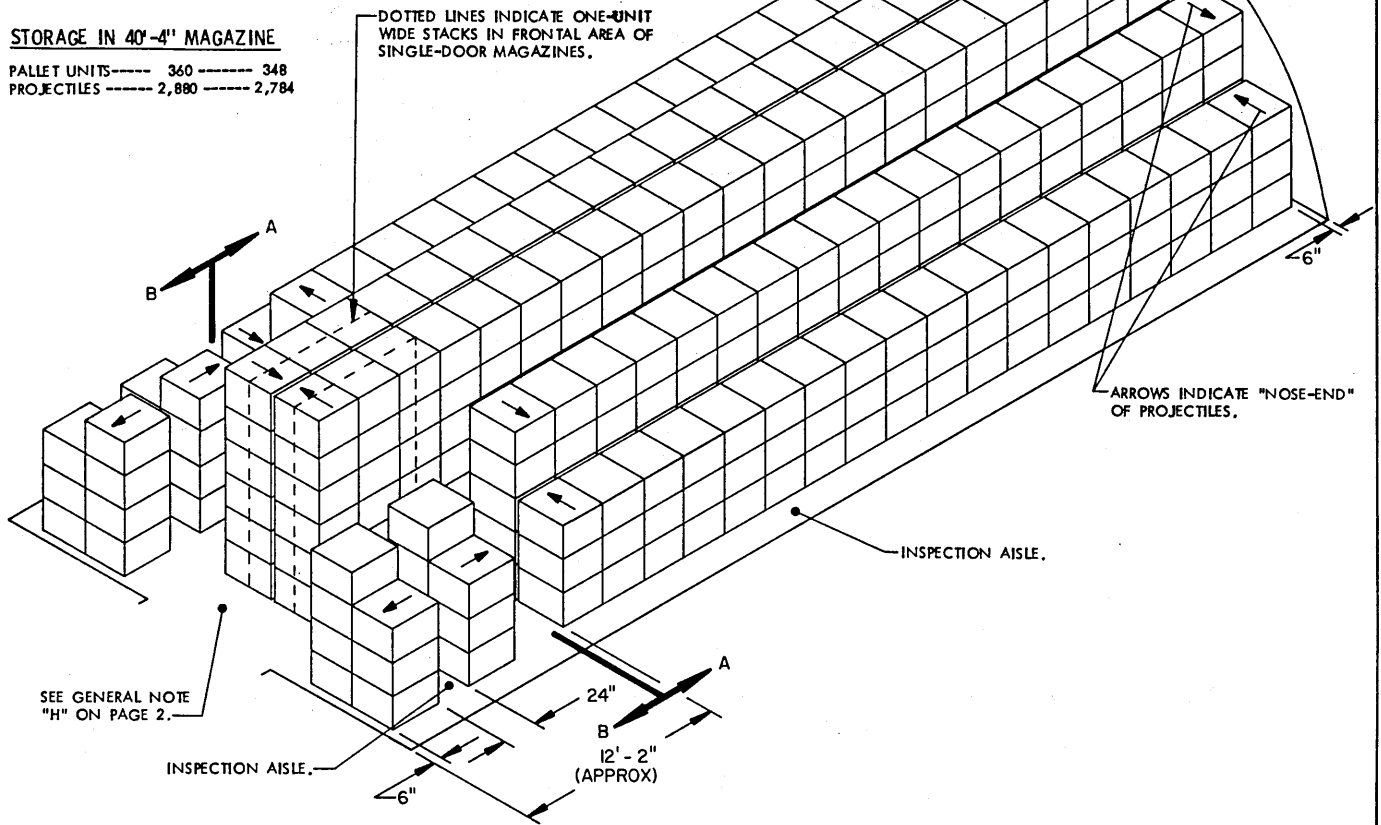


**STORAGE IN 60'-8" MAGAZINE**

ITEM	QUANTITY	
	DOUBLE DOOR MAG	SINGLE DOOR MAG
PALLET UNITS	568	550
PROJECTILES	4,544	4,400

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

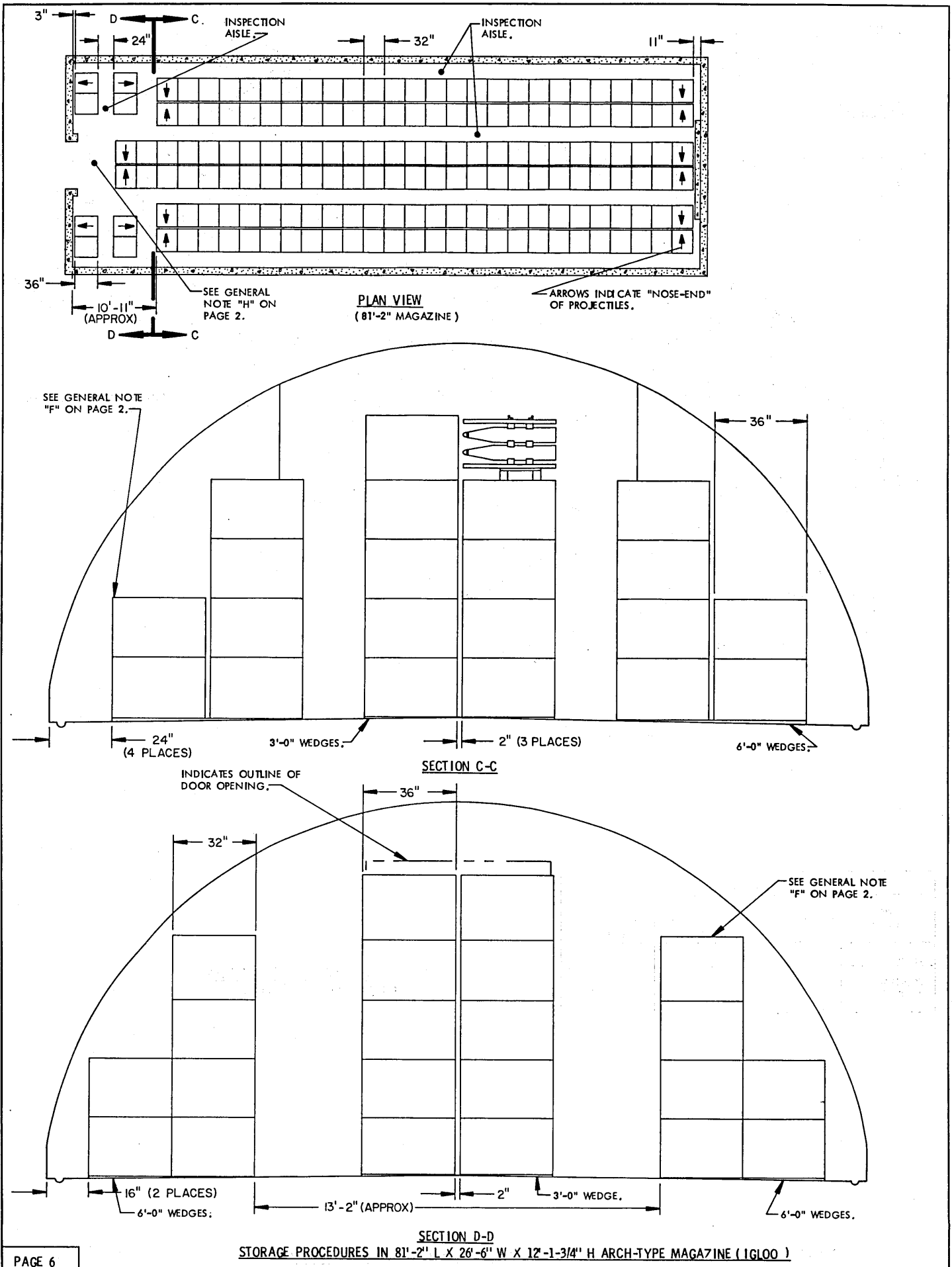
PALLET UNITS	360	348
PROJECTILES	2,880	2,784



**ISOMETRIC VIEW**  
( 60'-8" MAGAZINE )

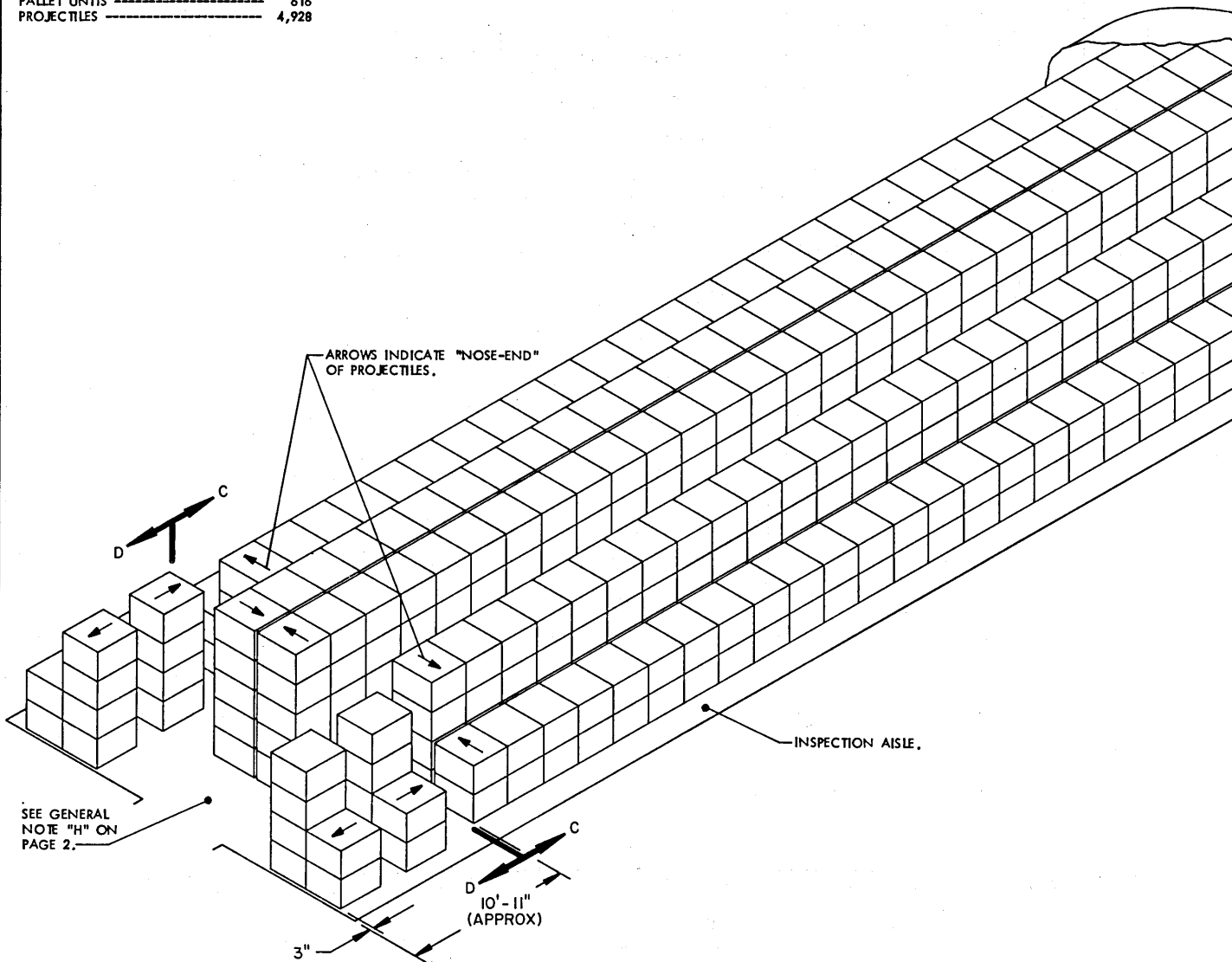
BILL OF MATERIAL (PER STACK)			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
28 UNIT	-	4	4
FRONTAL 14 UNIT	-	4	-

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2.



**STORAGE IN 81'-2" MAGAZINE**  
(12'-1-3/4" H)

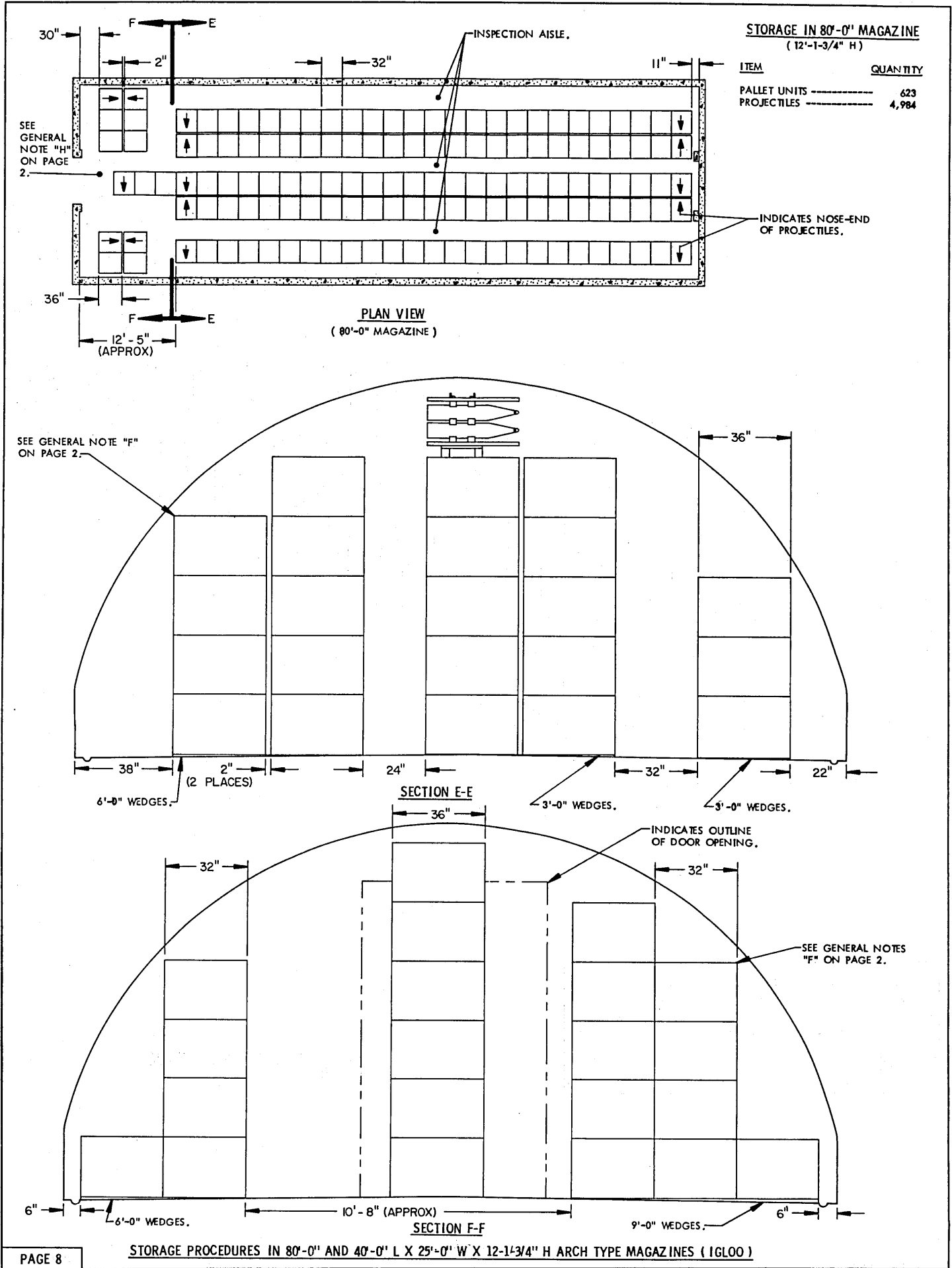
ITEM	QUANTITY
PALLET UNITS -----	616
PROJECTILES -----	4,928



**ISOMETRIC VIEW**  
(81'-2" MAZAZINE)

BILL OF MATERIAL ( PER STACK )			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
22 UNIT	-	4	4
FRONTAL 12 UNIT	-	4	-

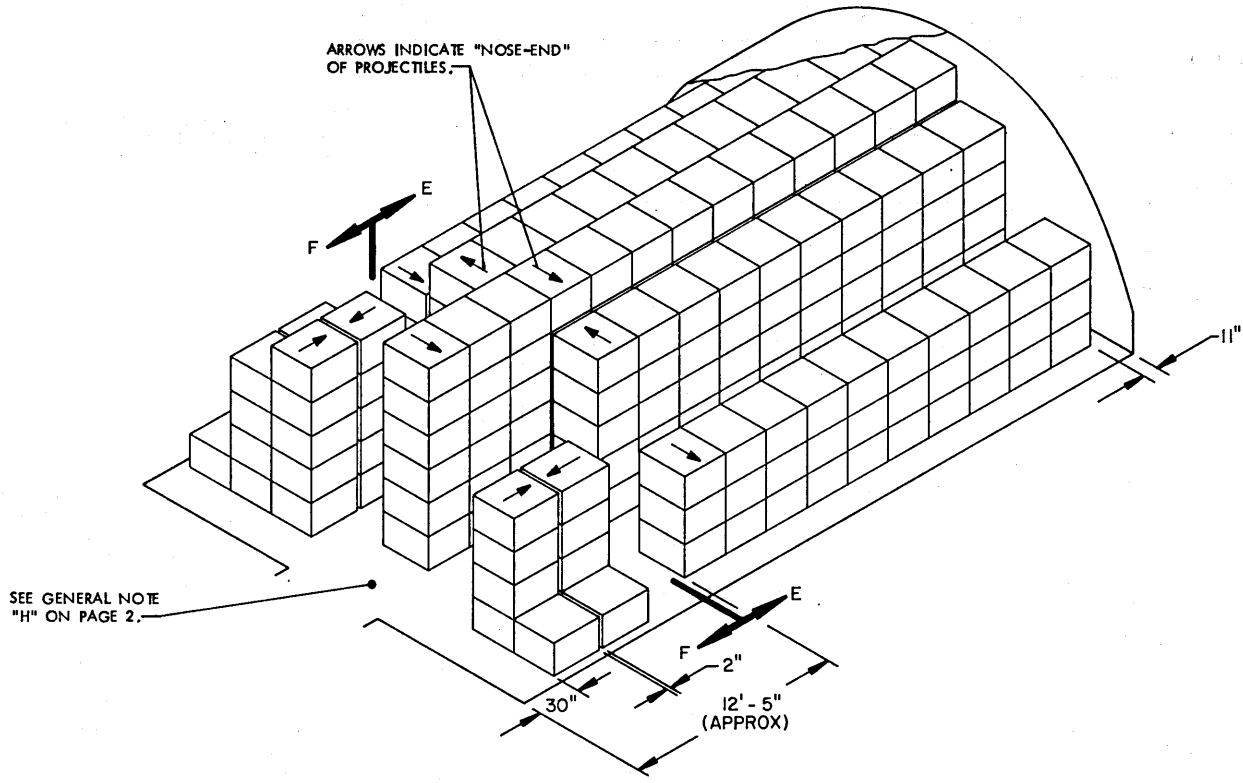
FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2.





**STORAGE IN 40'-0" MAGAZINE**  
( 12'-1-3/4" H )

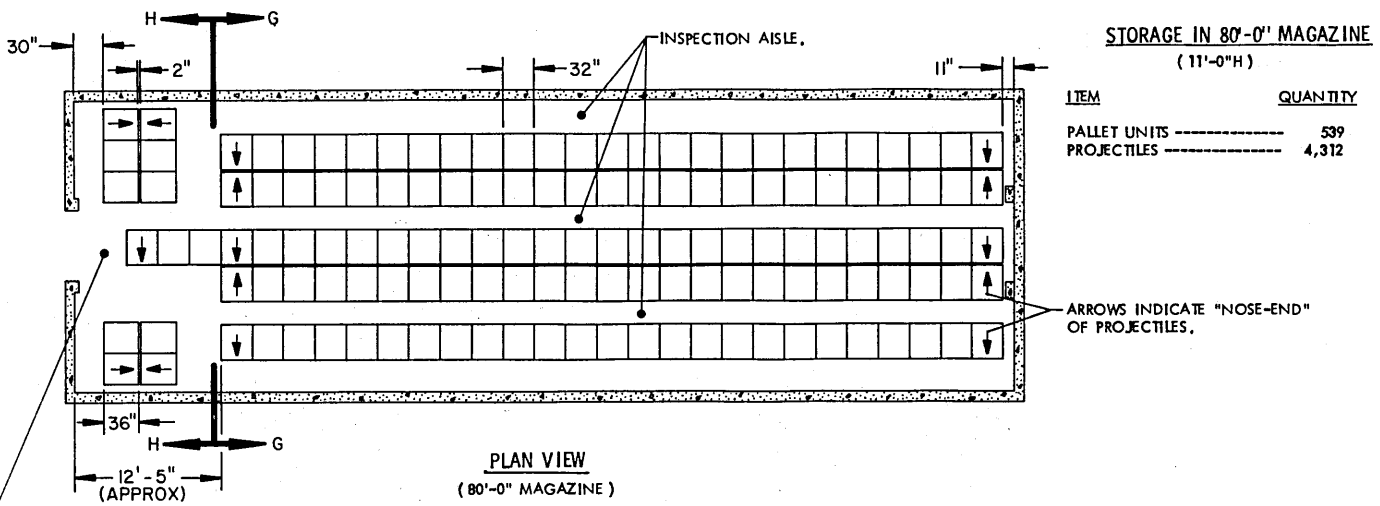
ITEM	QUANTITY
PALLET UNITS -----	278
PROJECTILES -----	2,224



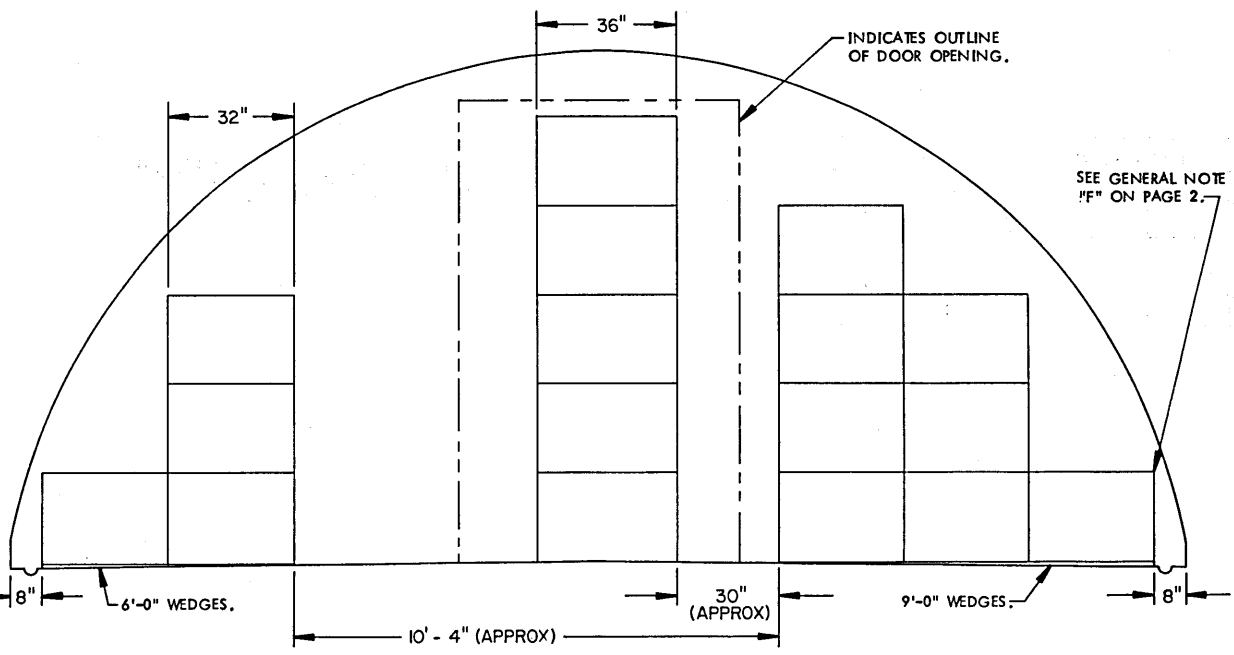
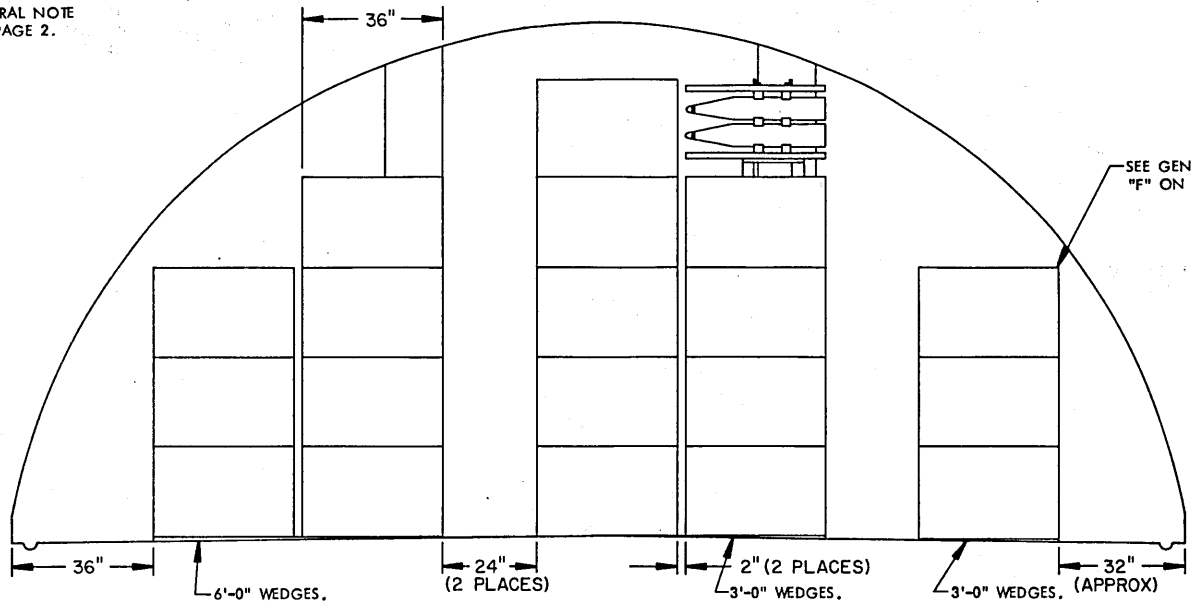
**ISOMETRIC VIEW**  
( 40'-0" MAGAZINE )

BILL OF MATERIAL ( PER STACK )			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
23 UNIT	-	2	4
FRONTAL 15 UNIT	2	2	-

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS" SEE PAGE 2.

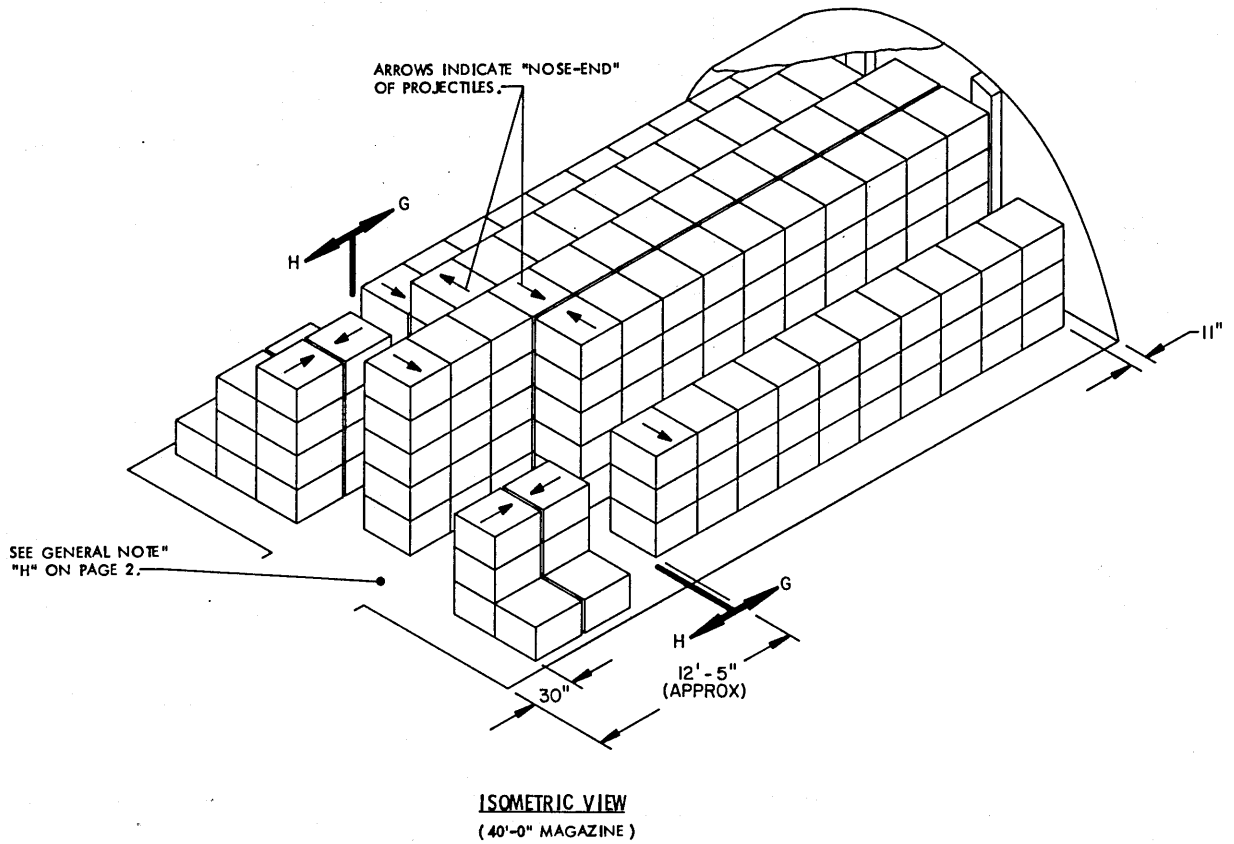


SEE GENERAL NOTE "H" ON PAGE 2.



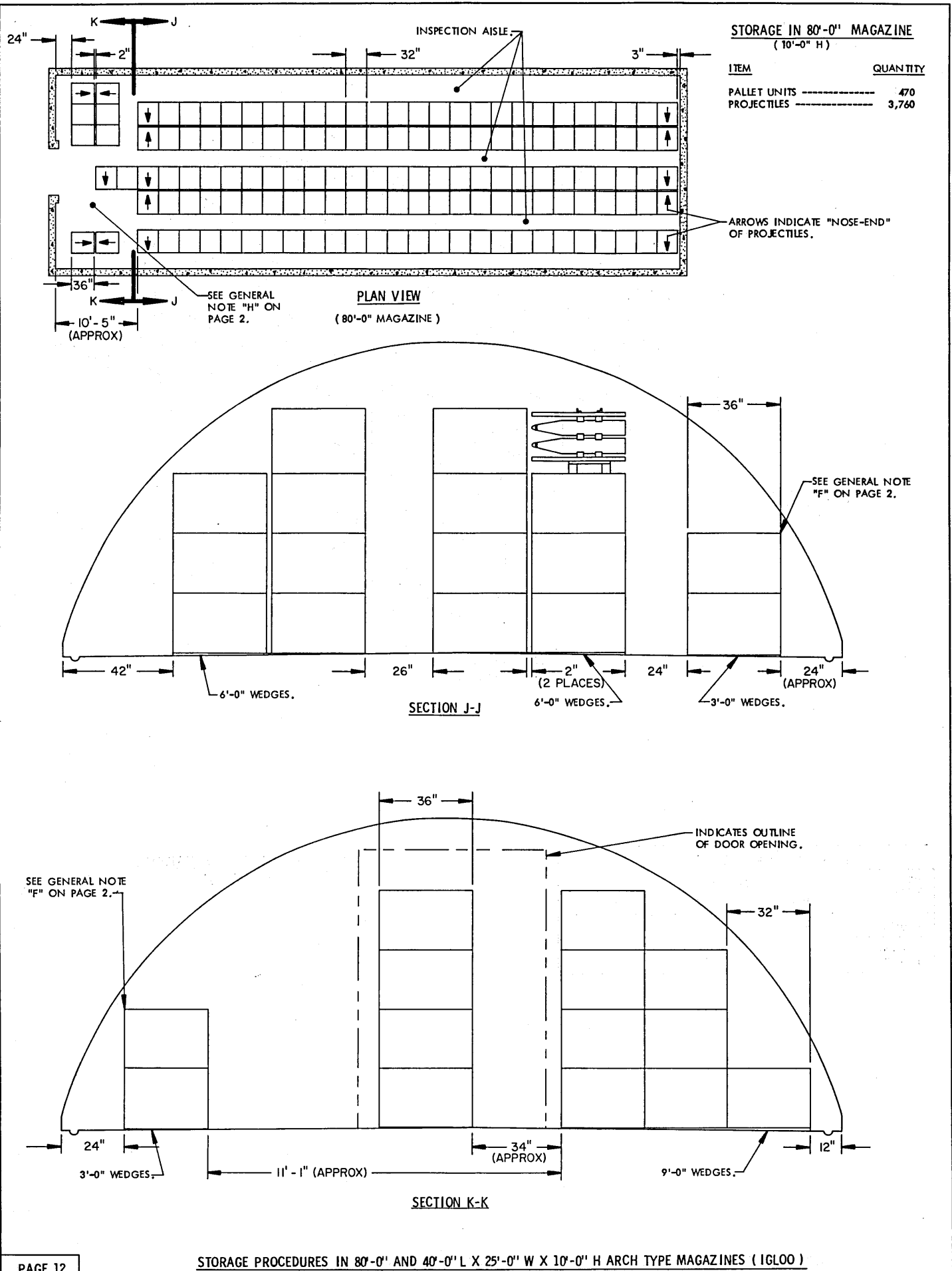
**STORAGE IN 40'-0" MAGAZINE**  
(11'-0" H)

ITEM	QUANTITY
PALLET UNITS -----	239
PROJECTILES -----	1,912



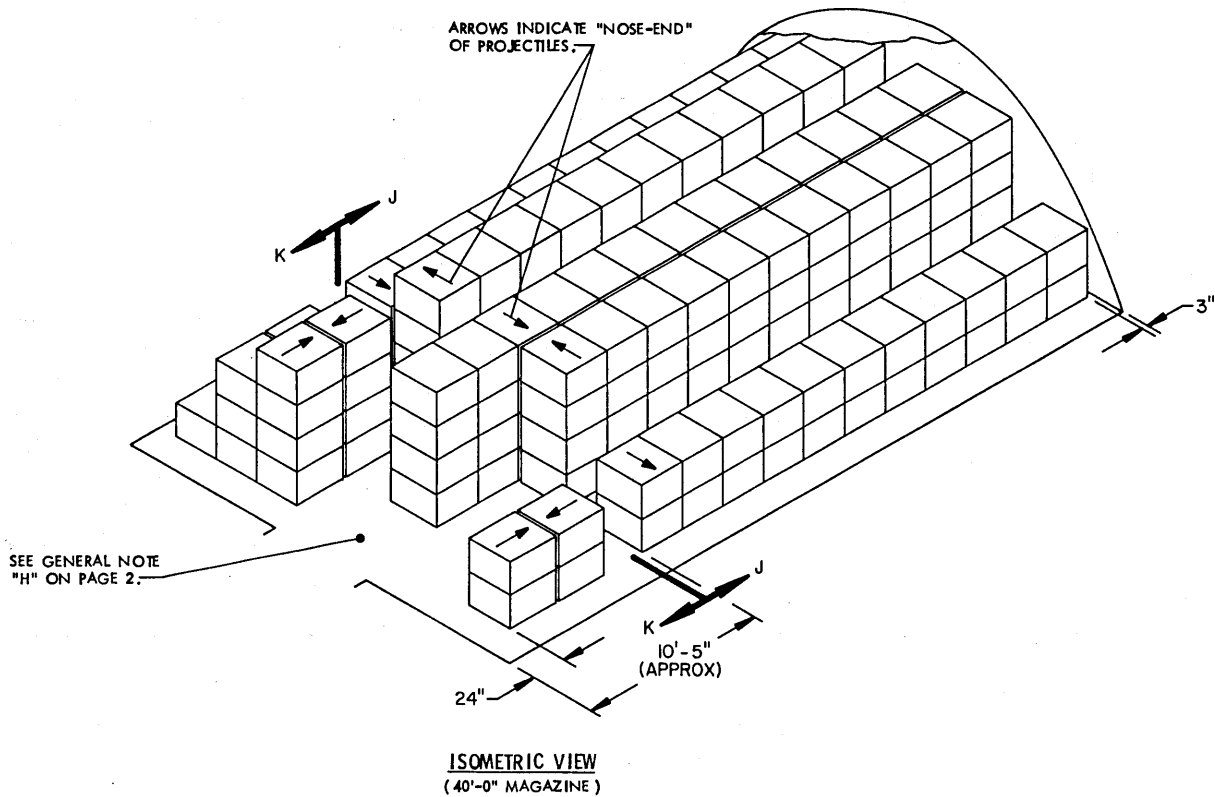
BILL OF MATERIAL ( PER STACK )			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
20 UNIT	-	2	4
FRONTAL 12 UNIT	2	2	-

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS" SEE PAGE 2.



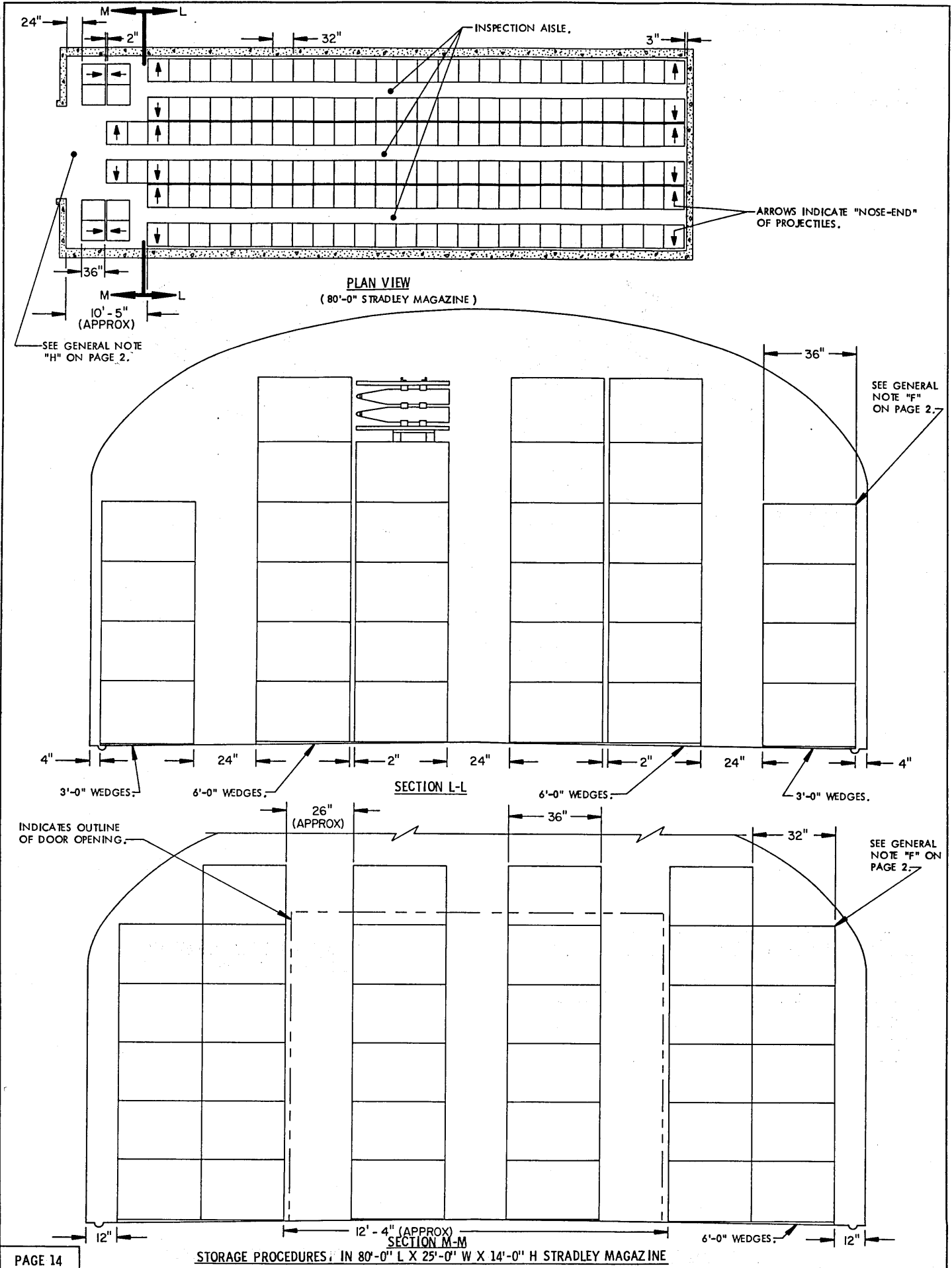
**STORAGE IN 40'-0" MAGAZINE**  
( 10'-0" H )

ITEM	QUANTITY
PALLET UNITS -----	215
PROJECTILES -----	1,720



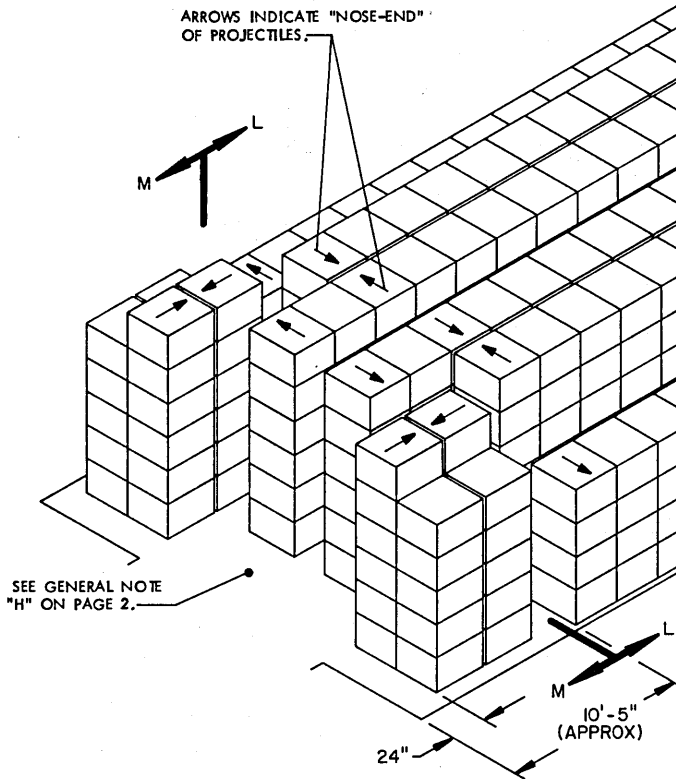
BILL OF MATERIAL ( PER STACK )			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
17 UNIT	-	4	2
FRONTAL 10 UNIT	2	-	2

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATION", SEE PAGE 2.



**STORAGE IN 80'-0" STRADLEY MAGAZINE**

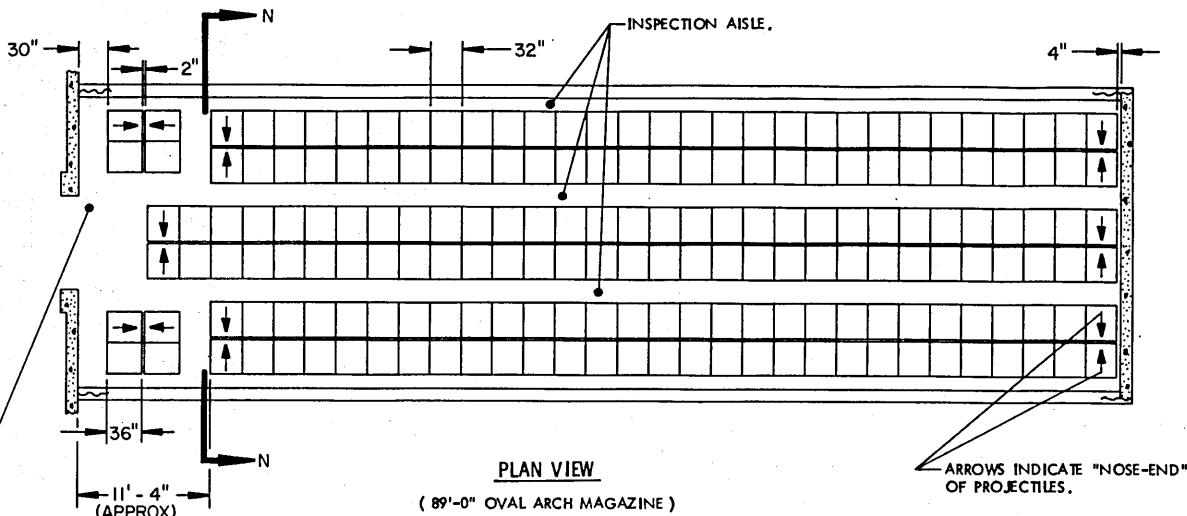
ITEM	QUANTITY
PALLET UNITS	900
PROJECTILES	7,200



**ISOMETRIC VIEW**  
(80'-0" STRADLEY MAGAZINE)

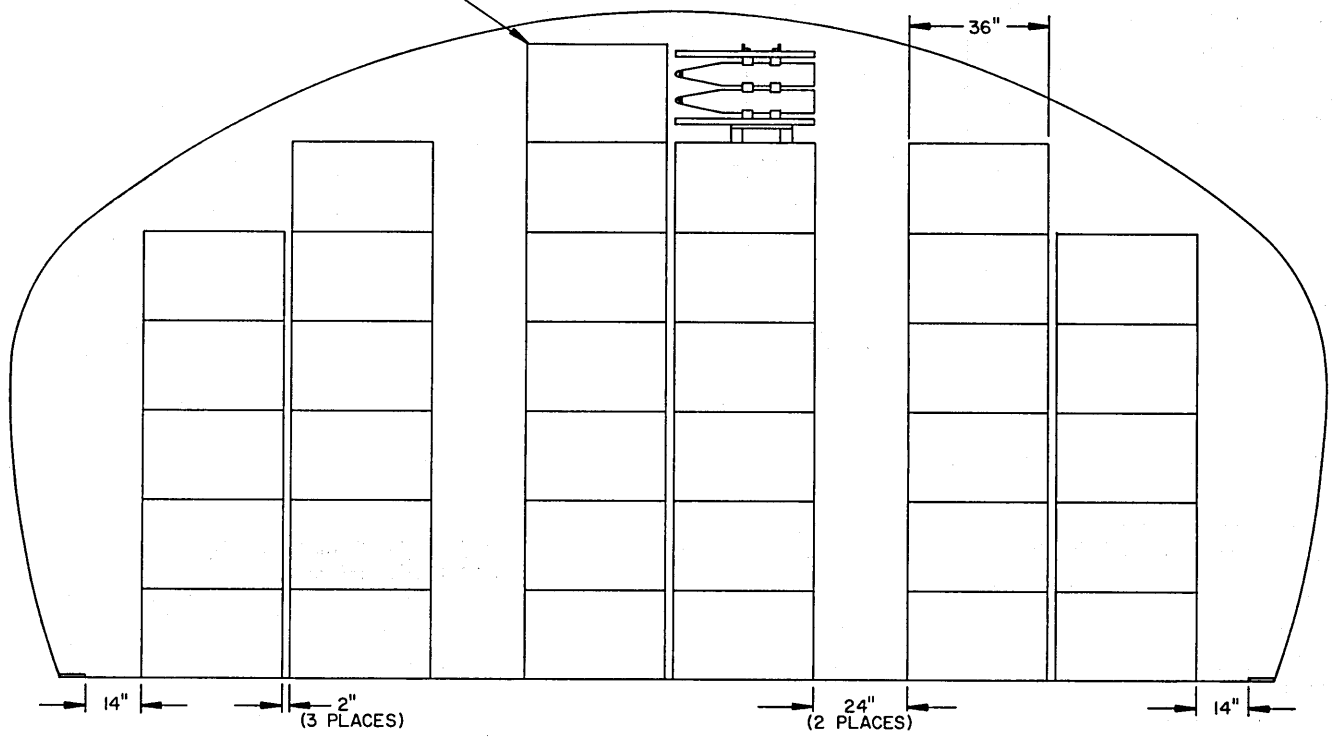
BILL OF MATERIAL ( PER STACK )			
TYPE STACK	WEDGES REQD		
	9'-0"	6'-0"	3'-0"
32 UNIT	-	4	4
FRONTAL 22 UNIT	-	4	-

FOR "GENERAL NOTES" AND "MATERIAL SPECIFICATIONS", SEE PAGE 2.



SEE GENERAL NOTE "H" ON PAGE 2.

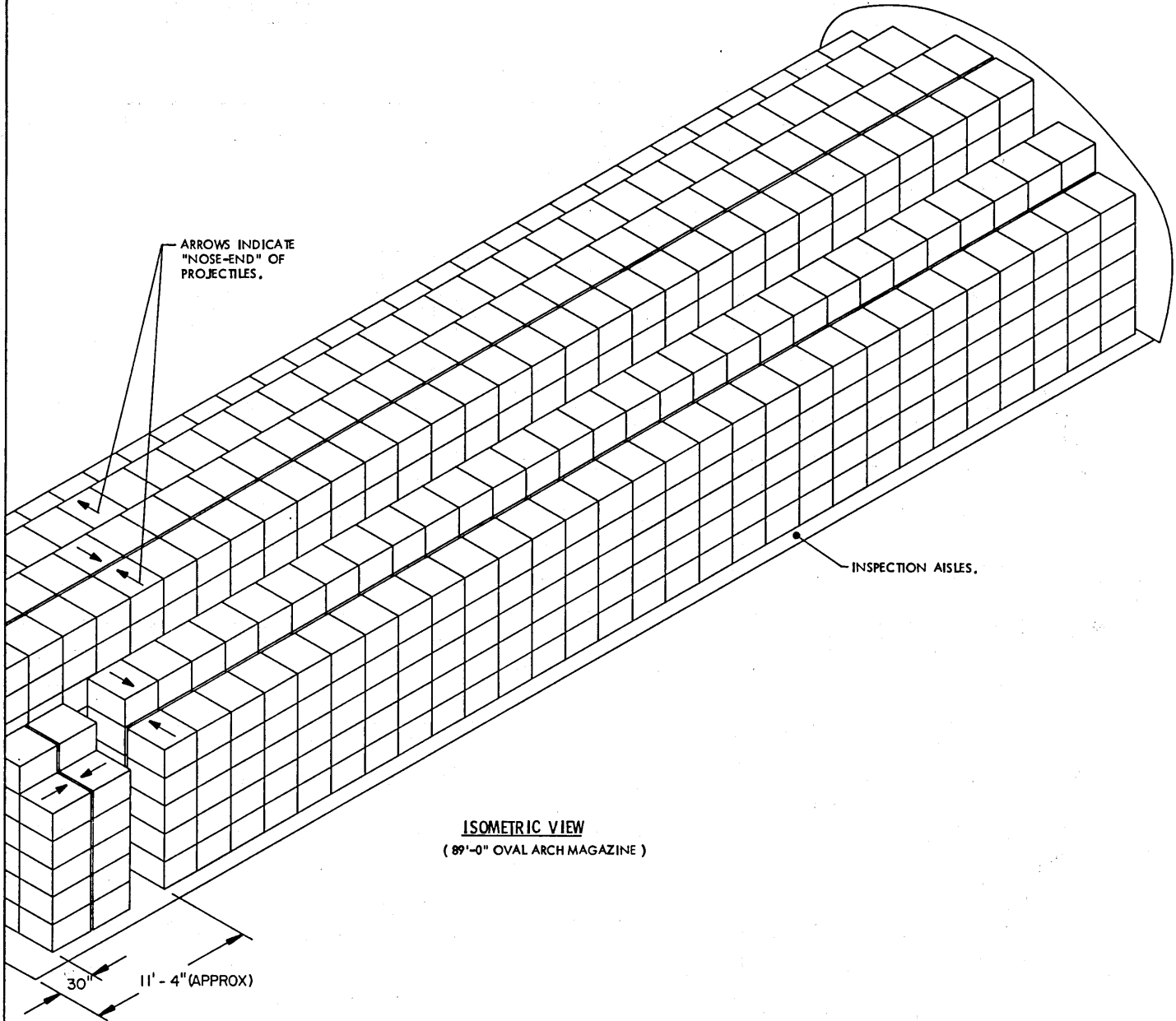
SEE GENERAL NOTE "F" ON PAGE 2.





**STORAGE IN 89'-0" OVAL ARCH MAGAZINE**

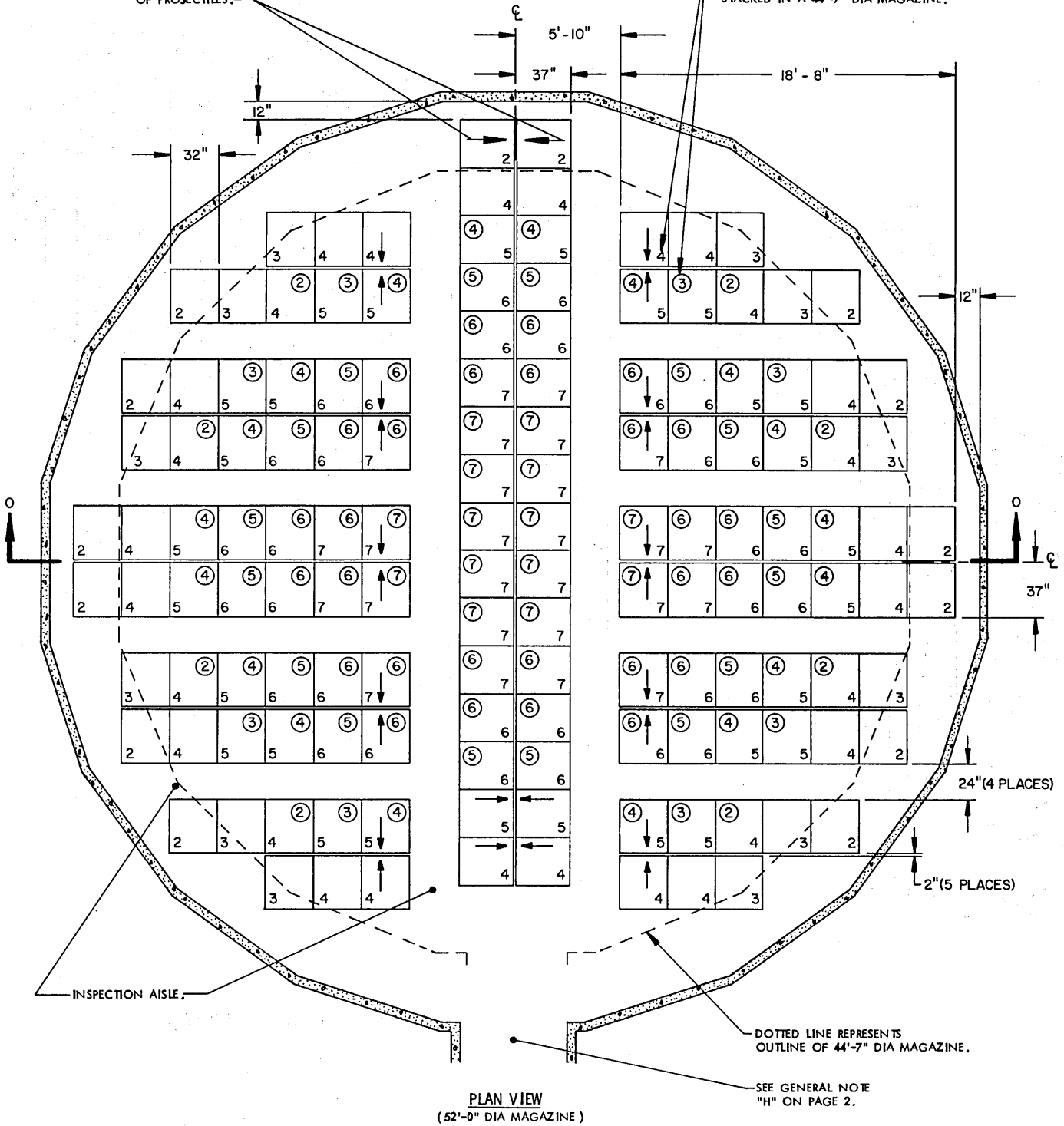
<u>ITEM</u>	<u>QUANTITY</u>
PALLET UNITS -----	1,116
PROJECTILES -----	8,928

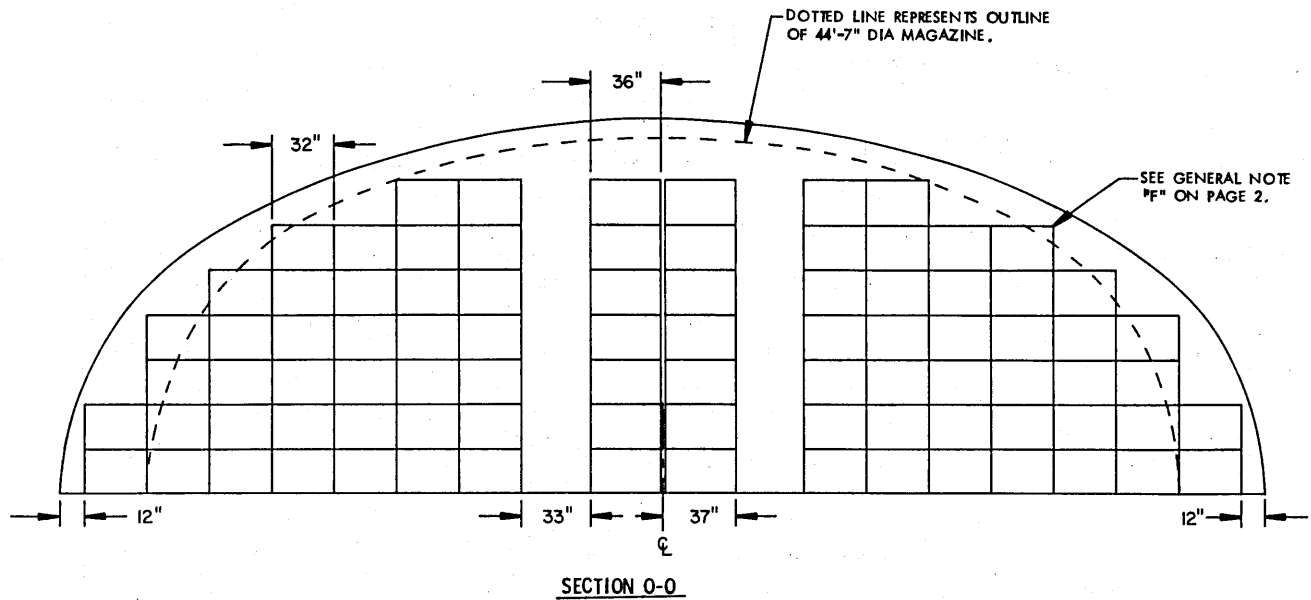


FOR "GENERAL NOTES", SEE PAGE 2.

ARROWS INDICATE "NOSE-END" OF PROJECTILES.

NUMBERS INDICATE THE LAYERS HIGH THAT PALLET UNITS ARE STACKED. CIRCLED NUMBERS INDICATE THE LAYERS HIGH THAT UNITS ARE STACKED IN A 44'-7" DIA MAGAZINE.





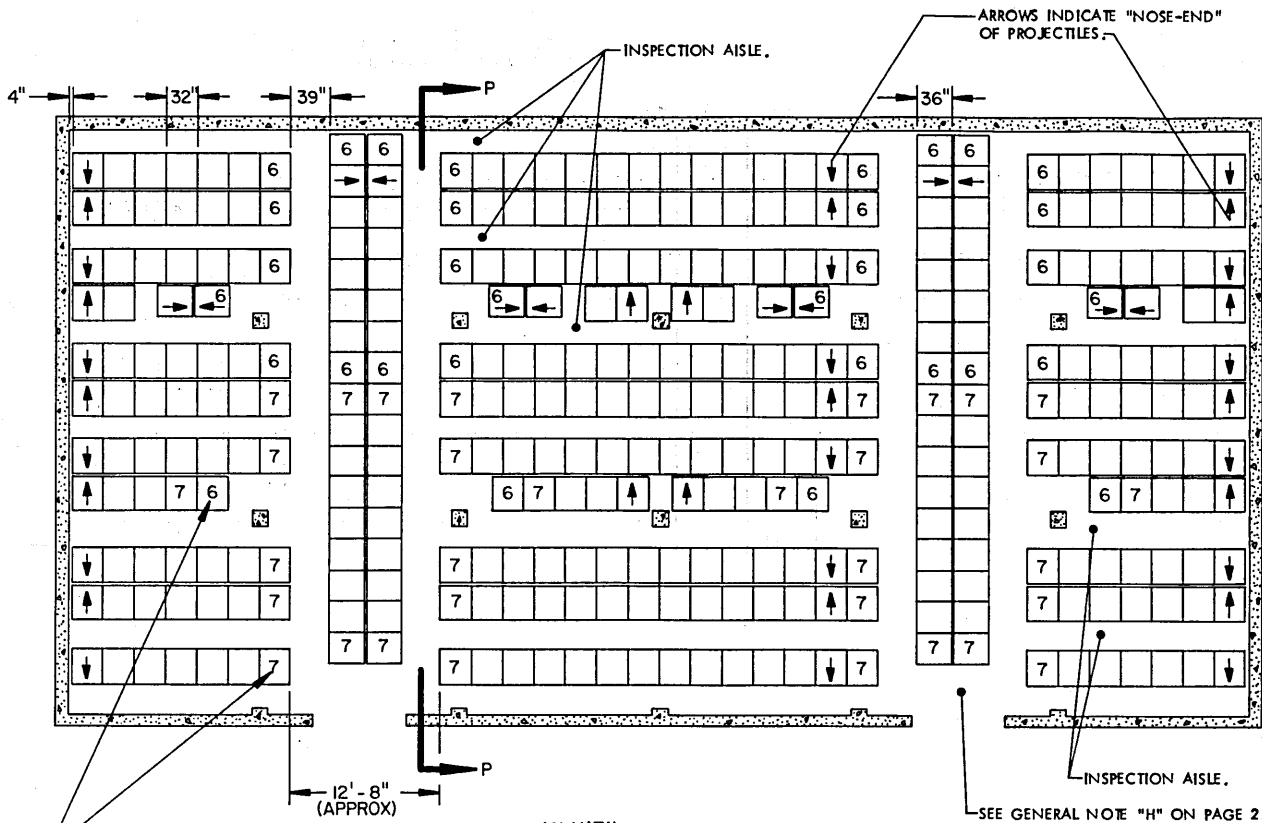
STORAGE IN 52'-0" DIA MAGAZINE

<u>ITEM</u>	<u>QUANTITY</u>
PALLET UNITS -----	690
PROJECTILES -----	5,520

FOR "GENERAL NOTES", SEE PAGE 2.

STORAGE IN 44'-7" DIA MAGAZINE

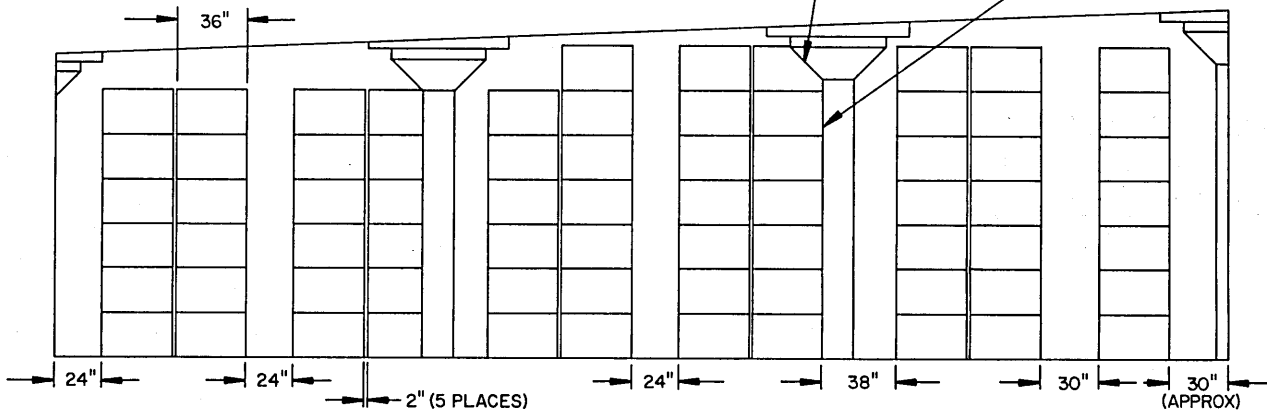
<u>ITEM</u>	<u>QUANTITY</u>
PALLET UNITS -----	458
PROJECTILES -----	3,664



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

NUMBERS INDICATE THE LAYERS HIGH THAT PALLET UNITS ARE STACKED.

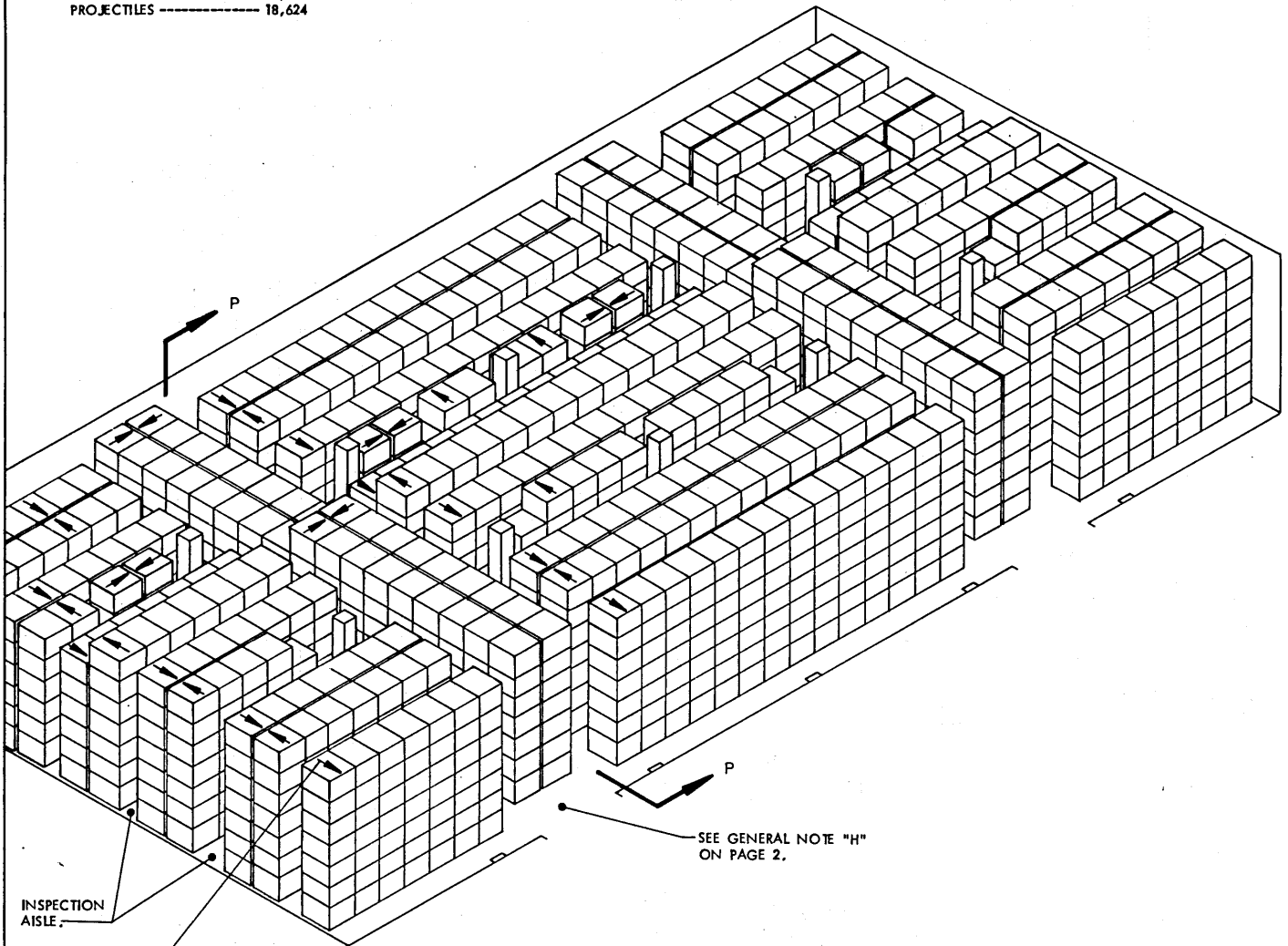
PALLET UNITS MUST NOT BE IN CONTACT WITH COLUMNS. SEE GENERAL NOTE "F" ON PAGE 2.



**SECTION P-P**

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

<u>ITEM</u>	<u>QUANTITY</u>
PALLET UNITS -----	2,328
PROJECTILES -----	18,624



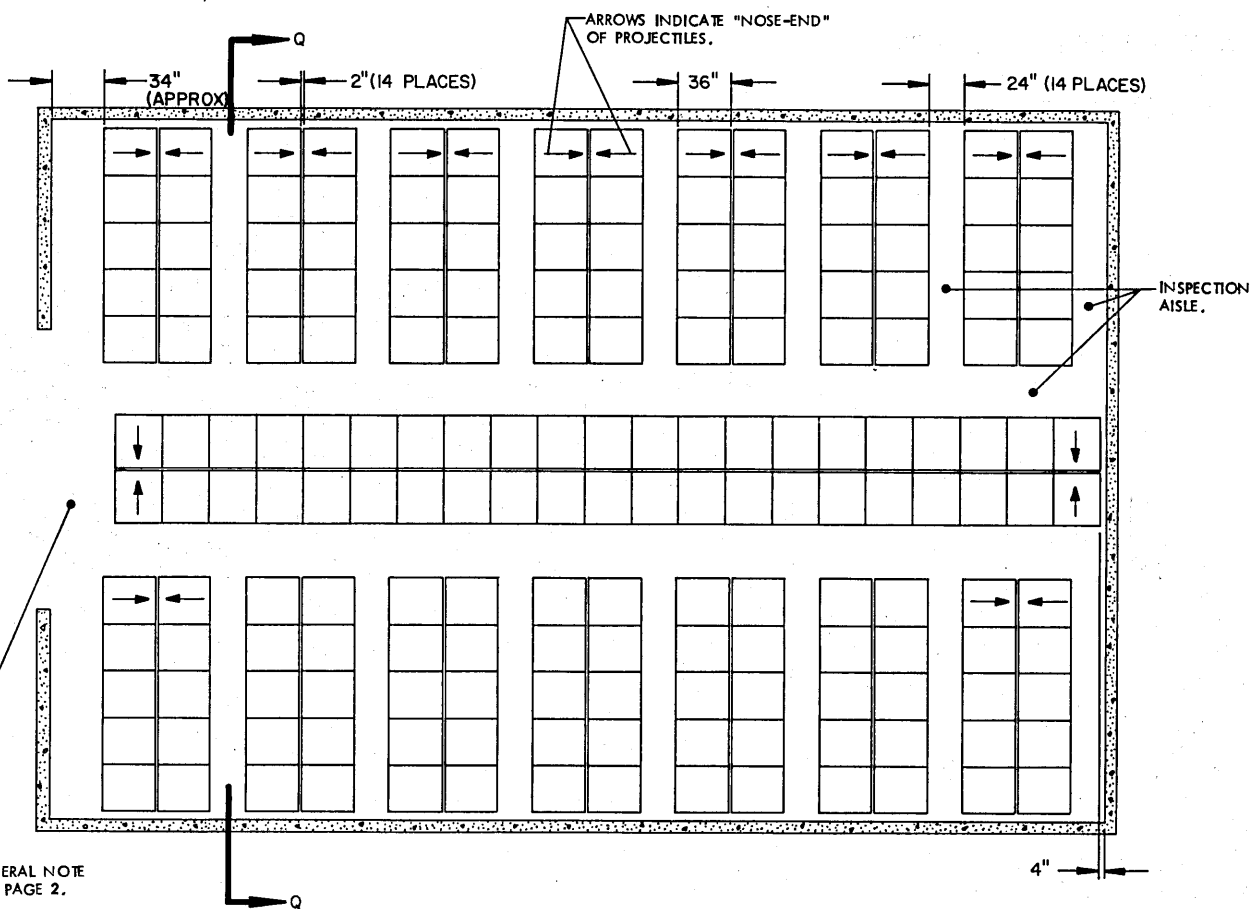
SEE GENERAL NOTE "H"  
ON PAGE 2.

INSPECTION  
AISLE

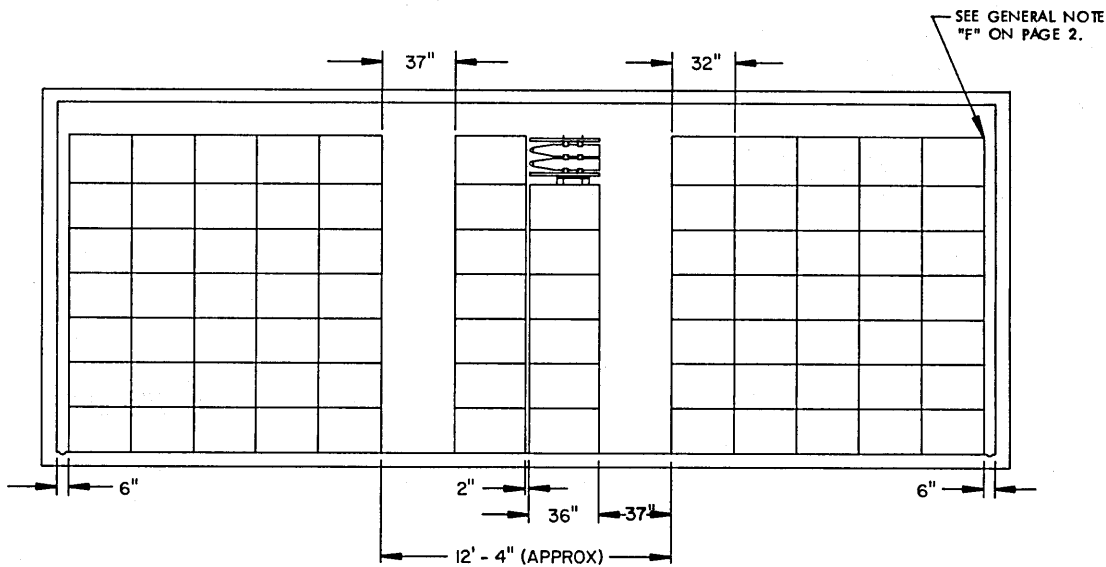
ARROWS INDICATE  
"NOSE-END" OF  
PROJECTILES

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

FOR "GENERAL NOTES", SEE PAGE 2.



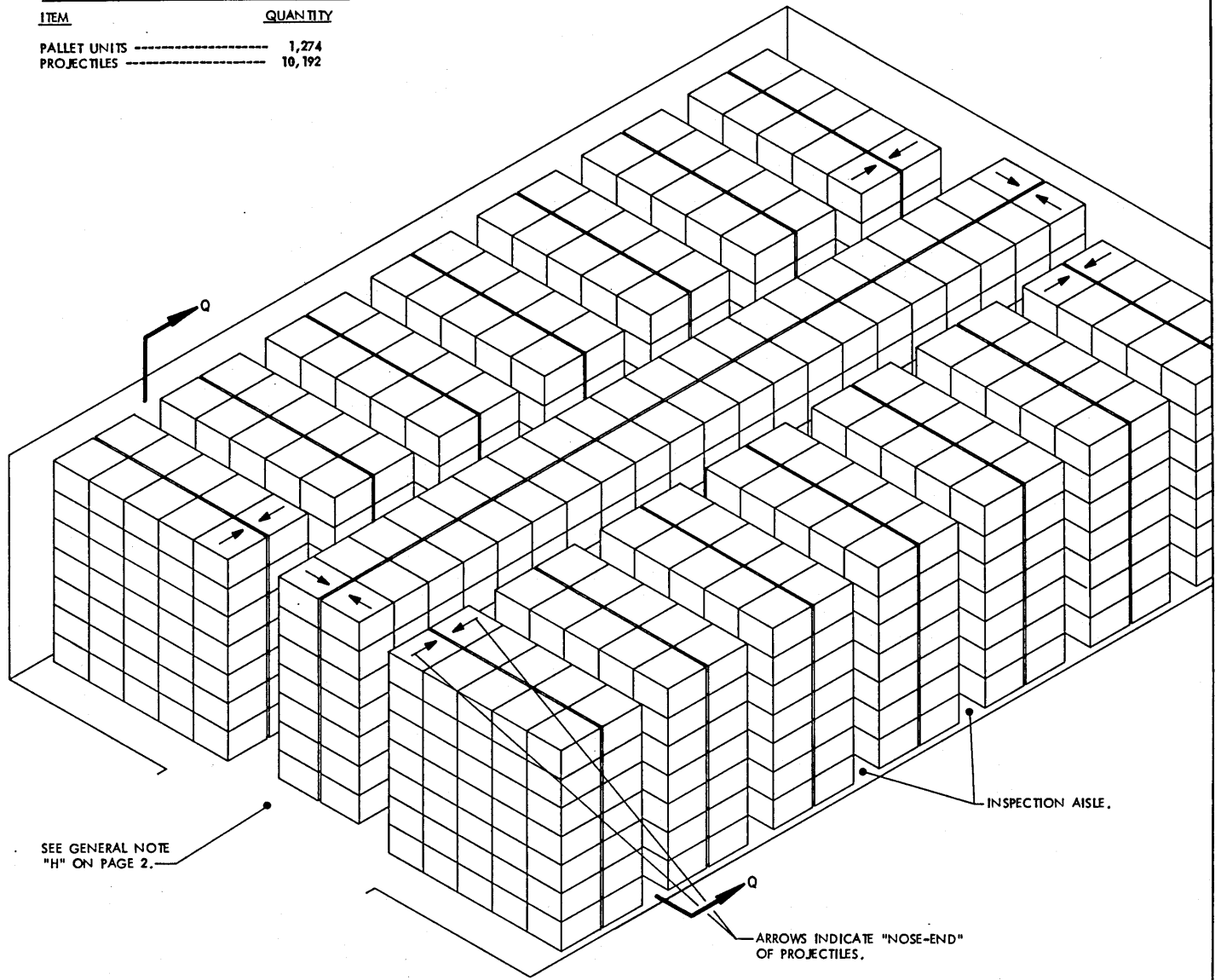
**PLAN VIEW**  
( TYPE II BUNKER MAGAZINE )



**SECTION Q-Q**

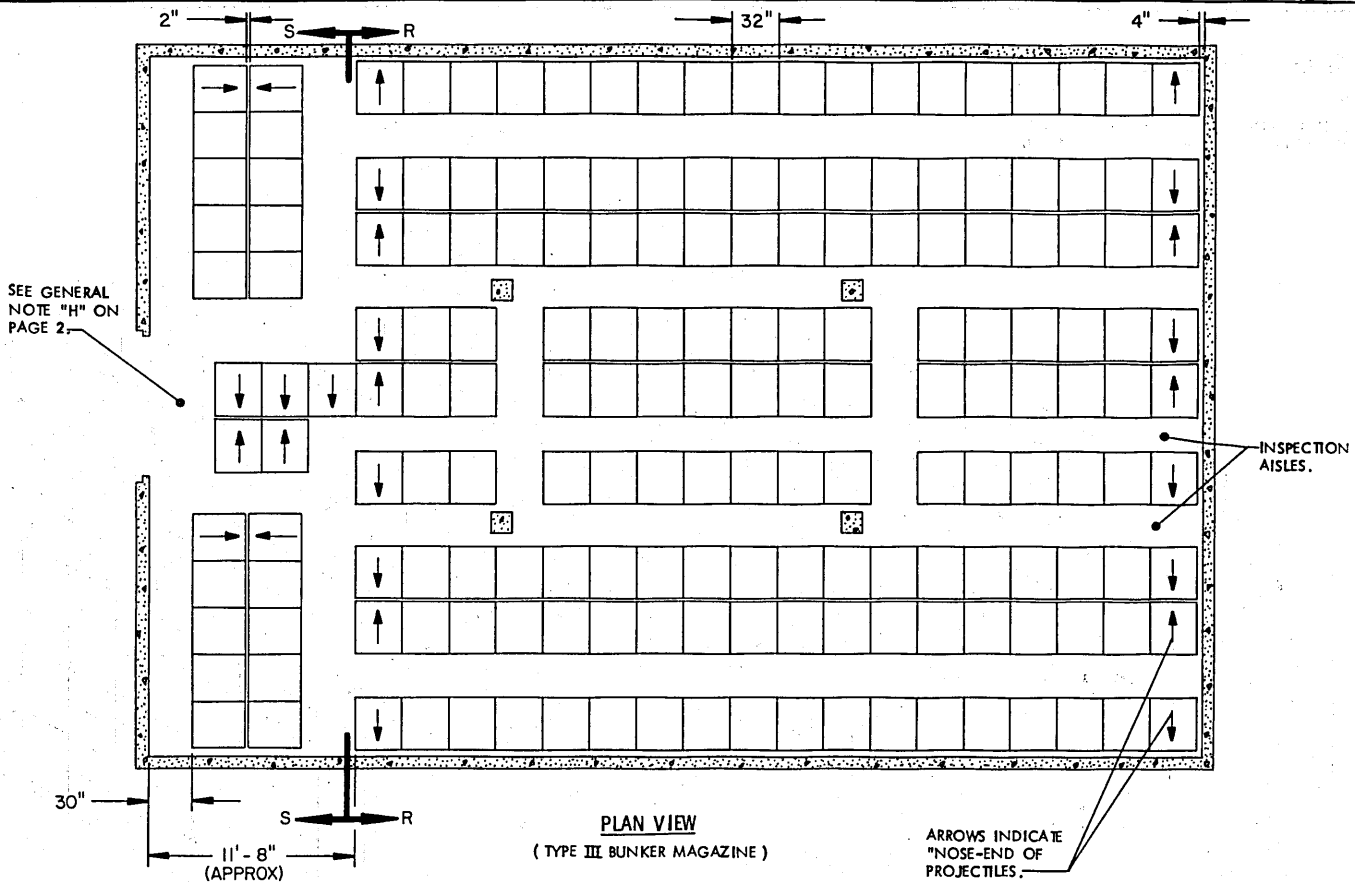
**STORAGE IN TYPE II BUNKER MAGAZINE**

ITEM	QUANTITY
PALLET UNITS -----	1,274
PROJECTILES -----	10,192

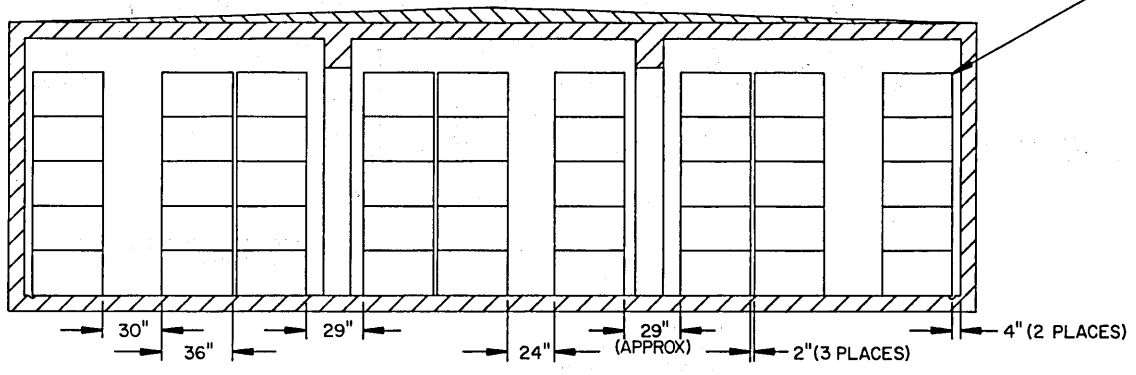


**ISOMETRIC VIEW**  
( TYPE II BUNKER MAGAZINE )

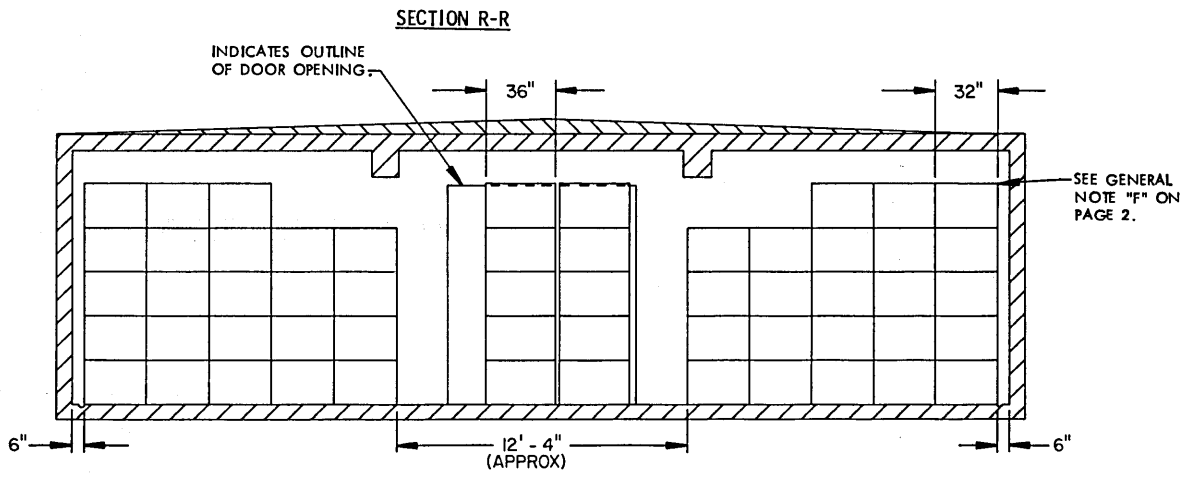
FOR "GENERAL NOTES", SEE PAGE 2.



SEE GENERAL NOTE "F" ON PAGE 2.



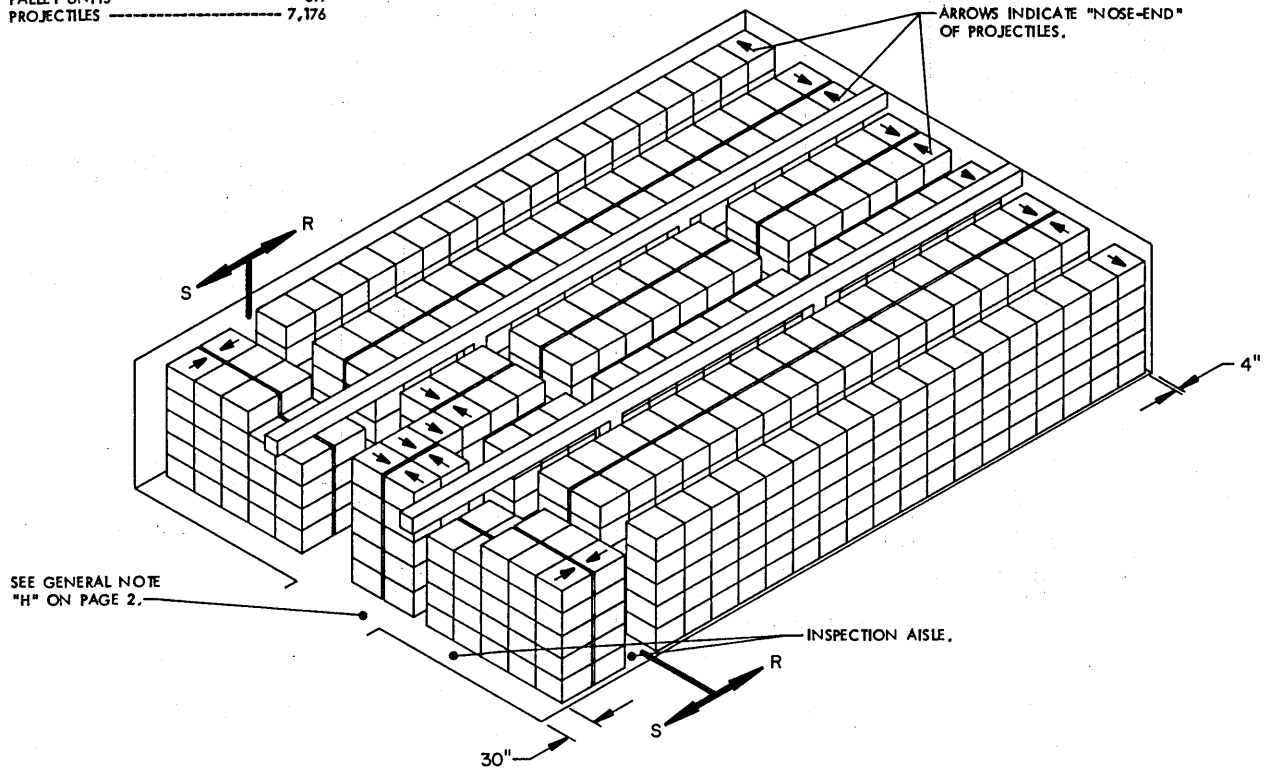
INDICATES OUTLINE OF DOOR OPENING.





**STORAGE IN TYPE III BUNKER MAGAZINE**

ITEM	QUANTITY
PALLET UNITS -----	897
PROJECTILES -----	7,176



**ISOMETRIC VIEW**  
( TYPE III BUNKER MAGAZINE )

FOR "GENERAL NOTES", SEE PAGE 2.

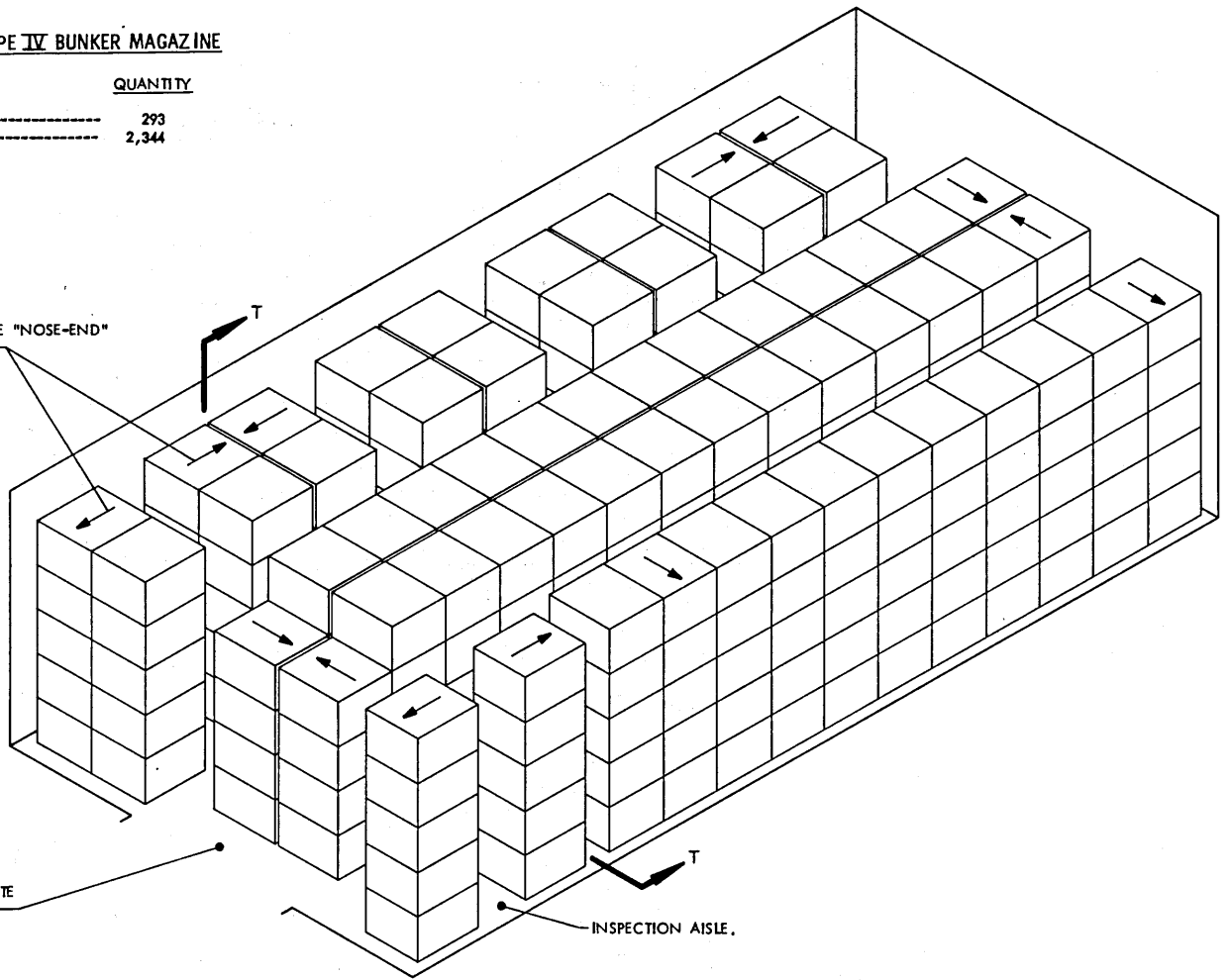


**STORAGE IN TYPE IV BUNKER MAGAZINE**

ITEM	QUANTITY
PALLET UNITS -----	293
PROJECTILES -----	2,344

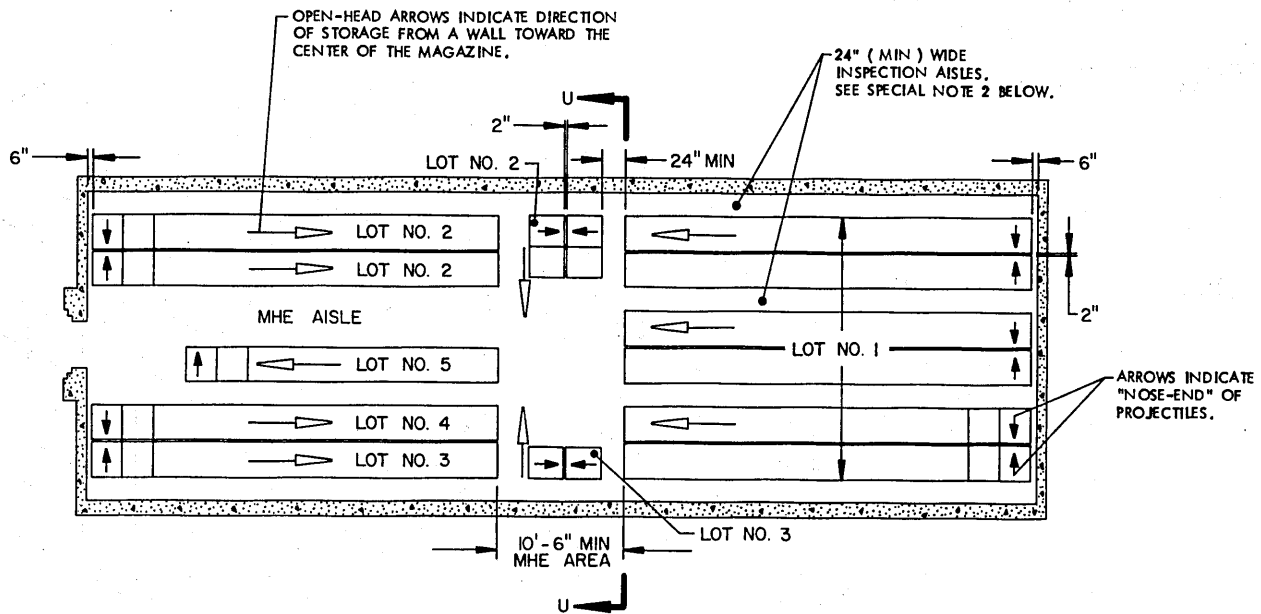
ARROWS INDICATE "NOSE-END" OF PROJECTILES.

SEE GENERAL NOTE "H" ON PAGE 2.

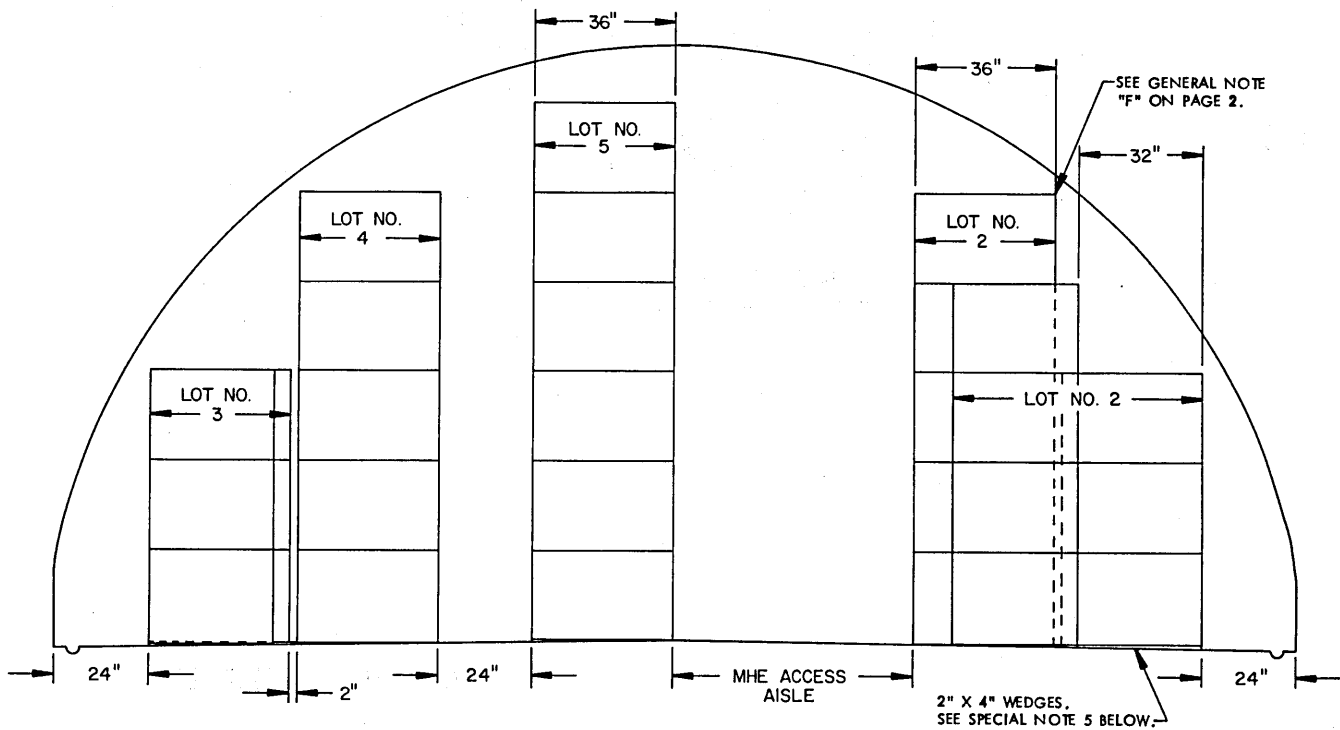


**ISOMETRIC VIEW**  
( TYPE IV BUNKER MAGAZINE )

FOR "GENERAL NOTES", SEE PAGE 2.



PLAN VIEW



SECTION U-U

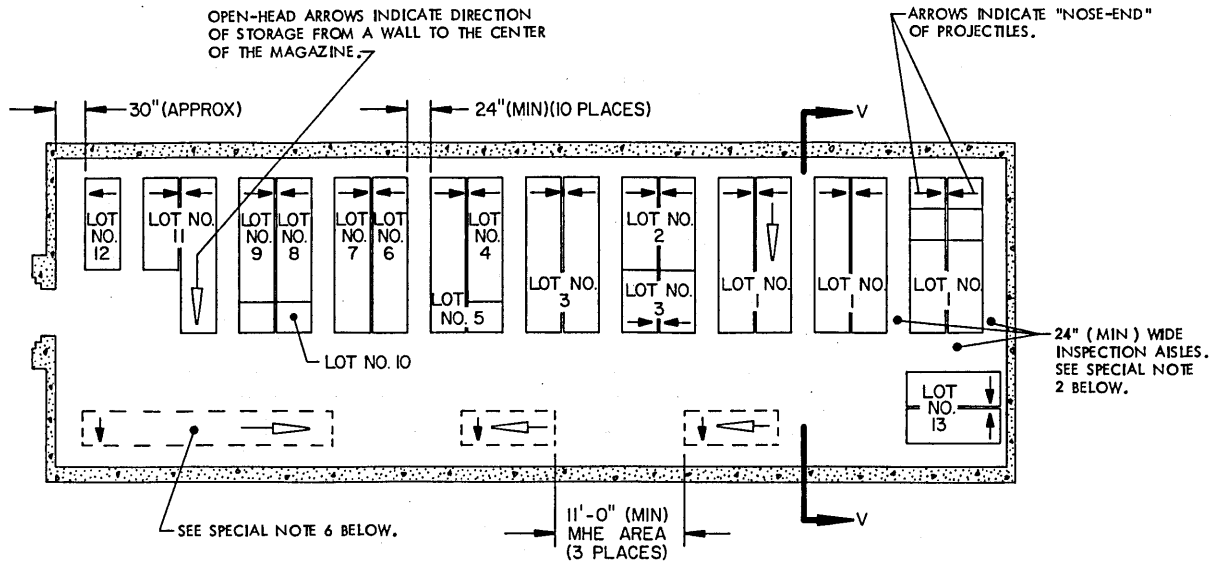
SPECIAL NOTES:

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 NOT LESS THAN 24" WIDE MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
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. AN MHE ACCESS 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.

(CONTINUED AT RIGHT)

(SPECIAL NOTES CONTINUED)

4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NOT 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. 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.



PLAN VIEW

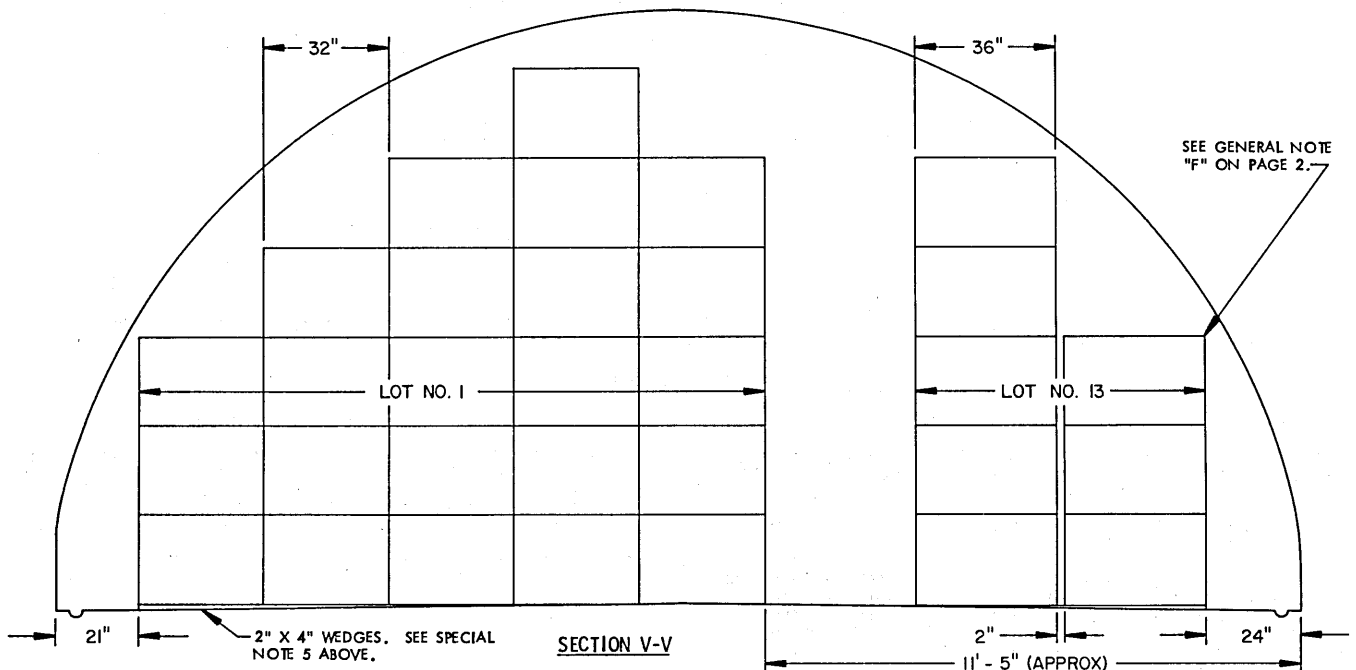
SPECIAL NOTES:

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO NUMEROUS SMALL LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZE OF LOTS TO BE STORED IN MAGAZINES REQUIRE.
2. AN INSPECTION/INVENTORY AISLE, NOT LESS THAN 24" WIDE, MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
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. 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 NOT 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.

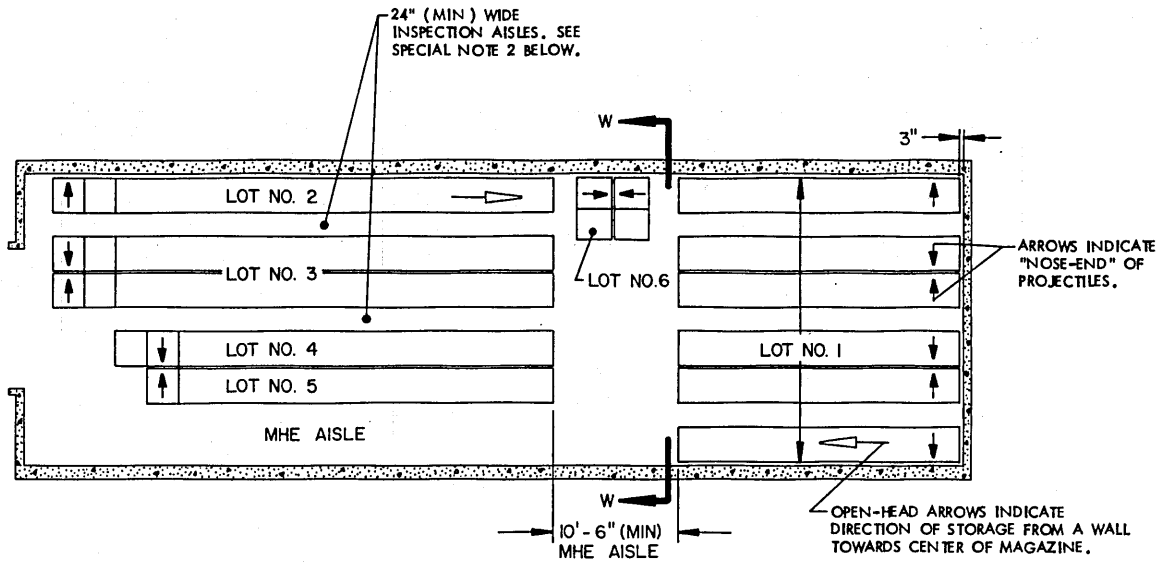
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(SPECIAL NOTES CONTINUED)

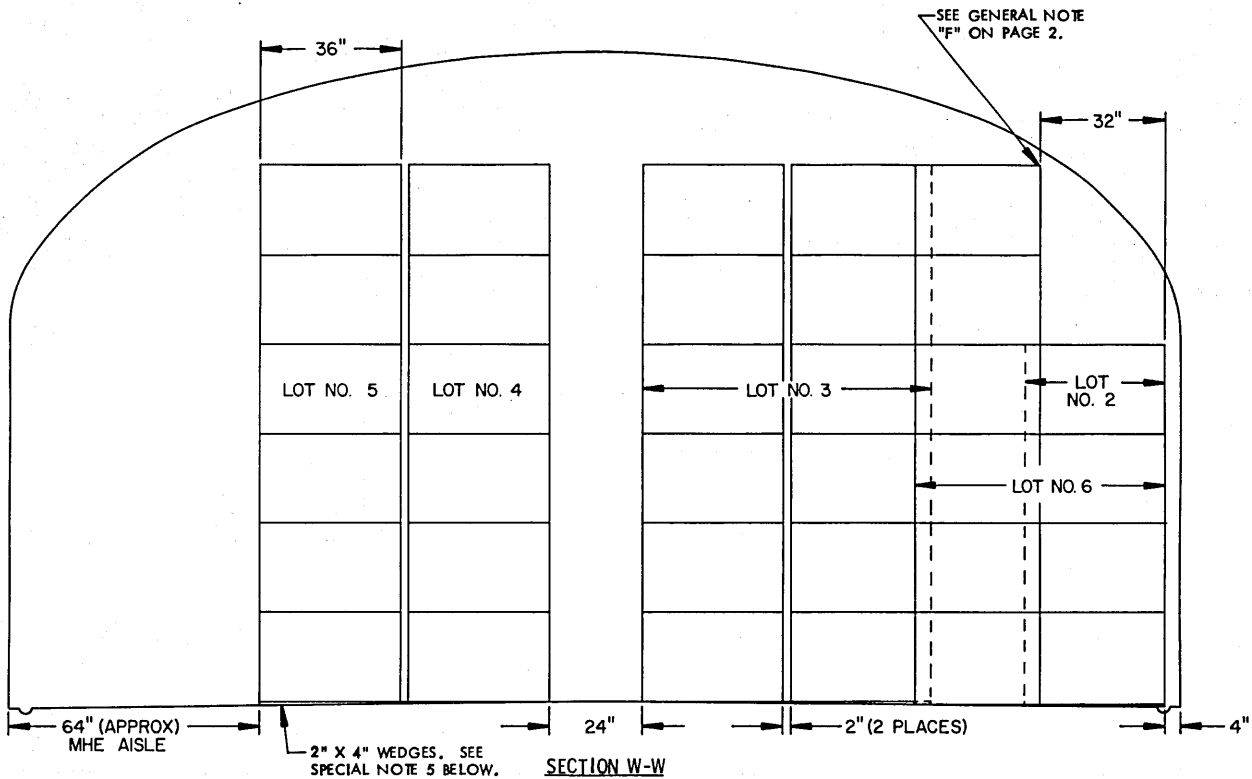
5. LENGTH OF 2" X 4" WEDGES WILL BE DETERMINED BY THE WIDTH OF THE LOT IN ROWS. WEDGES WILL NOT EXTEND INTO AISLE OR UNDER ADJACENT LOTS.
6. AREAS ENCLOSED BY DOTTED LINES INDICATE LOCATIONS WHERE ADDITIONAL LOTS MAY BE STORED OR WHERE ADDITIONAL PALLET UNITS MAY BE STORED, THAT ARE FROM THE LOT OR LOTS 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 PALLET 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 MAY 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. A WIDER "CENTER AISLE" WILL ENHANCE FORKLIFT TRUCK MOVEMENT WITHIN A MAGAZINE; HOWEVER, THIS AISLE SHOULD NOT BE MADE WIDER IF A LOSS IN STORAGE RESULTS.



TYPICAL MULTIPLE-LOT STORAGE IN IGLOO AND ARCH TYPE MAGAZINES



PLAN VIEW



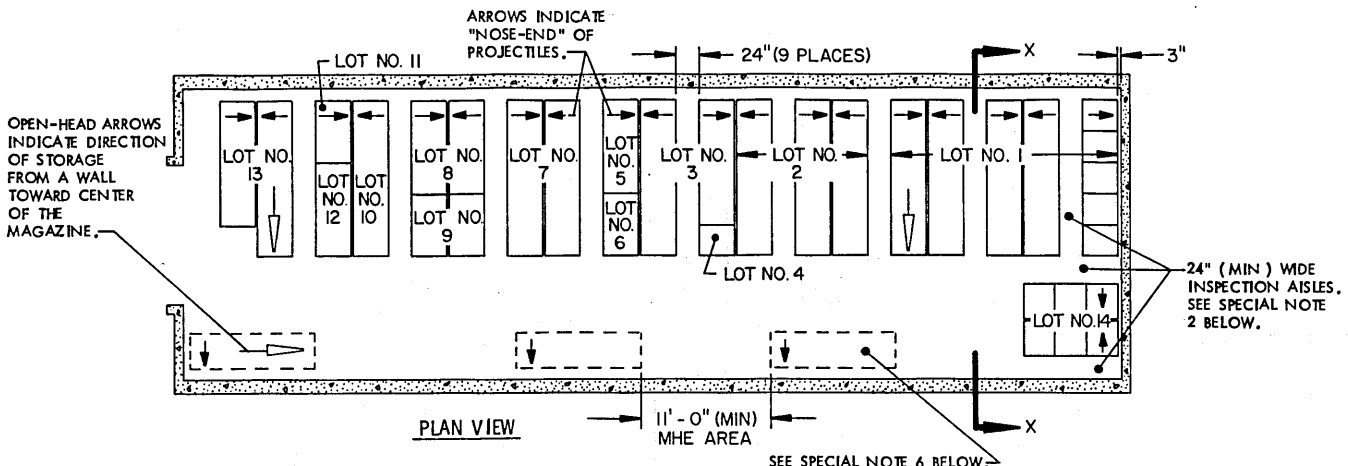
SPECIAL NOTES:

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 NOT LESS THAN 24" WIDE MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
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. AN MHE ACCESS 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.

(SPECIAL NOTES CONTINUED)

4. EACH LOT WITHIN THE MAGAZINE MUST BE ACCESSIBLE FOR MOVEMENT BY MHE. A SINGLE-LOT OF PALLET UNITS IS CONSIDERED "ACCESSIBLE" IF NOT 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. 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.

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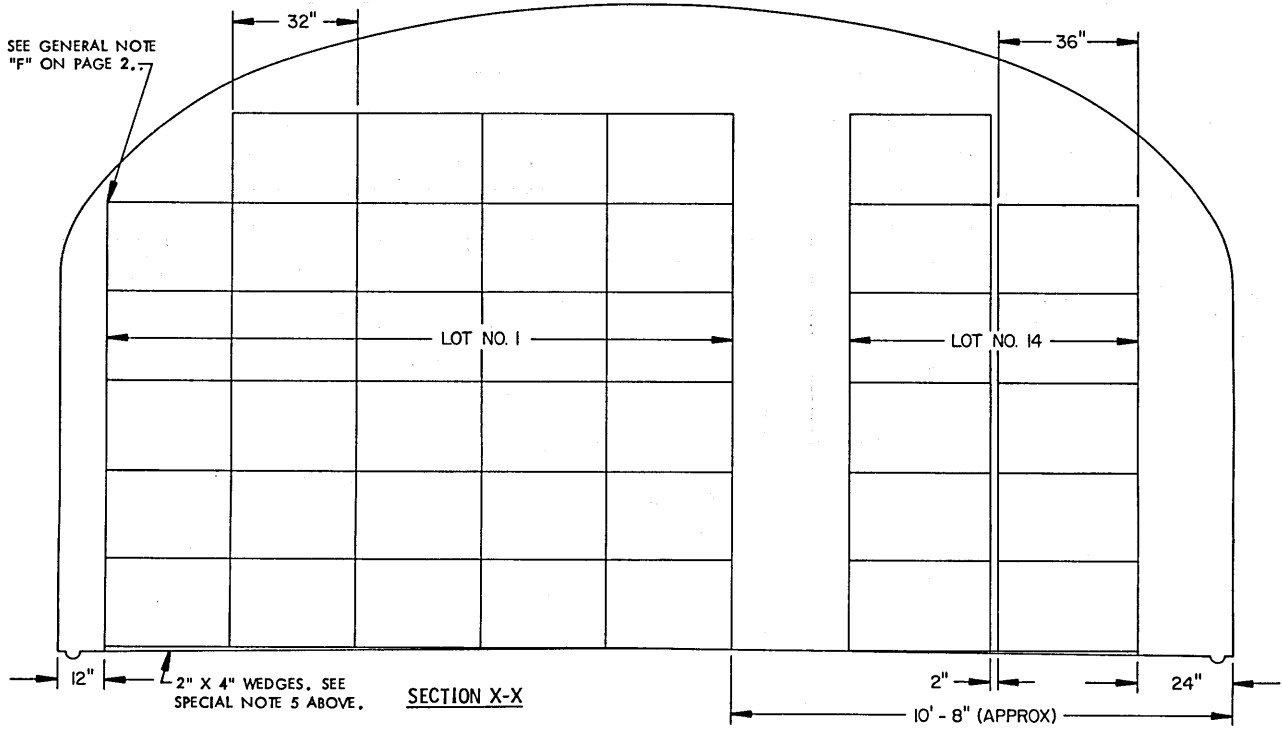
**SPECIAL NOTES:**

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO NUMEROUS SMALL LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZE OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
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5. 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.

**(SPECIAL NOTES CONTINUED)**

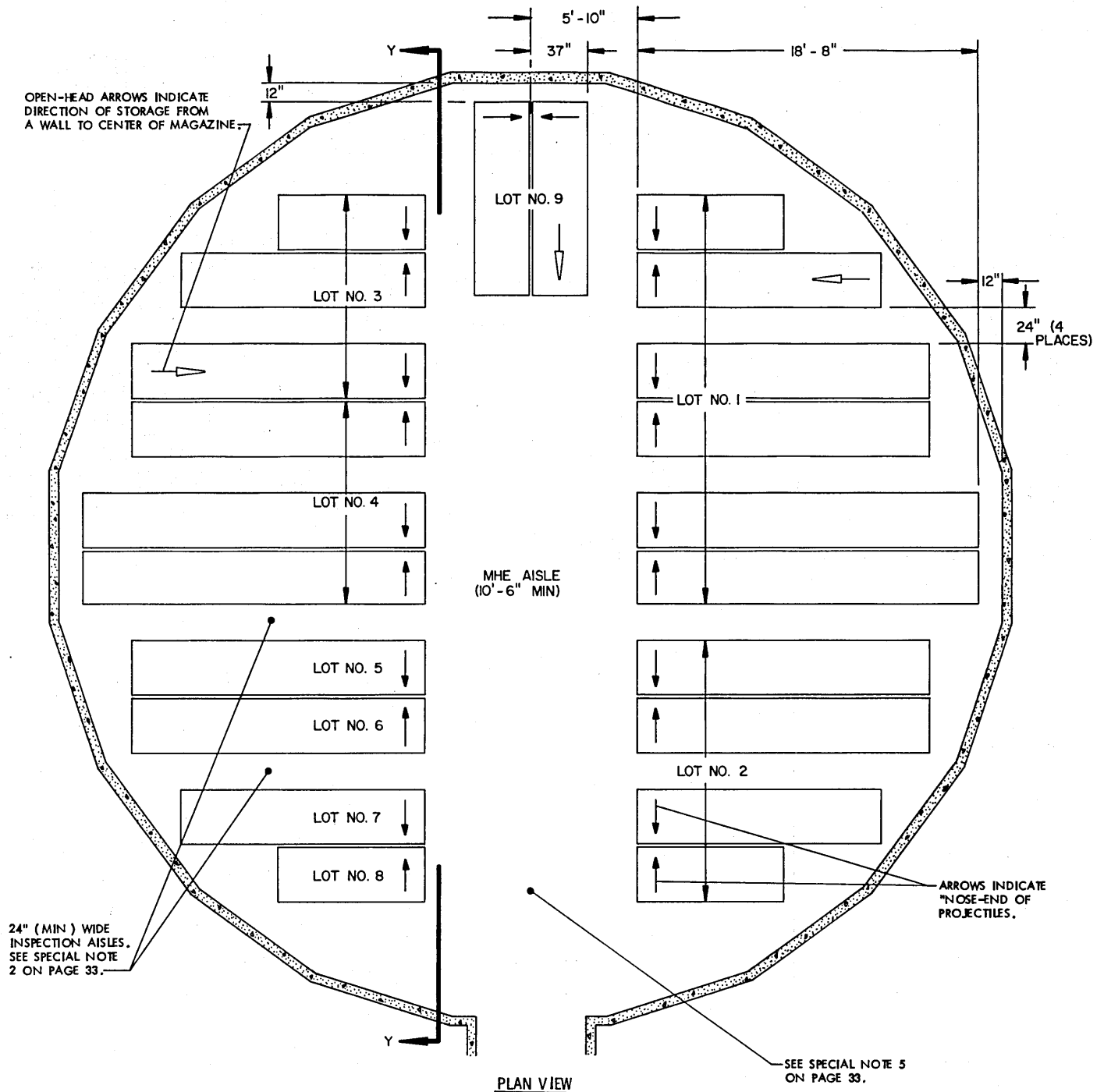
6. AREAS ENCLOSED BY DOTTED LINES INDICATE LOCATIONS WHERE ADDITIONAL LOTS MAY BE STORED OR WHERE ADDITIONAL PALLET UNITS MAY BE STORED, THAT ARE FROM THE LOT OR LOTS WHICH ARE DIRECTLY OR ALMOST DIRECTLY ACROSS THE CENTER AISLE ON THE OTHER SIDE OF THE MAGAZINE. COMPLIANCE WITH ALL OF THE MULTIPLE-LOT 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 PALLET 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 MAY 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. A WIDER "CENTER AISLE" WILL ENHANCE FORKLIFT TRUCK MOVEMENT WITHIN A MAGAZINE; HOWEVER, THIS AISLE SHOULD NOT BE MADE WIDER IF A LOSS IN STORAGE RESULTS.

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**TYPICAL MULTIPLE-LOT STORAGE IN STRADLEY AND OVAL ARCH TYPE MAGAZINES**

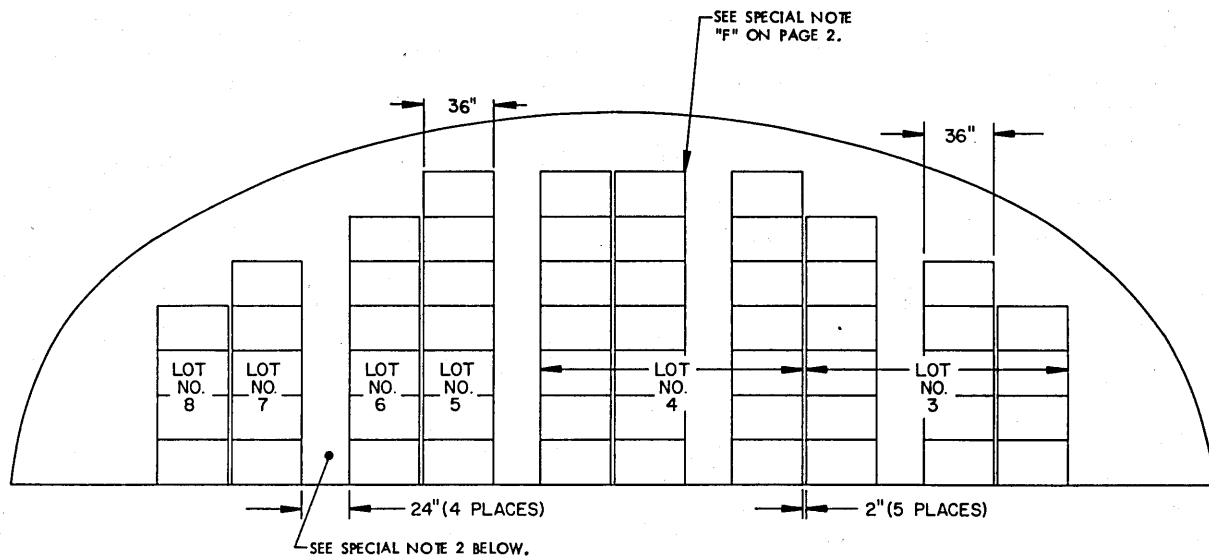
OPEN-HEAD ARROWS INDICATE DIRECTION OF STORAGE FROM A WALL TO CENTER OF MAGAZINE.



PLAN VIEW

SEE SPECIAL NOTE 5 ON PAGE 33.

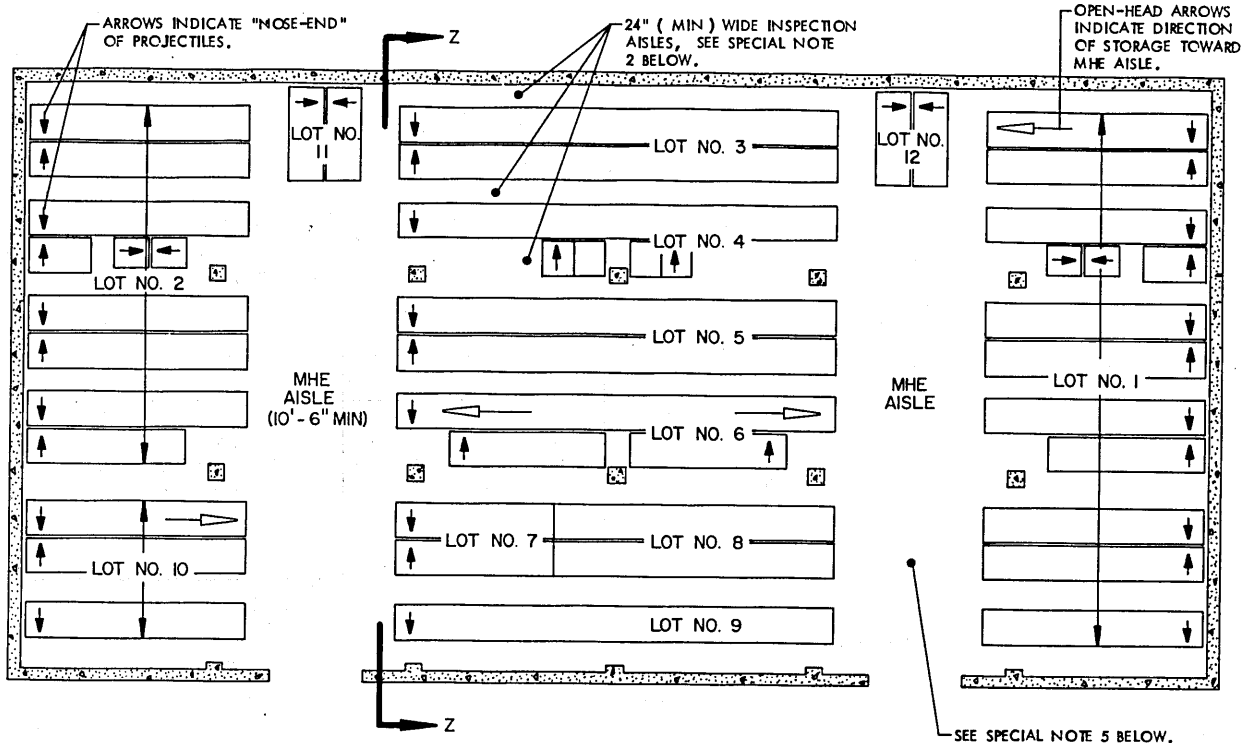




SECTION Y-Y

SPECIAL NOTES:

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE 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 24" WIDE MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED ON ONE SIDE 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 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. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL PALLET UNITS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THIS ADDITIONAL STORAGE IS TO BE ARRANGED IN A MANNER SIMILAR TO ARRANGEMENT DEPICTED ON PAGES 29 AND 31 FOR THE "ADDITIONAL STORAGE LOCATIONS" (SHOWN IN DOTTED LINES). ADEQUATE SPACE FOR MHE OPERATION, AS DESCRIBED ON PAGES 29 AND 31, 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.



PLAN VIEW

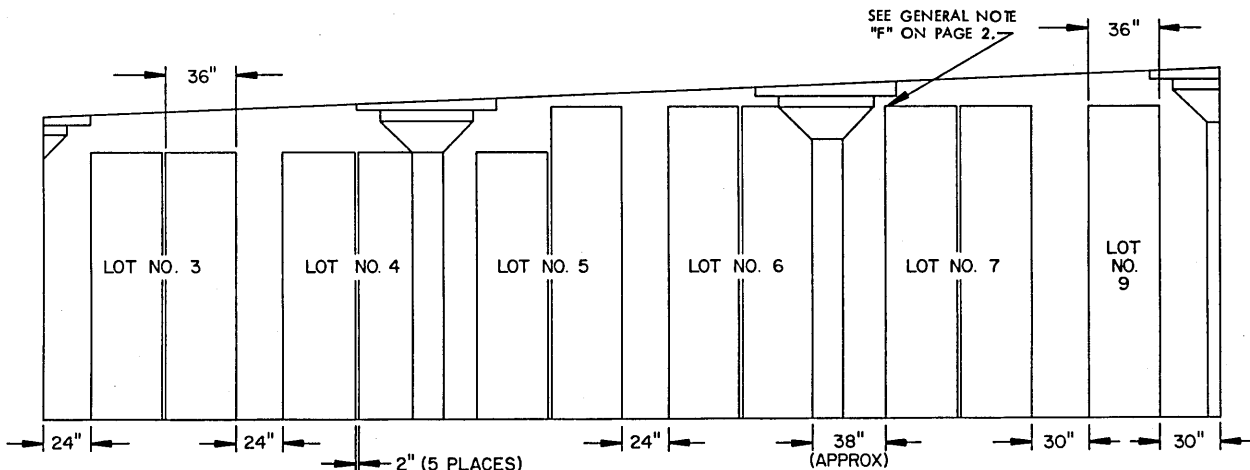
SPECIAL NOTES:

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE 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 24" WIDE MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
3. GENERALLY, THE LARGEST LOT SHOULD BE STORED ON ONE SIDE 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 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.

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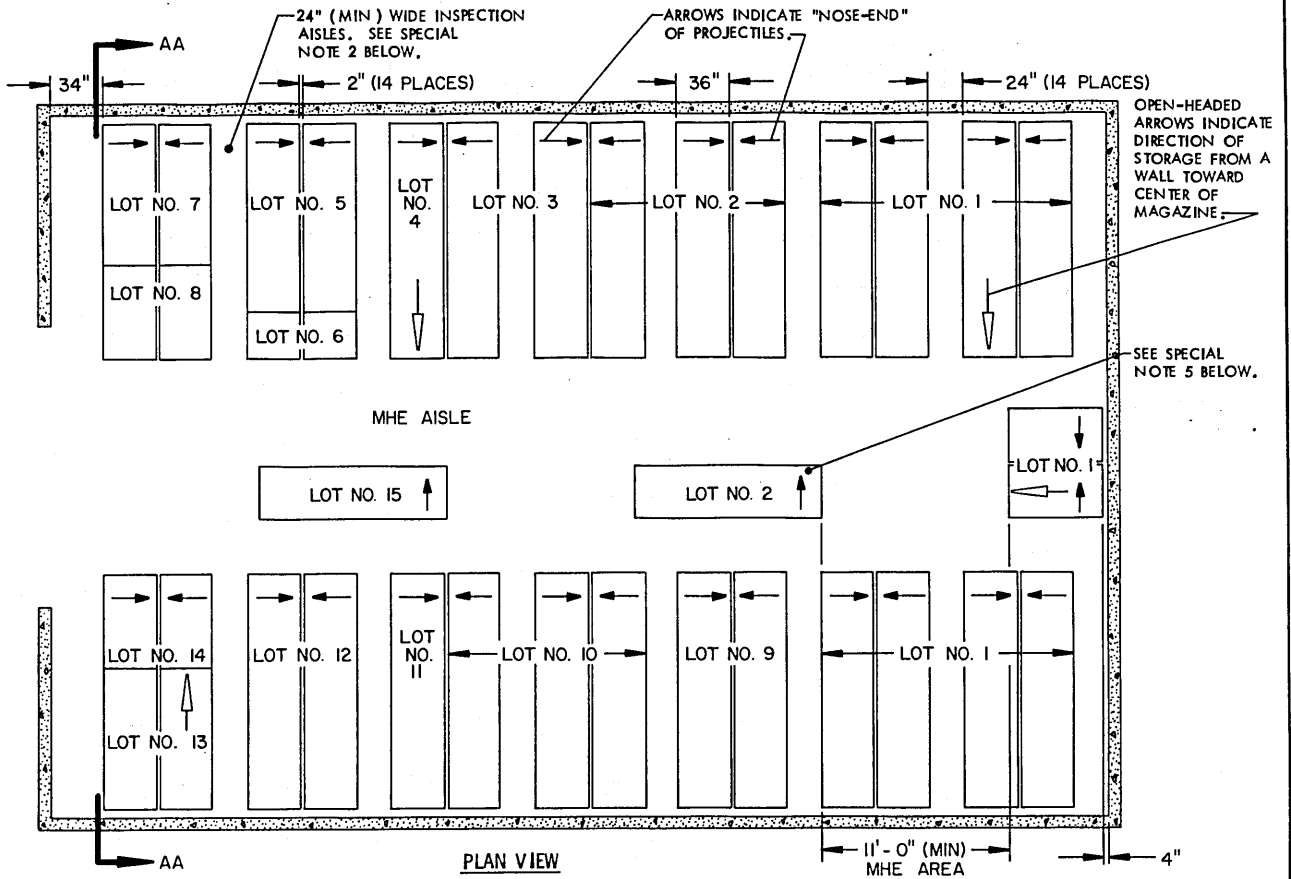
(SPECIAL NOTES CONTINUED)

5. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL PALLET UNITS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THIS ADDITIONAL STORAGE IT TO BE ARRANGED IN A MANNER SIMILAR TO ARRANGEMENTS DEPICTED ON PAGES 29 AND 31 FOR THE "ADDITIONAL STORAGE LOCATIONS" (SHOWN IN DOTTED LINES). ADEQUATE SPACE FOR MHE OPERATION, AS DESCRIBED ON PAGES 29 AND 31, 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.



SECTION Z-Z

TYPICAL MULTIPLE-LOT STORAGE IN RECTANGULAR MAGAZINE



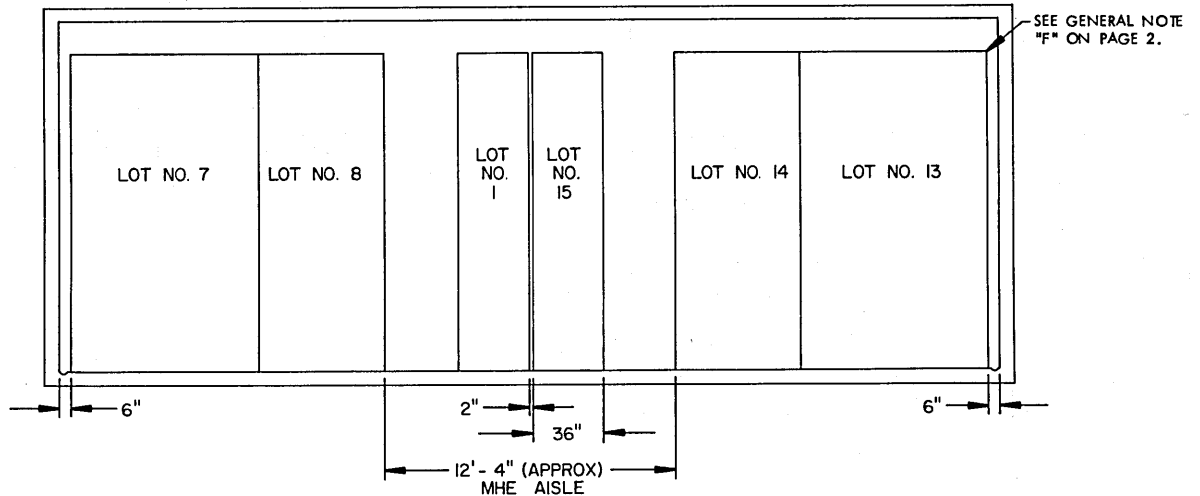
**SPECIAL NOTES:**

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO 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 24" WIDE MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
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. AN MHE AISLE WILL BE REQUIRED SO THAT 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

**(SPECIAL NOTES CONTINUED)**

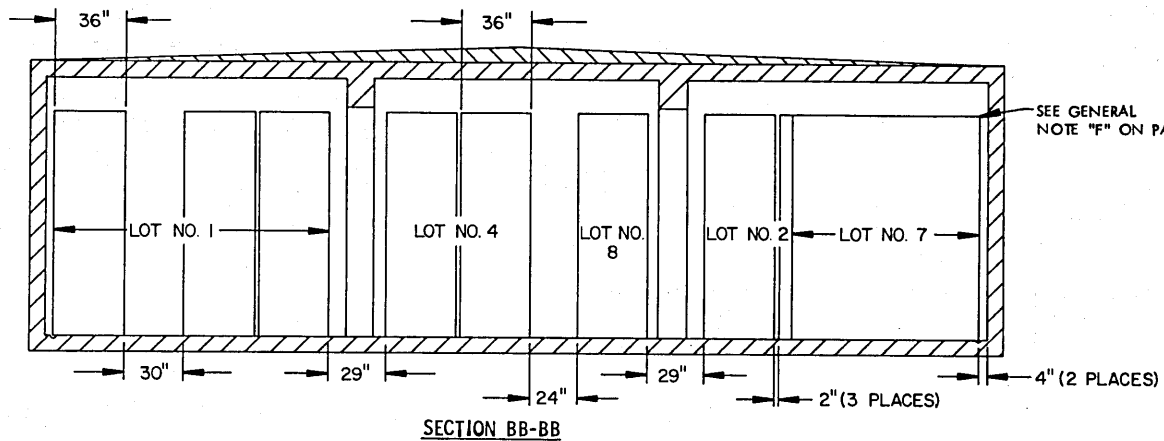
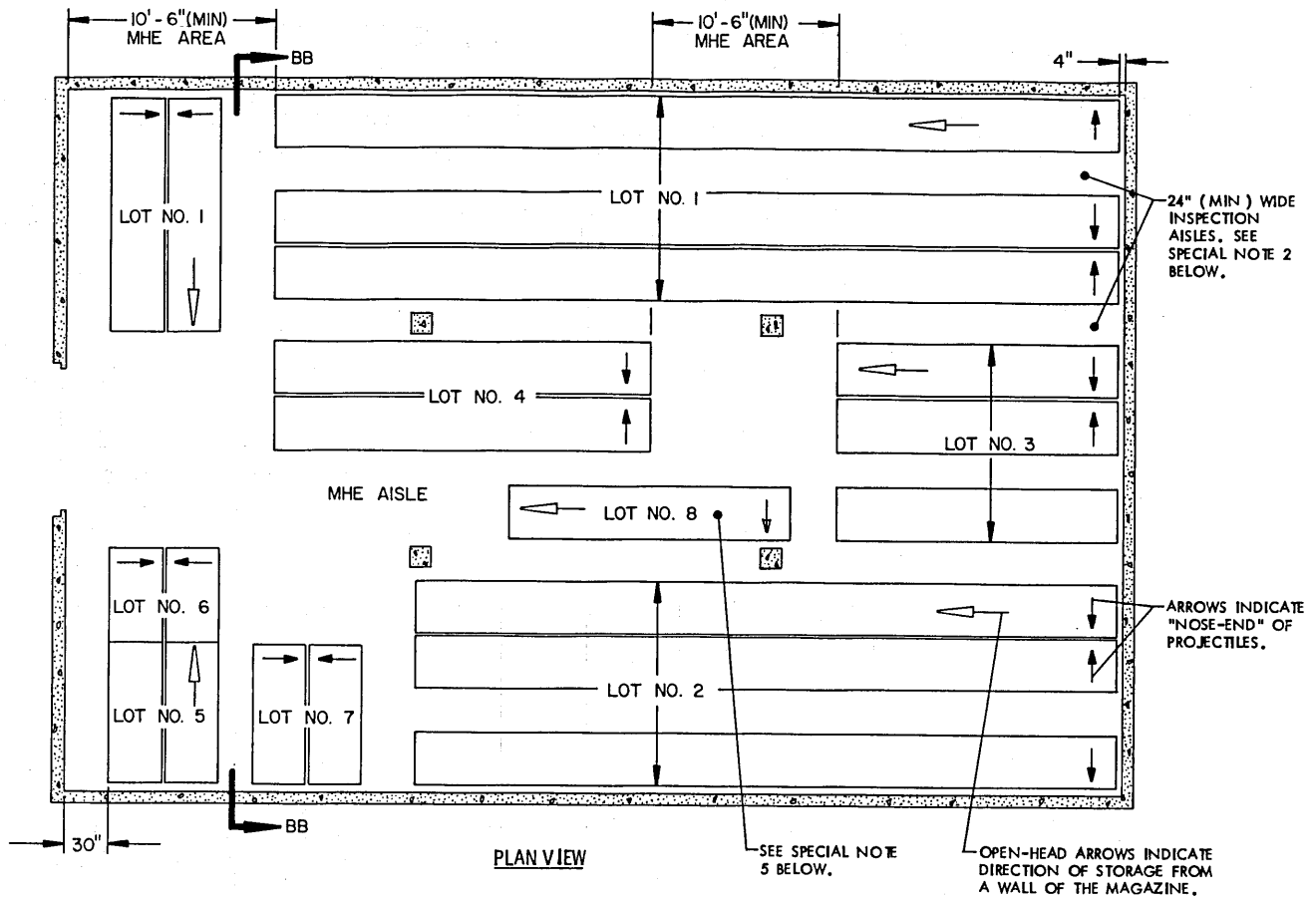
- MORE THAN THREE (3) PALLET UNITS OF PROJECTILES AT ONE TIME.
5. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL PALLET UNITS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THIS ADDITIONAL STORAGE IS TO BE ARRANGED IN A MANNER SIMILAR TO ARRANGEMENT DEPICTED ON PAGES 29 AND 31 FOR THE "ADDITIONAL STORAGE LOCATIONS" (SHOWN IN DOTTED LINES). ADEQUATE SPACE FOR MHE OPERATION, AS DESCRIBED ON PAGES 29 AND 31, 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.

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**SECTION AA-AA**

**TYPICAL MULTIPLE-LOT STORAGE IN 60'-0" L X 40'-0" W TYPE II BUNKER MAGAZINE**



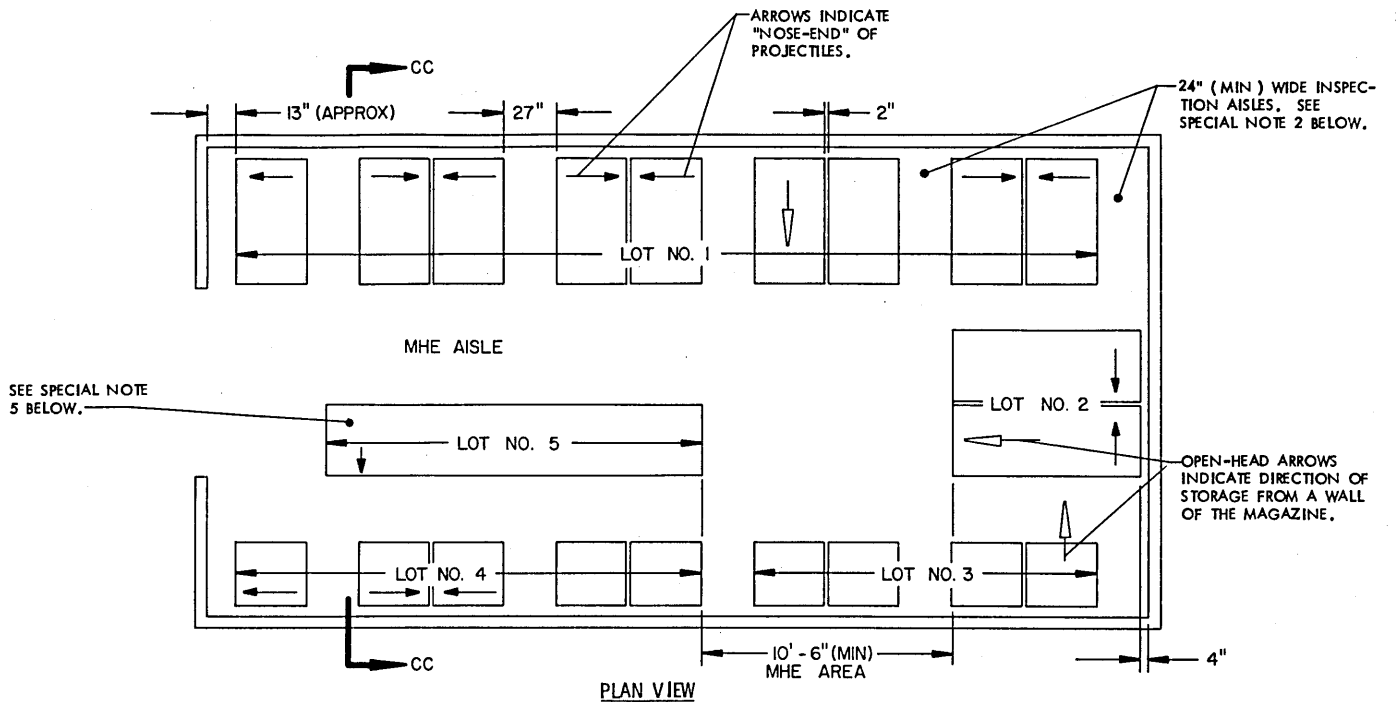
**SPECIAL NOTES:**

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO VARIOUS SIZE LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZE OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE, NOT LESS THAN 24" WIDE, MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
3. GENERALLY, THE LARGEST LOTS SHOULD BE STORED IN THE REAR OF THE MAGAZINE. HOWEVER, THE REAR AREA MAY BE USED TO STORE NUMEROUS LOTS BY ERECTING ROWS SIMILAR TO THOSE SHOWN IN THE FRONTAL AREA. AN MHE AISLE WILL BE REQUIRED SO THAT 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 NOT 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.

(CONTINUED AT RIGHT)

**(SPECIAL NOTES CONTINUED)**

5. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL PALLET UNITS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. THE REQUIREMENTS OF SPECIAL NOTE 4 AND ALL MULTIPLE-LOT CRITERIA SET FORTH ON THIS PAGE MUST BE OBSERVED.



**SPECIAL NOTES:**

1. THE STORAGE PLANS AND CONFIGURATIONS SHOWN ON THIS PAGE ARE TYPICAL ONLY AND APPLY TO NUMEROUS SMALL LOTS. ADAPTATIONS MAY BE MADE AS NUMBER AND SIZE OF LOTS TO BE STORED IN MAGAZINE REQUIRE.
2. AN INSPECTION/INVENTORY AISLE, NOT LESS THAN 24" WIDE, MUST BE PROVIDED AT THE "BASE-END" OF ALL PROJECTILES IN ALL LOTS.
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 FRONTAL AREA. AN MHE AISLE WILL BE REQUIRED SO THAT 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.
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5. THE MHE AISLE MAY BE USED TO STORE ONE OR MORE STACKS OF ADDITIONAL LOTS OR ADDITIONAL PALLET UNITS THAT ARE FROM A LOT ADJACENT TO THE MHE AISLE. ADEQUATE SPACE FOR MHE OPERATION 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.

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