

# PATRIOT

## STORAGE IN APPROVED MAGAZINES OF PATRIOT ADVANCED CAPABILITY- 3 (PAC-3) MISSILE SEGMENT ENHANCEMENT (MSE) COMPLETE ROUND, PACKED IN MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CANISTER)

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### U.S. ARMY MATERIEL COMMAND DRAWING

<b>APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND</b>		<b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://mhp.redstone.army.mil">HTTPS://MHP.REDSTONE.ARMY.MIL</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 32.</b>											
OCONNOR.DOUGL AS.LEO.114058225 1	<b>DO NOT SCALE</b>		<b>DECEMBER 2017</b>										
	DESIGN ENGINEER	BASIC REV.	RICHARD GARSIDE										
<b>APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</b>  SHIMP.UPTON .R.1231257183	ENGINEERING DIVISION	FIEFFER.LAUR A.A.1230375727		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">CLASS</td> <td style="text-align: center;">DIVISION</td> <td style="text-align: center;">DRAWING</td> <td style="text-align: center;">FILE</td> </tr> <tr> <td style="text-align: center;">19</td> <td style="text-align: center;">48</td> <td style="text-align: center;">5283</td> <td style="text-align: center;">GM1-3-4-14-22PA3</td> </tr> </table>		CLASS	DIVISION	DRAWING	FILE	19	48	5283	GM1-3-4-14-22PA3
	CLASS	DIVISION	DRAWING			FILE							
	19	48	5283	GM1-3-4-14-22PA3									
TEST ENGINEER TEST REPORT	NA	FELICIANO.AD IN.1259200373											
EXPLOSIVE SAFETY DIRECTORATE		THOMAS.CARL.ANT HONY.1104621372											

## GENERAL NOTES

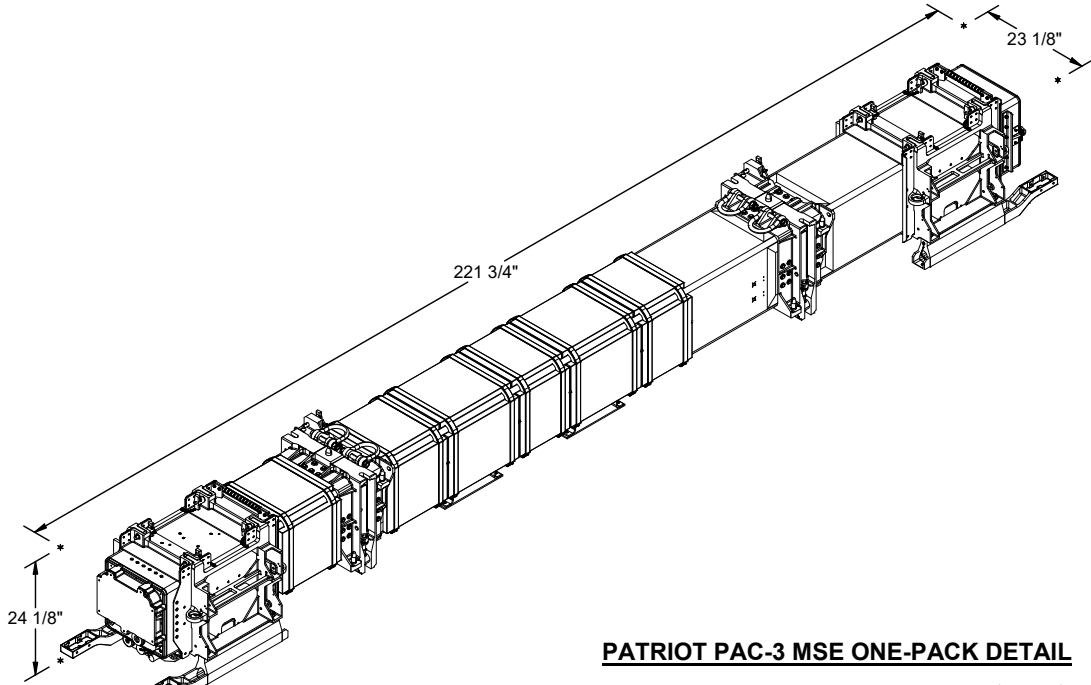
(GENERAL NOTES CONTINUED)

- 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 PATRIOT ADVANCED CAPABILITY-3 (PAC-3) MSE COMPLETE ROUND 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. THE STORAGE PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO PATRIOT ADVANCED CAPABILITY-3 (PAC-3) MSE COMPLETE ROUND, WHEN PACKED IN THE MISSILE CANISTER (SHIPPING, STORAGE AND LAUNCH CANISTER). STORAGE IS PERMITTED IN EITHER A ONE-PACK OR TWO-PACK CONFIGURATION. TOTAL QUANTITIES LISTED FOR THE VARIOUS MAGAZINES REFER TO A SINGLE MISSILE CANISTER, EVEN WHEN IN A TWO-PACK CONFIGURATION. STACK AND LAYER QUANTITIES WILL REFLECT EITHER ONE-PACK OR TWO-PACK CANISTERS. SEE PAGE 3 AND LOCKHEED-MARTIN DRAWINGS 14101275, 14101300, AND 14101310 FOR DETAILS OF THE CANISTER. SEE TM 9-1440-2600-10 FOR CANISTER COUPLING DETAILS.
- D. **CAUTION:** THIS ITEM IS IN A "PROPULSIVE STATE" AND MUST BE STORED WITH THE FORWARD END FACING TOWARD THE MAGAZINE SIDEWALL OR THE REAR WALL AS INDICATED BY THE DIRECTIONAL ARROWS ON THE STORAGE VIEWS.
- E. **CAUTION:** THE ALLOWABLE "EXPLOSIVE LIMIT" ESTABLISHED FOR A MAGAZINE IS NOT TO BE EXCEEDED. THIS LIMITATION MAY REQUIRE A QUANTITY REDUCTION FROM THE STORAGE AS SHOWN.
- F. STORED CANISTERS MUST NOT CONTACT THE SIDES OF A MAGAZINE. THEREFORE, CANISTERS MUST BE STORED A MINIMUM OF 6" FROM THE SIDEWALL OR CURVATURE OF THE MAGAZINE AS APPLICABLE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, CANISTERS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.
- G. MHE AISLE DIMENSION SHOWN FOR STORAGE PROCEDURES IN MAGAZINES MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS, VARIATIONS IN CANISTER DIMENSIONS, AND/OR AVAILABLE MATERIAL HANDLING EQUIPMENT (MHE).
- H. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE AS PRESCRIBED WILL NOT BE EXCEEDED.
- J. IF AVAILABLE MHE PERMITS, ADDITIONAL CANISTERS MAY BE STORED WITHIN THE MHE AREA OF THE MAGAZINE.
- K. THE HEIGHT OF THE PACKAGE GUARD ON SOME FORKLIFT TRUCKS MAY NOT PERMIT PLACEMENT OF SOME TOP LAYER CANISTERS IN THE STACKS SHOWN IN THE STORAGE VIEWS HEREIN; UNLESS TWO UPPER CANISTERS ARE HANDLED AS ONE LIFT OR THE PACKAGE GUARD IS REMOVED (TINE CARRIAGE WILL IN MOST INSTANCES PROVIDE ADEQUATE PACKAGE GUARD PROTECTION). ONLY A FORKLIFT TRUCK OF ADEQUATE CAPACITY WILL BE USED WHEN LIFTING TWO CANISTERS AS ONE LIFT. **NOTE:** CANISTERS MAY NOT BE STACKED MORE THAN SIX HIGH IN A TWO-PACK CONFIGURATION OR FOUR HIGH IN A ONE-PACK CONFIGURATION.
- L. THE USE OF SUPPORT PIECES IS REQUIRED FOR ALL ONE-PACK AND TWO-PACK CANISTER CONFIGURATIONS STACKED THREE OR MORE LAYERS HIGH. SEE THE "TYPICAL SUPPORT PIECE AND FLOOR DUNNAGE DETAIL" ON PAGE 32 FOR A TYPICAL INSTALLATION.
- M. THE STORAGE PROCEDURES ON PAGES 16 THROUGH 31 ARE BASED ON MAXIMUM SPACE UTILIZATION OF THE MAGAZINES. HOWEVER, END-HANDLING OF CANISTER STACKS WILL BE REQUIRED FOR FINAL POSITIONING IN EITHER ALL OF THE ROWS OR SOME OF THE ROWS AT ONE SIDE OF THE MAGAZINE. THE HEIGHT OF CANISTER STACKS TO BE END-HANDLED WILL BE DEPENDENT UPON THE MHE AND THE HANDLING CAPACITIES OF THE INSTALLATION INVOLVED AND MAY THEREFORE, REDUCE THE QUANTITY OF CANISTERS THAT CAN BE STORED IN A MAGAZINE.
- N. TO PREVENT DAMAGE TO THE CANISTER, FORK TINES MAY NOT BE PLACED UNDER THE AFT END OF THE CANISTER.
- O. WHEN LOCAL STORAGE CONDITIONS ARE SUCH THAT AN AMMUNITION STORAGE MAGAZINE NET EXPLOSIVE WEIGHT LIMIT WILL BE REACHED BEFORE ALL AVAILABLE STORAGE SPACE WILL BE UTILIZED, A COMBINATION OF THE VARIOUS STORAGE PATTERNS DELINEATED HEREIN MAY BE USED IN LIEU OF BLOCK STORAGE PATTERNS TO FACILITATE INVENTORY, INSPECTION, THE USE OF MATERIAL HANDLING EQUIPMENT, SURVEILLANCE, ETC., OF THE AMMUNITION TO BE STORED WITHIN THE MAGAZINE.
- P. CANISTERS PRESENTLY STORED IN ACCORDANCE WITH A PRIOR APPROVED DRAWING NEED NOT BE RE-STORED SOLELY TO CONFORM TO THE PROCEDURES SPECIFIED IN THIS DOCUMENT.
- Q. OTHER COMPATIBLE ITEMS MAY BE STORED IN A MAGAZINE, WHICH IS PARTIALLY FILLED WITH THE DESIGNATED ITEM.
- R. PORTIONS OF THE MAGAZINES, SUCH AS SIDEWALLS, ENDWALLS, AND ROOFS HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- S. THE USE OF NOMINAL SIZE 1" X 4" X 41" OR 2" X 4" X 41" FLOOR DUNNAGE UNDER EACH END OF EACH FIRST-LAYER CANISTER IS OPTIONAL. THE PURPOSE OF FLOOR DUNNAGE IS TO HELP KEEP THE RUNNERS OF A CANISTER 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. IN IGLOO, ARCH TYPE AND STRADLEY MAGAZINES WHICH HAVE FLOORS SLOPING TOWARD THE SIDEWALLS, THE DEPICTED STORAGE PATTERNS INCLUDE CANISTER STACKS WHICH STRADDLE THE RIDGE OF THE FLOOR AT THE CENTER OF THE MAGAZINE. IT MAY BE NECESSARY, THEREFORE, TO USE 2" THICK MATERIAL FOR FLOOR DUNNAGE UNDER THESE STACKS TO PREVENT THE BOTTOM OF THE CANISTERS FROM CONTACTING THE CONCRETE FLOOR. TO ACHIEVE SOUND AND ACCEPTABLE STABLE STACKS FROM THE FLOOR TO THE TOP OF THE STACK, STACK STABILIZING DUNNAGE IN THE FORM OF VARIOUS THICKNESSES OF FLOOR DUNNAGE WILL BE USED IF REQUIRED. **NOTE:** THE OPTIONAL FLOOR DUNNAGE IS NOT DEPICTED IN THE VIEWS SHOWN ON PAGES 4 THROUGH 31. SEE THE "TYPICAL SUPPORT PIECE AND FLOOR DUNNAGE DETAIL" ON PAGE 32 FOR A TYPICAL INSTALLATION.
- T. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- U. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENT MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM, AND ONE POUND EQUALS 0.454 KG.

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## MATERIAL SPECIFICATION

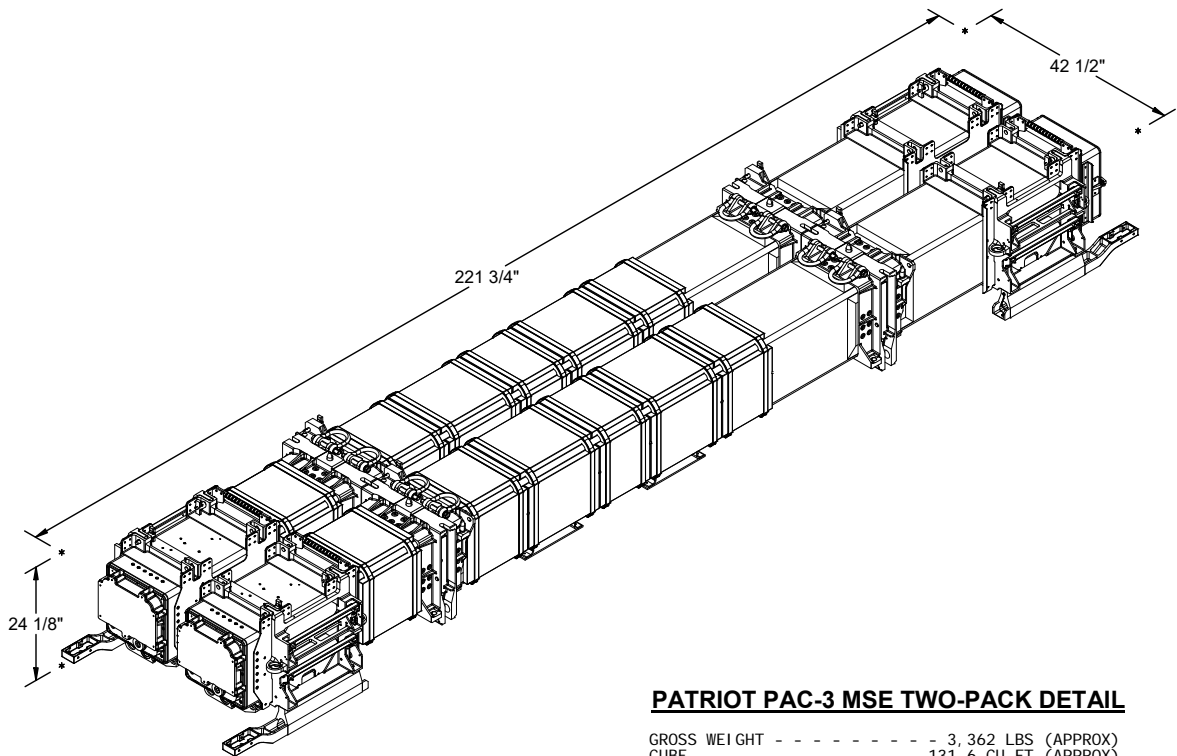
LUMBER -----: SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.



**PATRIOT PAC-3 MSE ONE-PACK DETAIL**

GROSS WEIGHT - - - - - 1,764 LBS (APPROX)  
 CUBE - - - - - 71.6 CU FT (APPROX)

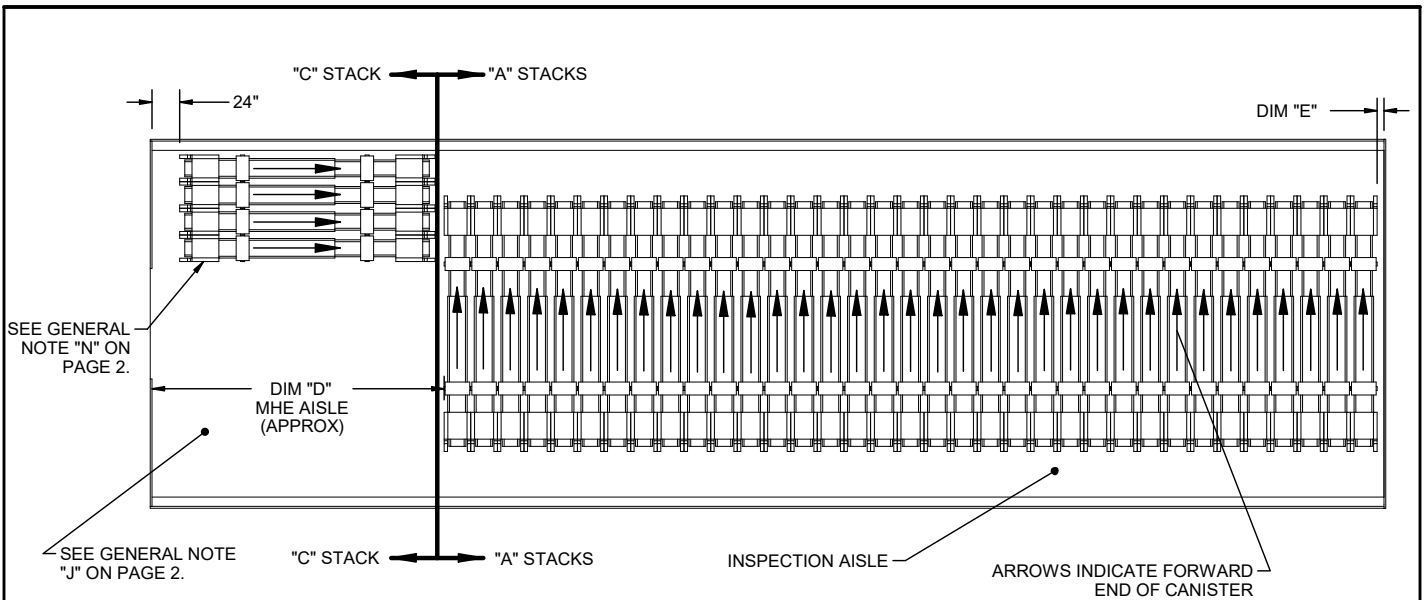
INDICATES AFT  
 END OF CONTAINERS



**PATRIOT PAC-3 MSE TWO-PACK DETAIL**

GROSS WEIGHT - - - - - 3,362 LBS (APPROX)  
 CUBE - - - - - 131.6 CU FT (APPROX)

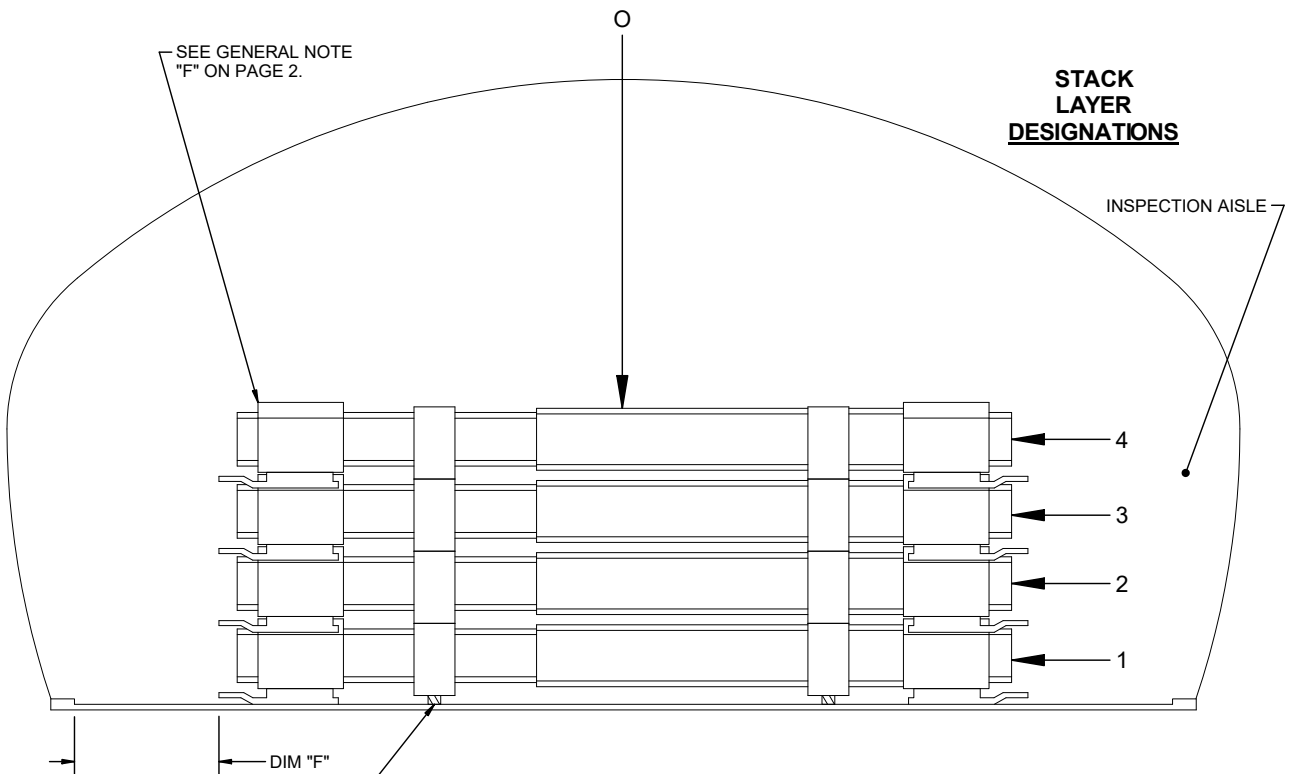
INDICATES AFT  
 END OF CONTAINERS



**PLAN VIEW**

**NOTE:** FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 1 ON PAGE 6.

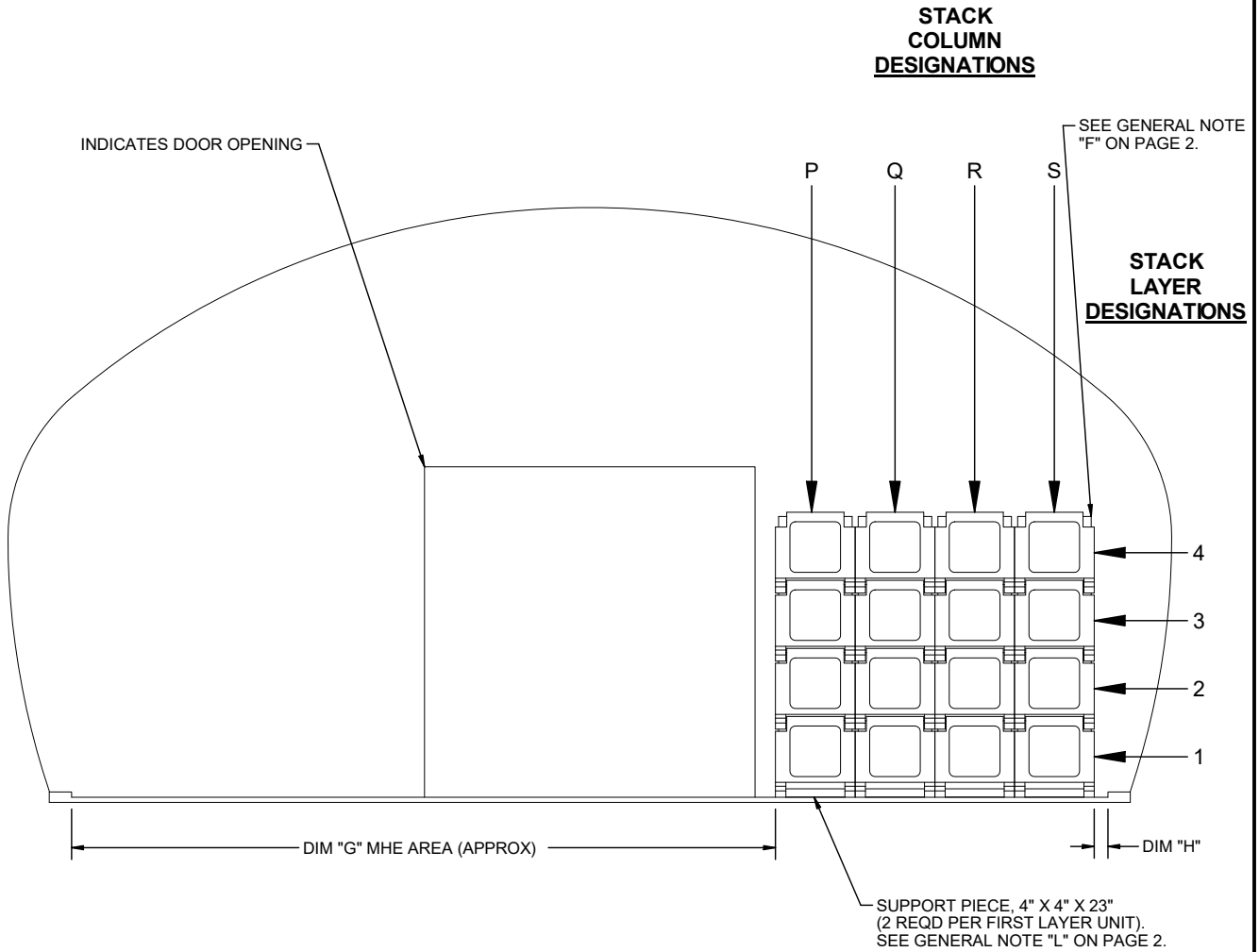
**STACK COLUMN DESIGNATIONS**



SUPPORT PIECE, 4" X 4" X 23"  
(2 REQD PER FIRST LAYER UNIT).  
SEE GENERAL NOTE "L" ON PAGE 2.

(SEE "STACK IDENTIFICATION" ON PAGE 32 AND  
"CHART 2 - STACK CONFIGURATION" ON PAGE 7).

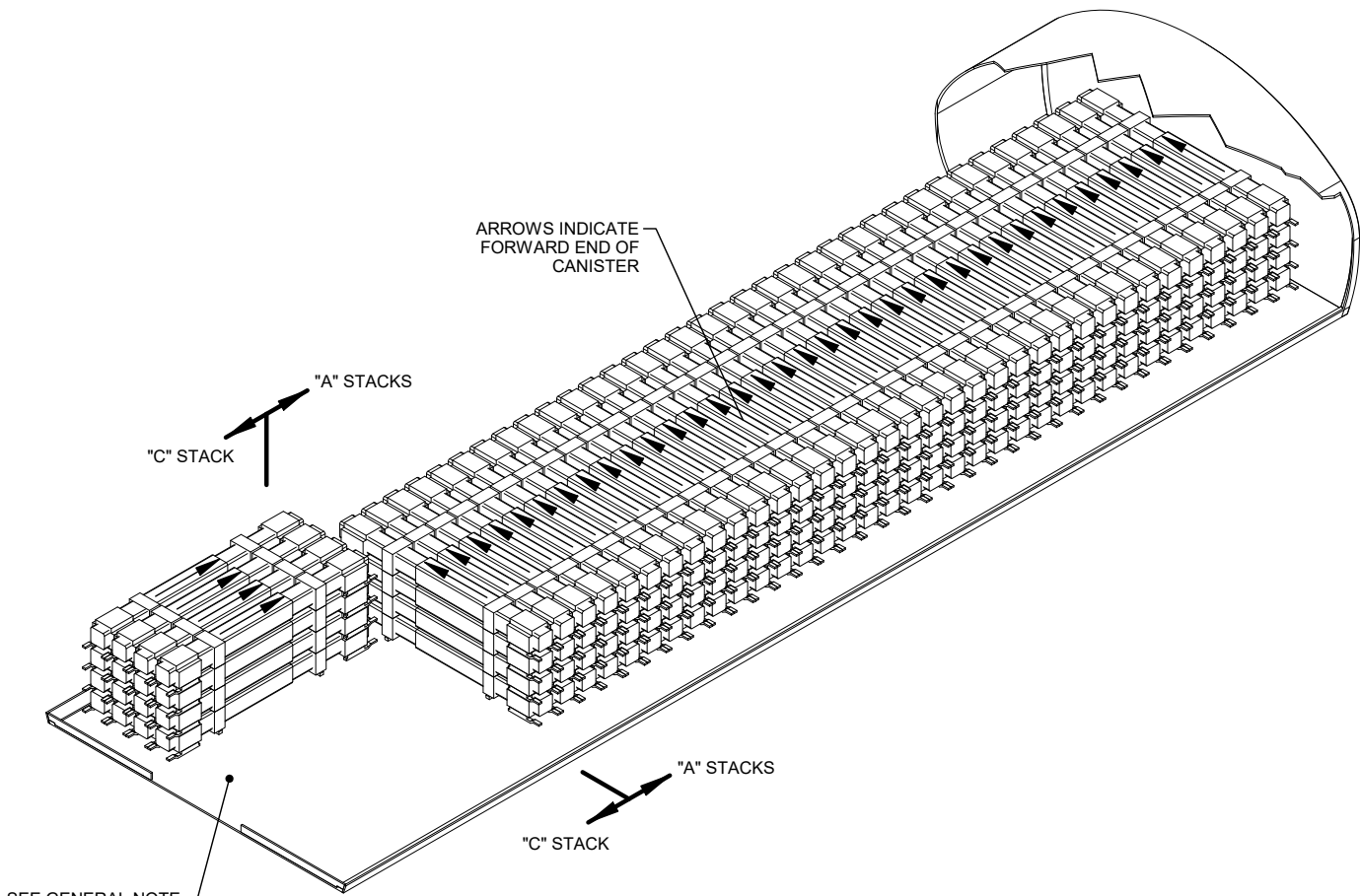
**TYPICAL STORAGE IN ARCHED OR ROUNDED ROOF MAGAZINES (ONE-PACK)**



**NOTE:** FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 1 ON PAGE 6.

**"C" STACK**

TYPICAL "C" STACK FOR OVAL MAGAZINE.  
(SEE "STACK IDENTIFICATION " ON PAGE 32 AND  
"CHART 2 - STACK CONFIGURATION" ON PAGE 7).



**ISOMETRIC VIEW**

OVAL MAGAZINE SHOWN AS TYPICAL

BILL OF MATERIAL (PER STACK) *		
LUMBER	LI NEAR FEET	BOARD FEET
4" X 4"	4	6

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**CHART 1 - DIMENSIONS**

MAGAZINE DIMENSIONS	MAGAZINE TYPE													
	IGLOO			ARCH 12'		ARCH 11'		ARCH 10'		OVAL ARCH	STRADLEY	STEEL ARCH		
LENGTH	40'-4"	60'-8"	81'-0"	81'-2"	40'-0"	80'-0"	40'-0"	80'-0"	40'-0"	80'-0"	89'-0"	80'-0"	59'-0"	89'-0"
WIDTH	26'-6"			26'-6"	25'-0"	25'-0"	25'-0"		25'-0"		24'-10"	25'-0"	25'-0"	24'-11"
HEIGHT	12'-9"			12'-1-3/4"			11'-0"		10'-0"		14'-5"	14'-0"	14'-0"	13'-6"
DIMENSIONS	CANISTER SPACING DIMENSIONS													
DIM "D" MHE AISLE (APPROX)	22'-6"	21'-8"	20'-9"	24'-1"	21'-6"	22'-11"	21'-6"	22'-11"	22'-2"	23'-7"	21'-1"	23'-7"	23'-10"	21'-1"
DIM "E" ("A" STACK BACK)	6"	6"	6"	14"	14"	14"	14"	14"	6"	6"	6"	6"	6"	6"
DIM "F" ("A" STACK SIDE)	48"	48"	48"	48"	39"	39"	39"	39"	39"	39"	38"	39"	39"	38-1/2"
DIM "G" MHE AREA (APPROX)	18'-3"	18'-3"	18'-3"	17'-8"	16'-7"	16'-7"	16'-4"	15'-11"	15'-10"	15'-11"	15'-11"	16'-4"	16'-10"	16'-7"
DIM "H" ("C" STACK SIDE)	7"	7"	7"	14"	9"	9"	12"	16"	17-3/4"	17"	15"	12"	6"	8"

**CHART 2 - STACK CONFIGURATION**

**MAGAZINE TYPE**

CANISTERS PER MAGAZINE	IGLOO			ARCH 12'	ARCH 12' X 25' W		ARCH 11'		ARCH 10'		OVAL ARCH	STRADLEY	STEEL ARCH	
	40'-4" L	60'-8" L	81'-0" L	26'-6" W	40'-0" L	80'-0" L	40'-0" L	80'-0" L	40'-0" L	80'-0" L			59'-0" L	89'-0" L
	36	69	102	96	36	96	36	96	18	38	156	132	84	152

**"A" STACK CONFIGURATION**

LAYER	CANISTER ONE-PACKS PER LAYER													
1	1(O)			1(O)	1(O)		1(O)		1(O)		1(O)	1(O)	1(O)	
2	1(O)			1(O)	1(O)		1(O)		--		1(O)	1(O)	1(O)	
3	1(O)			1(O)	1(O)		1(O)		--		1(O)	1(O)	1(O)	
4	--			--	--		--		--		1(O)	1(O)	1(O)	
SINGLE STACK TOTAL	3			3	3		3		1		4	4	4	
NUMBER OF STACKS	9	20	31	29	9	29	9	29	9	29	35	29	18	35
"A" STACK TOTAL	27	60	93	87	27	87	27	87	9	29	140	116	72	140

**"C" STACK CONFIGURATION**

LAYER	CANISTER ONE-PACKS PER LAYER													
1	4(P-S)			4(P-S)		4(P-S)		4(P-S)		4(P-S)	4(P-S)	4(P-S)		
2	3(P-R)			3(P-R)		3(P-R)		3(P-R)		4(P-S)	4(P-S)	3(P-R)		
3	2(P-Q)			2(P-Q)		2(P-Q)		2(P-Q)		4(P-S)	4(P-S)	3(P-R)		
4	--			--		--		--		4(P-S)	4(P-S)	2(P-Q)		
NUMBER OF STACKS	1			1		1		1		1	1	1		
"C" STACK TOTAL	9			9		9		9		16	16	12		

**SPECIAL NOTES:**

- THE FOLLOWING NOTES, CHART 1 ON PAGE 6 AND CHART 2 ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SELECTION OF A STORAGE PATTERN, AND IN DETERMINING THE QUANTITY OF CANISTERS WHICH CAN BE STORED IN THE STORAGE MAGAZINES LISTED IN THESE CHARTS.
- CHART 1 ON PAGE 6 DESCRIBES THE STORAGE MAGAZINE GENERAL DIMENSIONS AND THE DIMENSIONS OF THE CANISTER SPACING WITHIN THE STORAGE MAGAZINES.
- DIMENSIONS "A", "B" AND "C" HAVE BEEN OMITTED TO AVOID CONFUSION WITH STACKS "A", "B" AND "C".
- CHART 2 ON THIS PAGE DETAILS THE QUANTITY OF CANISTERS IN EACH TYPE OF MAGAZINE AND THE LAYOUT OF THE STACKS FOR EACH TYPE OF MAGAZINE. THE CHART SHOWS THE NUMBER OF CANISTERS IN EACH STACK LAYER AND THE LOCATION OF THE CANISTER ON EACH LAYER.

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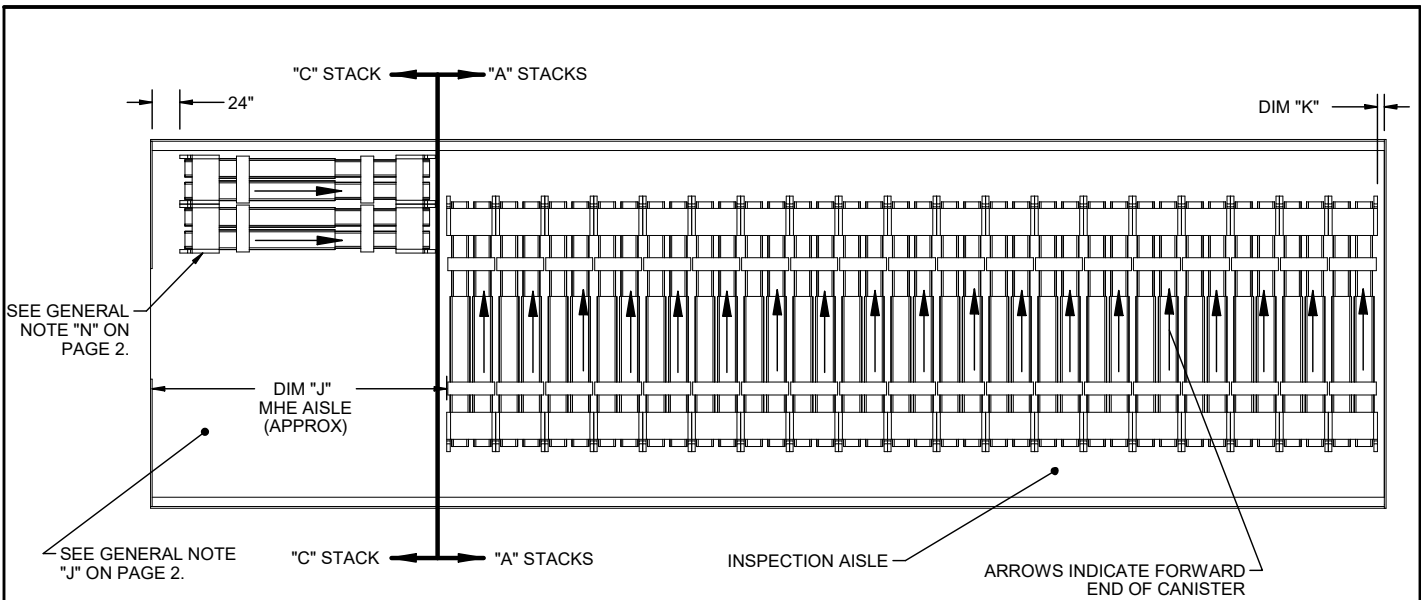
**EXAMPLE:**

CHART 2 – "A" STACK CONFIGURATION  
MAGAZINE: IGLOO

LAYER NUMBER 1: 1 (O)  
LAYER NUMBER 2: 1 (O)  
LAYER NUMBER 3: 1 (O)

**EXPLANATION:**

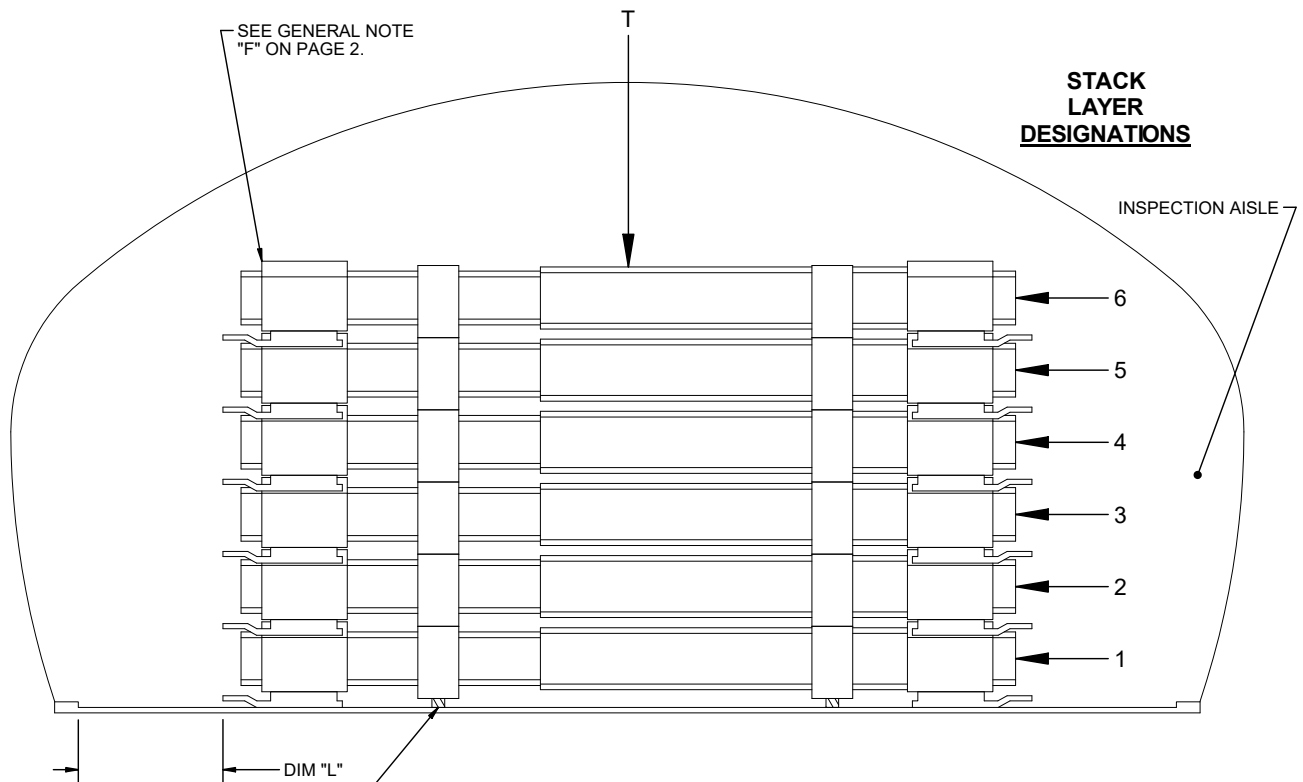
LAYER 1 (BOTTOM LAYER) HAS ONE CANISTER ONE-PACKS IN THE "O" COLUMN.  
LAYER 2 (ON TOP OF LAYER 1) HAS ONE CANISTER ONE-PACKS IN THE "O" COLUMN.  
LAYER 3 (ON TOP OF LAYER 2) HAS ONE CANISTER ONE-PACKS IN THE "O" COLUMN.



**PLAN VIEW**

**NOTE:** FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 3 ON PAGE 10.

**STACK COLUMN DESIGNATIONS**



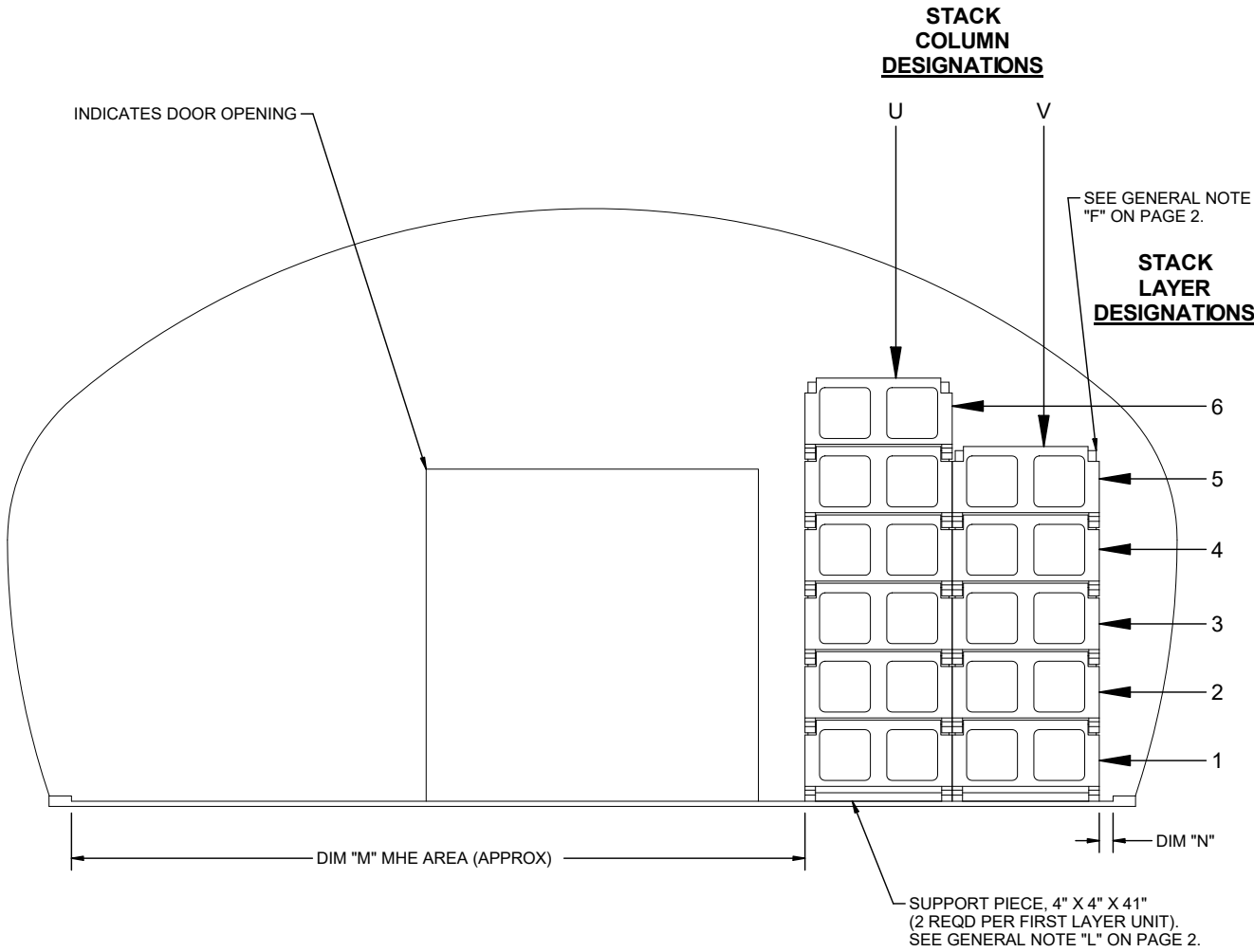
**"A" STACKS**

SUPPORT PIECE, 4" X 4" X 41"  
(2 REQD PER FIRST LAYER UNIT).  
SEE GENERAL NOTE "L" ON PAGE 2.

(SEE "STACK IDENTIFICATION" ON PAGE 32 AND "CHART 4 - STACK CONFIGURATION" ON PAGE 11).

**TYPICAL STORAGE IN ARCHED OR ROUNDED ROOF MAGAZINES (TWO-PACK)**

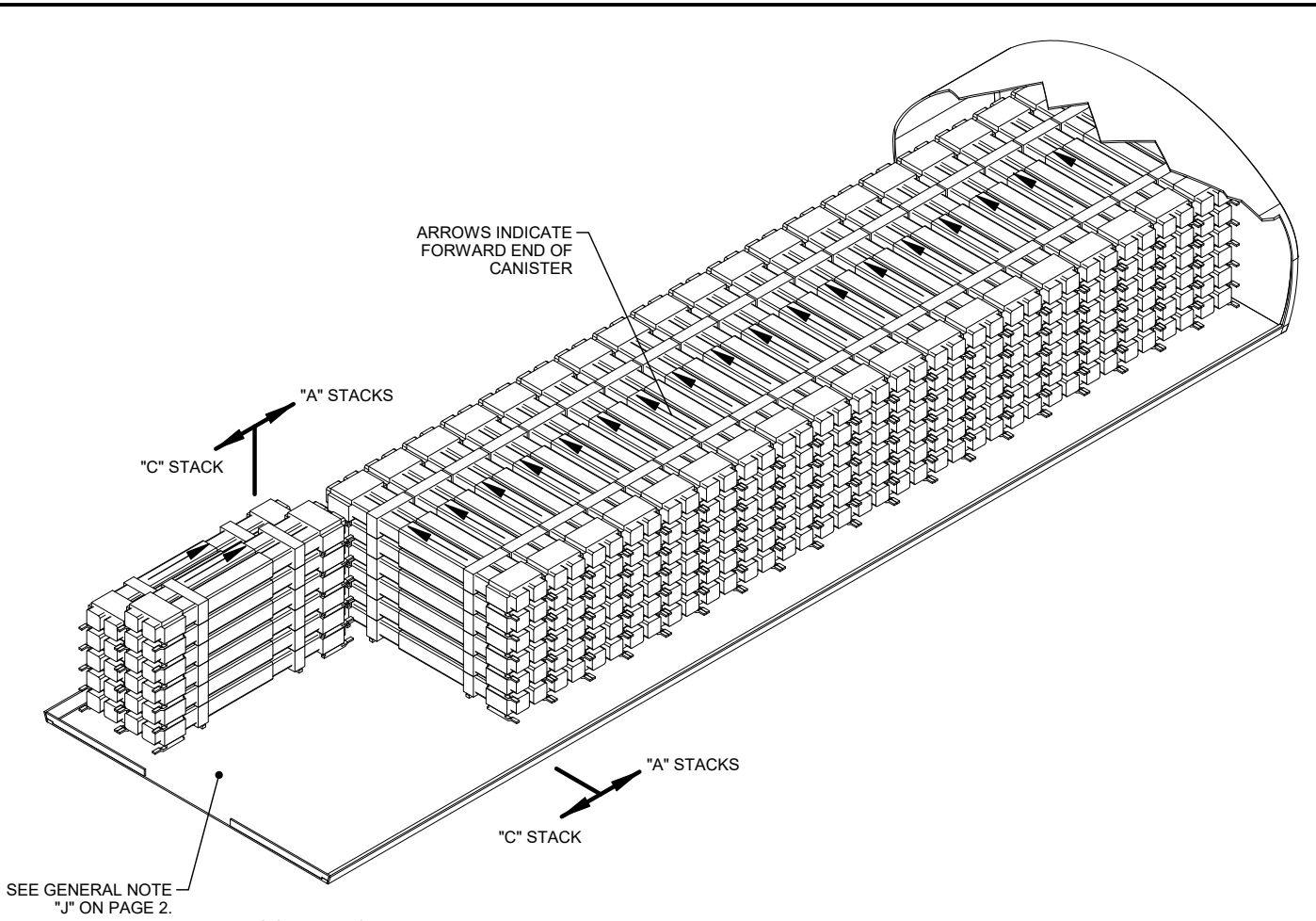




**NOTE:** FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 3 ON PAGE 10.

**"C" STACK**

TYPICAL "C" STACK FOR OVAL MAGAZINE.  
 (SEE "STACK IDENTIFICATION " ON PAGE 32 AND  
 "CHART 4 - STACK CONFIGURATION" ON PAGE 11).



**ISOMETRIC VIEW**

OVAL MAGAZINE SHOWN AS TYPICAL

BILL OF MATERIAL (PER STACK) *		
LUMBER	LI NEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**CHART 3 - DIMENSIONS**

MAGAZINE DIMENSIONS	MAGAZINE TYPE													
	IGLOO			ARCH 12'		ARCH 11'		ARCH 10'		OVAL ARCH	STRADLEY	STEEL ARCH		
LENGTH	40'-4"	60'-8"	81'-0"	26'-6"	25'-0"	40'-0"	80'-0"	40'-0"	80'-0"	89'-0"	80'-0"	59'-0"	89'-0"	
WIDTH	26'-6"			26'-6"	25'-0"	25'-0"	25'-0"		25'-0"		24'-10"	25'-0"	25'-0"	24'-11"
HEIGHT	12'-9"			12'-1-3/4"		11'-0"		10'-0"		14'-5"	14'-0"	14'-0"	13'-6"	
DIMENSIONS	CANISTER SPACING DIMENSIONS													
DIM "J" M HE AISLE (APPROX)	22'-1"	21'-3"	20'-4"	23'-4"	21'-1"	22'-2"	21'-1"	22'-2"	21'-10"	22'-10"	21'-3"	22'-10"	23'-1"	21'-3"
DIM "K" ("A" STACK BACK)	6"	6"	6"	14"	14"	14"	14"	14"	6"	6"	6"	6"	6"	6"
DIM "L" ("A" STACK SIDE)	48"	48"	48"	48"	39"	39"	39"	39"	39"	39"	38"	39"	39"	38-1/2"
DIM "M" M HE AREA (APPROX)	18'-10"	18'-10"	18'-10"	18'-3"	17'-2"	17'-2"	16'-11"	16'-7"	16'-5"	16'-6"	16'-6"	16'-11"	17'-5"	17'-2"
DIM "N" ("C" STACK SIDE)	7"	7"	7"	14"	9"	9"	12"	16"	17-3/4"	17"	15"	12"	6"	8"

## CHART 4 - STACK CONFIGURATION

### MAGAZINE TYPE

CANISTERS PER MAGAZINE	IGLOO			ARCH 12'	ARCH 12' X 25' W		ARCH 11'		ARCH 10'		OVAL ARCH	STRADLEY	STEEL ARCH	
	40'-4" L	60'-8" L	81'-0" L	26'-6" W	40'-0" L	80'-0" L	40'-0" L	80'-0" L	40'-0" L	80'-0" L			59'-0" L	89'-0" L
38	74	110		104	38	104	38	104	18	40	250	182	112	202

### "A" STACK CONFIGURATION

LAYER	CANISTER TWO-PACKS PER LAYER													
1	1(T)			1(T)	1(T)		1(T)		1(T)		1(T)	1(T)	1(T)	
2	1(T)			1(T)	1(T)		1(T)		--		1(T)	1(T)	1(T)	
3	1(T)			1(T)	1(T)		1(T)		--		1(T)	1(T)	1(T)	
4	--			--	--		--		--		1(T)	1(T)	1(T)	
5	--			--	--		--		--		1(T)	1(T)	1(T)	
6	--			--	--		--		--		1(T)	--	--	
SINGLE STACK TOTAL	3			3	3		3		1		6	5	5	
NUMBER OF STACKS	5	11	17	16	5	16	5	16	5	16	19	16	10	19
"A" STACK TOTAL	15	33	51	48	15	48	15	48	5	16	114	80	50	95

### "C" STACK CONFIGURATION

LAYER	CANISTER TWO-PACKS PER LAYER															
1	2(U-V)			2(U-V)			2(U-V)			2(U-V)			2(U-V)	2(U-V)	2(U-V)	
2	1(U)			1(U)			1(U)			1(U)			2(U-V)	2(U-V)	1(U)	
3	1(U)			1(U)			1(U)			1(U)			2(U-V)	2(U-V)	1(U)	
4	--			--			--			--			2(U-V)	2(U-V)	1(U)	
5	--			--			--			--			2(U-V)	2(U-V)	1(U)	
6	--			--			--			--			1(U)	1(U)	--	
NUMBER OF STACKS	1			1			1			1			1	1	1	
"C" STACK TOTAL	4			4			4			4			11	11	6	

**SPECIAL NOTES:**

1. THE FOLLOWING NOTES, CHART 3 ON PAGE 10 AND CHART 4 ON THIS PAGE ARE PRESENTED AS GUIDANCE IN THE SELECTION OF A STORAGE PATTERN, AND IN DETERMINING THE QUANTITY OF CANISTERS WHICH CAN BE STORED IN THE STORAGE MAGAZINES LISTED IN THESE CHARTS.
2. CHART 3 ON PAGE 10 DESCRIBES THE STORAGE MAGAZINE GENERAL DIMENSIONS AND THE DIMENSIONS OF THE CANISTER SPACING WITHIN THE STORAGE MAGAZINES.
3. DIMENSIONS "A", "B" AND "C" HAVE BEEN OMITTED TO AVOID CONFUSION WITH STACKS "A", "B" AND "C".
4. CHART 4 ON THIS PAGE DETAILS THE QUANTITY OF CANISTERS IN EACH TYPE OF MAGAZINE AND THE LAYOUT OF THE STACKS FOR EACH TYPE OF MAGAZINE. THE CHART SHOWS THE NUMBER OF CANISTERS IN EACH STACK LAYER AND THE LOCATION OF THE CANISTER ON EACH LAYER.

(CONTINUED AT RIGHT)

**EXAMPLE:**

CHART 4 – "A" STACK CONFIGURATION  
MAGAZINE: IGLOO

LAYER NUMBER 1: 1 (T)  
LAYER NUMBER 2: 1 (T)  
LAYER NUMBER 3: 1 (T)

**EXPLANATION:**

LAYER 1 (BOTTOM LAYER) HAS ONE CANISTER TWO-PACKS IN THE "T" COLUMN.

LAYER 2 (ON TOP OF LAYER 1) HAS ONE CANISTER TWO-PACKS IN THE "T" COLUMN.

LAYER 3 (ON TOP OF LAYER 2) HAS ONE CANISTER TWO-PACKS IN THE "T" COLUMN.

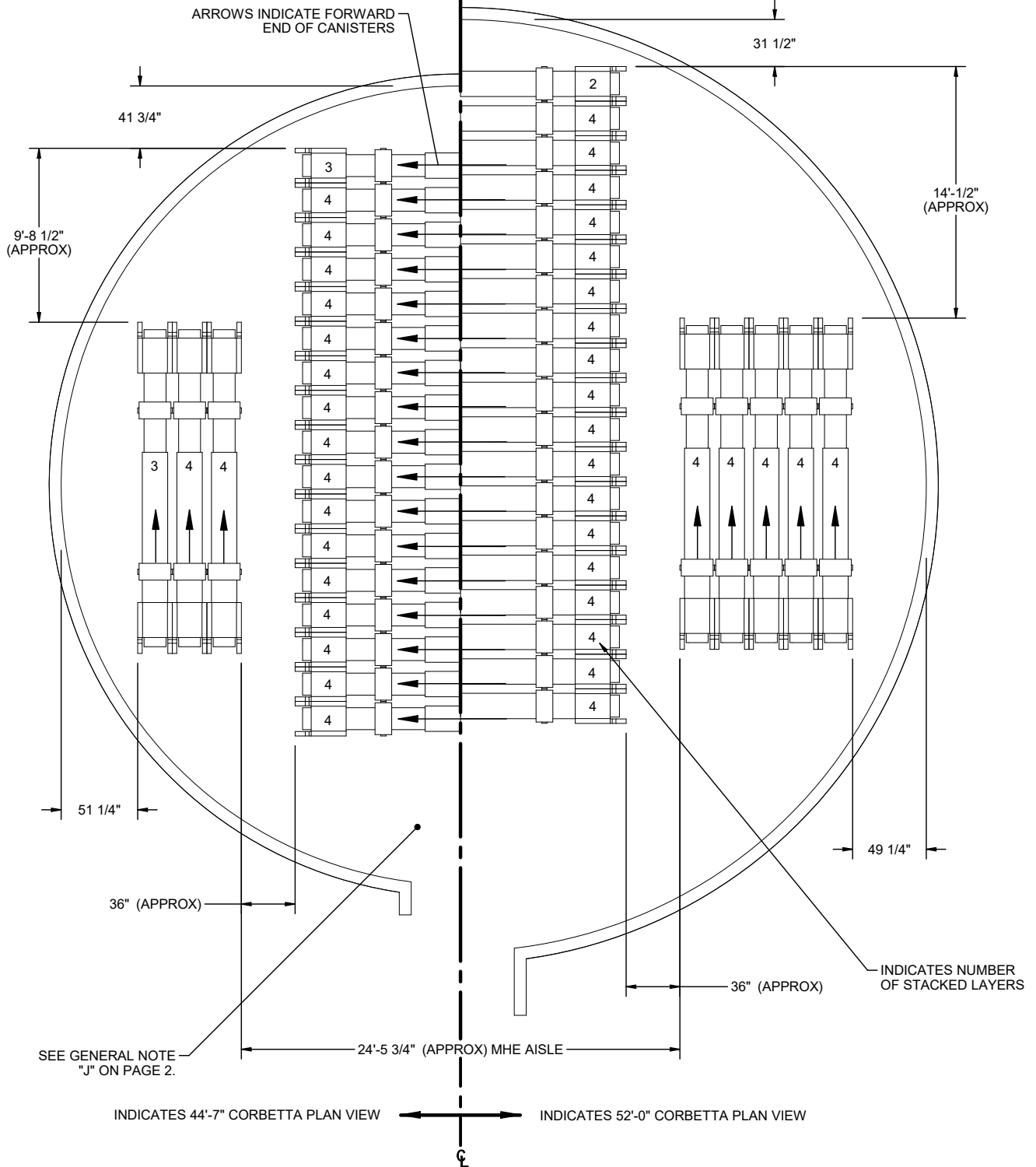
**TYPICAL STORAGE IN ARCHED OR ROUNDED ROOF MAGAZINES (TWO-PACK)**

**STORAGE IN 44'-7" MAGAZINE**

**STORAGE IN 52'-0" MAGAZINE**

**ITEM QUANTITY**  
 CANISTER ----- 89

**ITEM QUANTITY**  
 CANISTER ----- 114

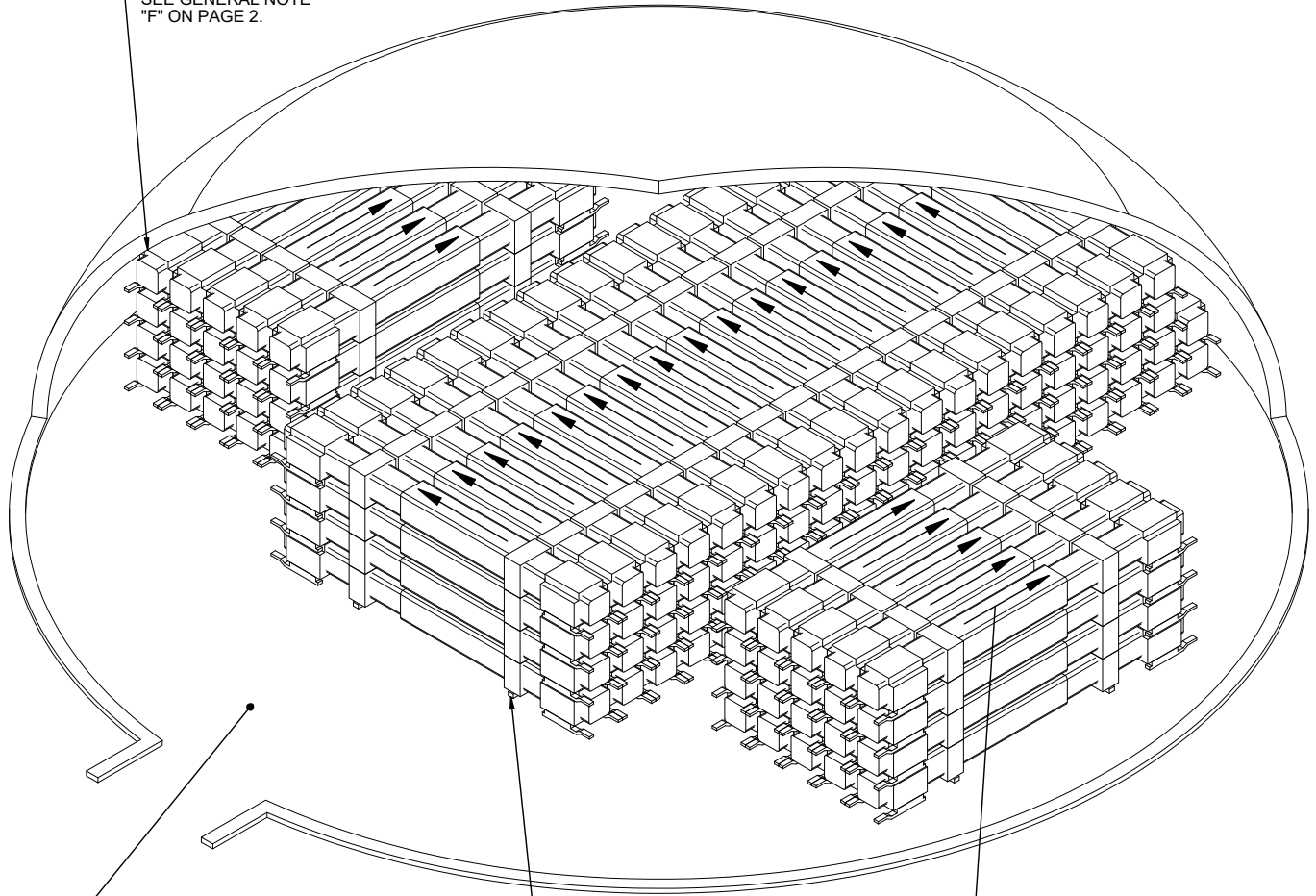


**PLAN VIEW**

THE RIGHT HAND PLAN VIEW INDICATES A 52'-0" CORBETTA MAGAZINE, AND THE LEFT HAND PLAN VIEW INDICATES A 44'-7" CORBETTA MAGAZINE. BOTH SIZE MAGAZINE LAYOUTS ARE SYMMETRICAL AROUND THE VERTICAL CENTER LINE.

**CORBETTA MAGAZINE (ONE-PACK)**

SEE GENERAL NOTE  
"F" ON PAGE 2.



SEE GENERAL  
NOTE "J" ON  
PAGE 2.

SUPPORT, 4" X 4" X 23" (2 REQD  
PER FIRST LAYER UNIT). SEE  
GENERAL NOTE "L" ON PAGE 2.

ARROWS INDICATE FORWARD  
END OF CANISTER

**ISOMETRIC VIEW**

(52' - 0" DIA MAGAZINE)

BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	4	6

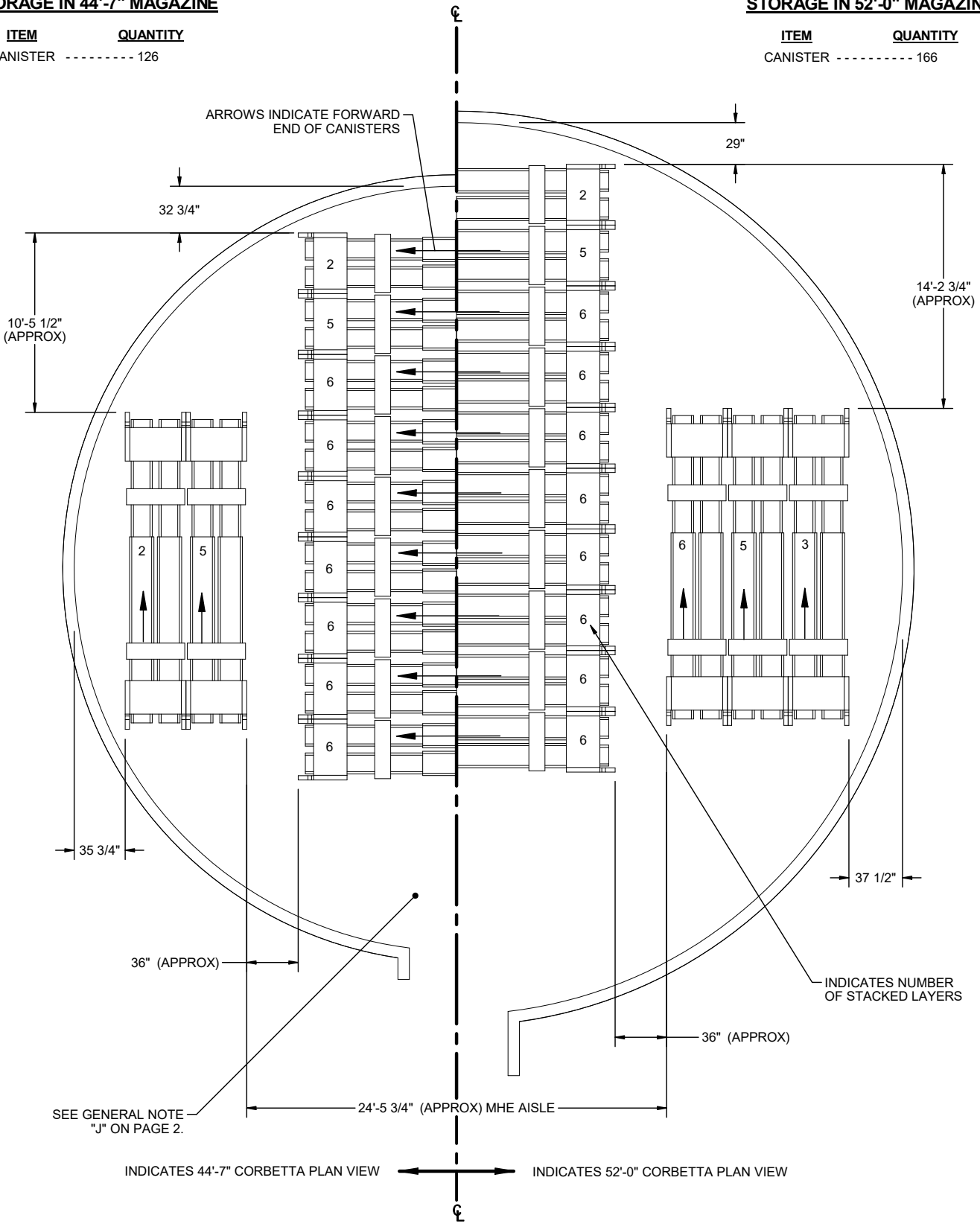
\*BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**STORAGE IN 44'-7" MAGAZINE**

**STORAGE IN 52'-0" MAGAZINE**

**ITEM**            **QUANTITY**  
 CANISTER ----- 126

**ITEM**            **QUANTITY**  
 CANISTER ----- 166

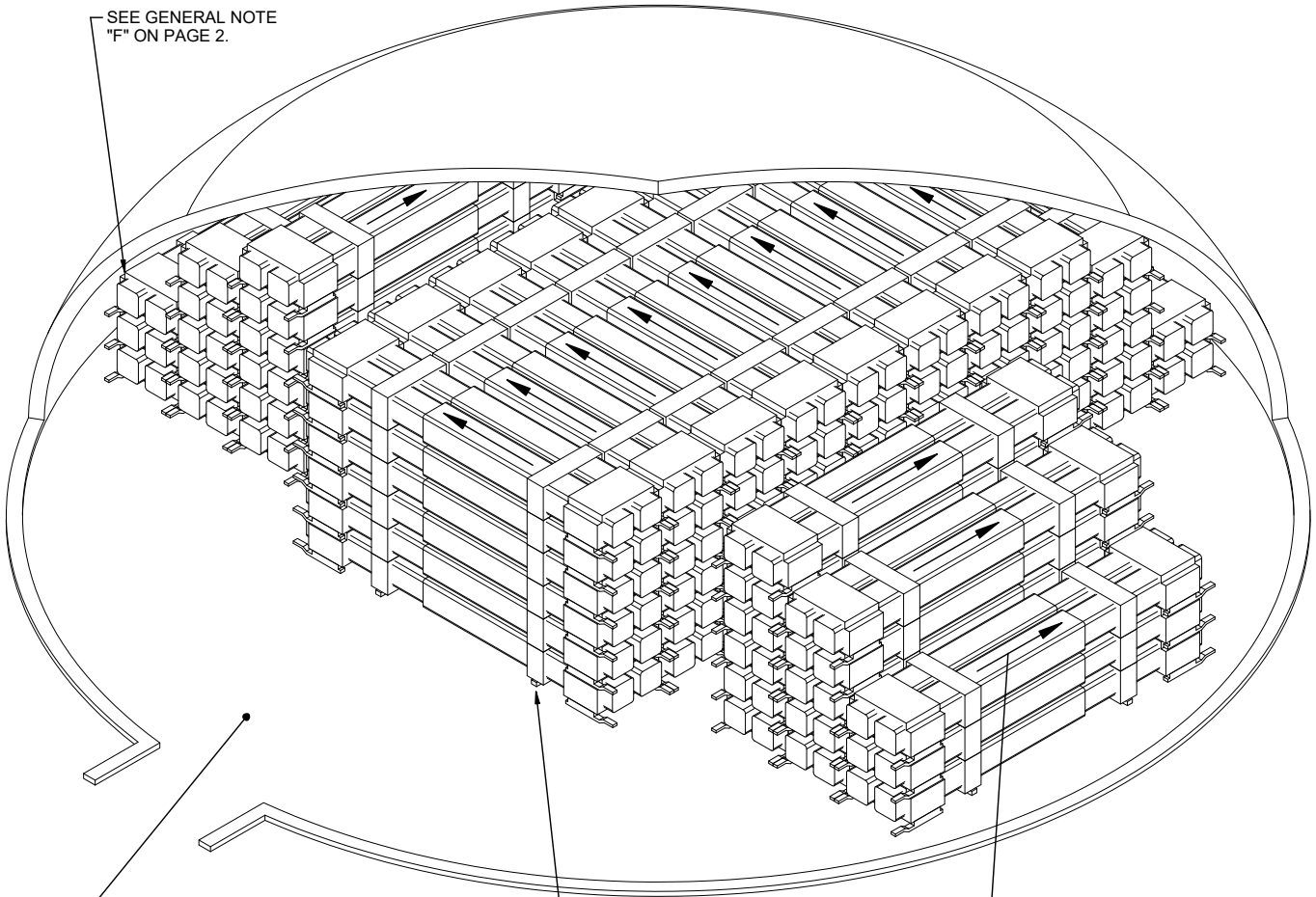


**PLAN VIEW**

THE RIGHT HAND PLAN VIEW INDICATES A 52'-0" CORBETTA MAGAZINE, AND THE LEFT HAND PLAN VIEW INDICATES A 44'-7" CORBETTA MAGAZINE. BOTH SIZE MAGAZINE LAYOUTS ARE SYMMETRICAL AROUND THE VERTICAL CENTER LINE.

**CORBETTA MAGAZINE (TWO-PACK)**

SEE GENERAL NOTE  
"F" ON PAGE 2.



SEE GENERAL NOTE  
"J" ON  
PAGE 2.

SUPPORT, 4" X 4" X 41" (2 REQD  
PER FIRST LAYER UNIT). SEE  
GENERAL NOTE "L" ON PAGE 2.

ARROWS INDICATE FORWARD  
END OF CANISTER

**ISOMETRIC VIEW**

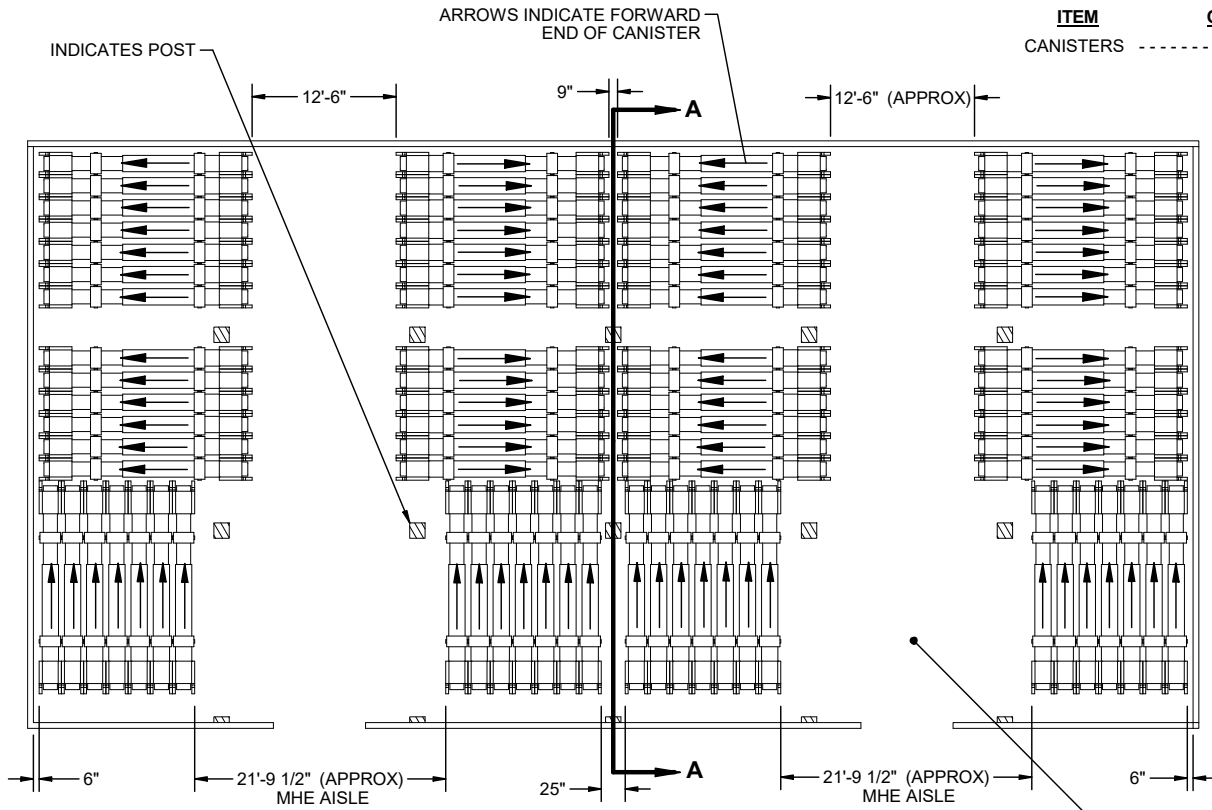
(52' - 0" DIA MAGAZINE)

BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

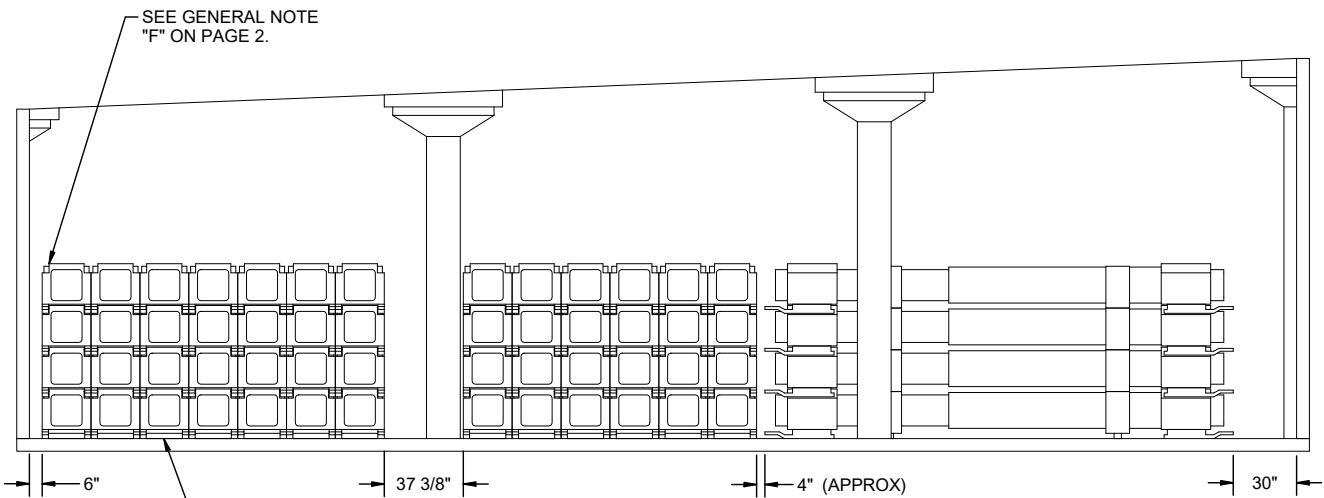
**STORAGE IN RECTANGULAR  
MAGAZINE**

ITEM	QUANTITY
CANISTERS	----- 320



**PLAN VIEW**

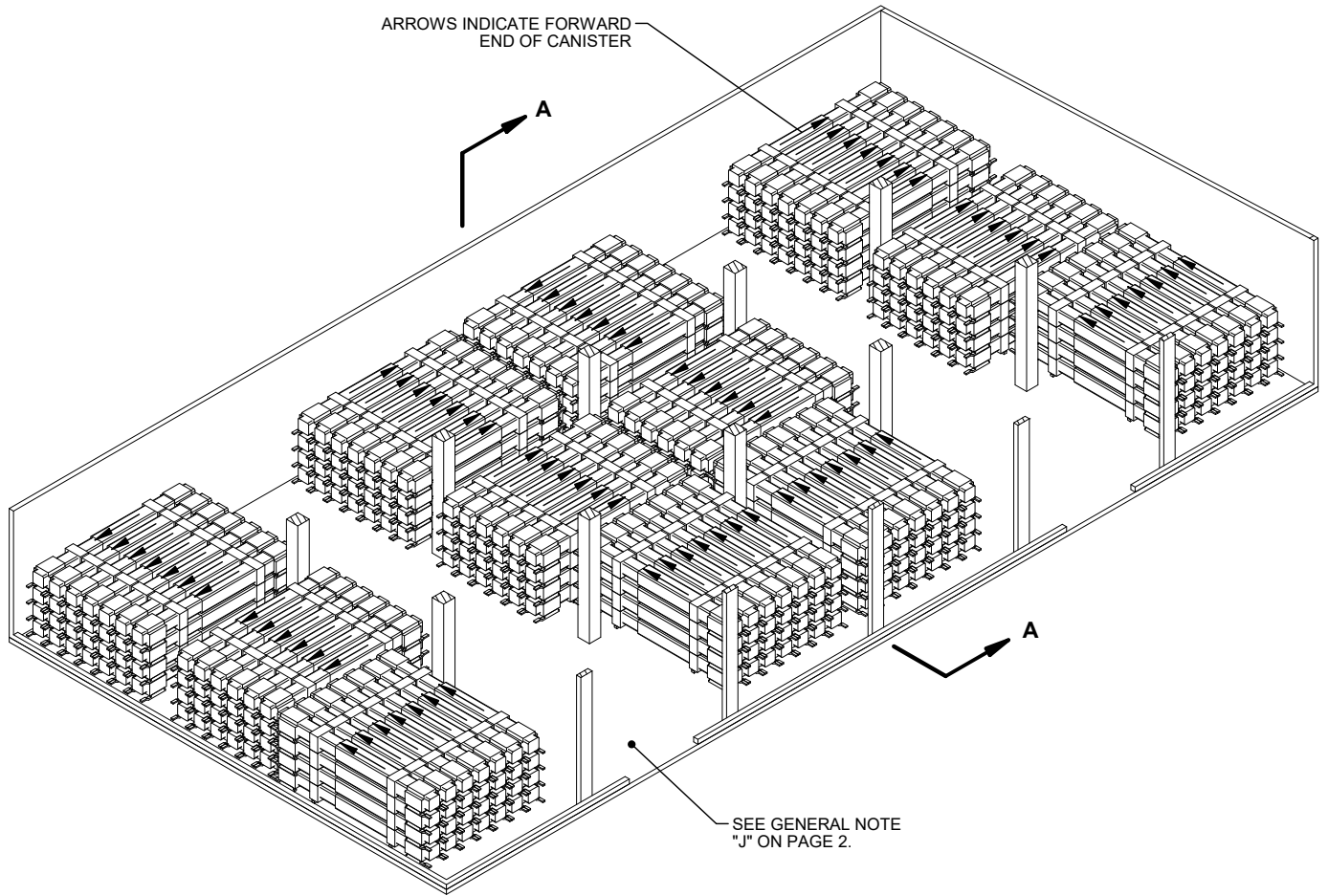
ALL CANISTERS ARE STACKED FOUR LAYERS HIGH.



**SECTION A-A**

SUPPORT PIECE, 4" X 4" X 23"  
(2 REQD PER FIRST LAYER UNIT).  
SEE GENERAL NOTE "L" ON PAGE 2.





**ISOMETRIC VIEW**

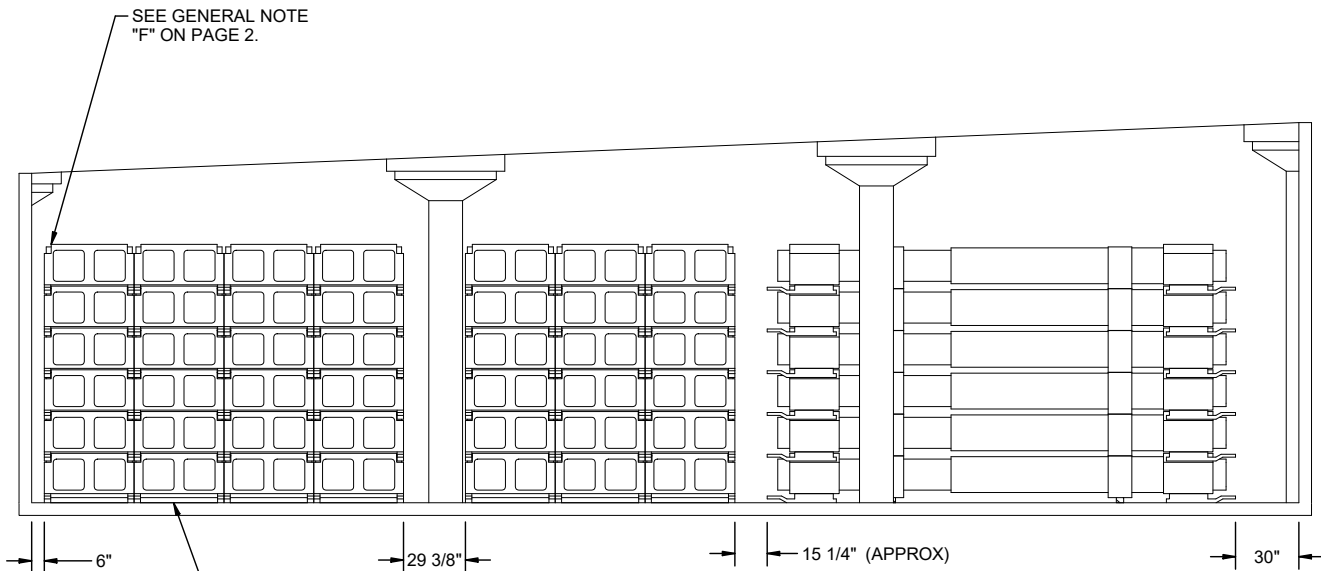
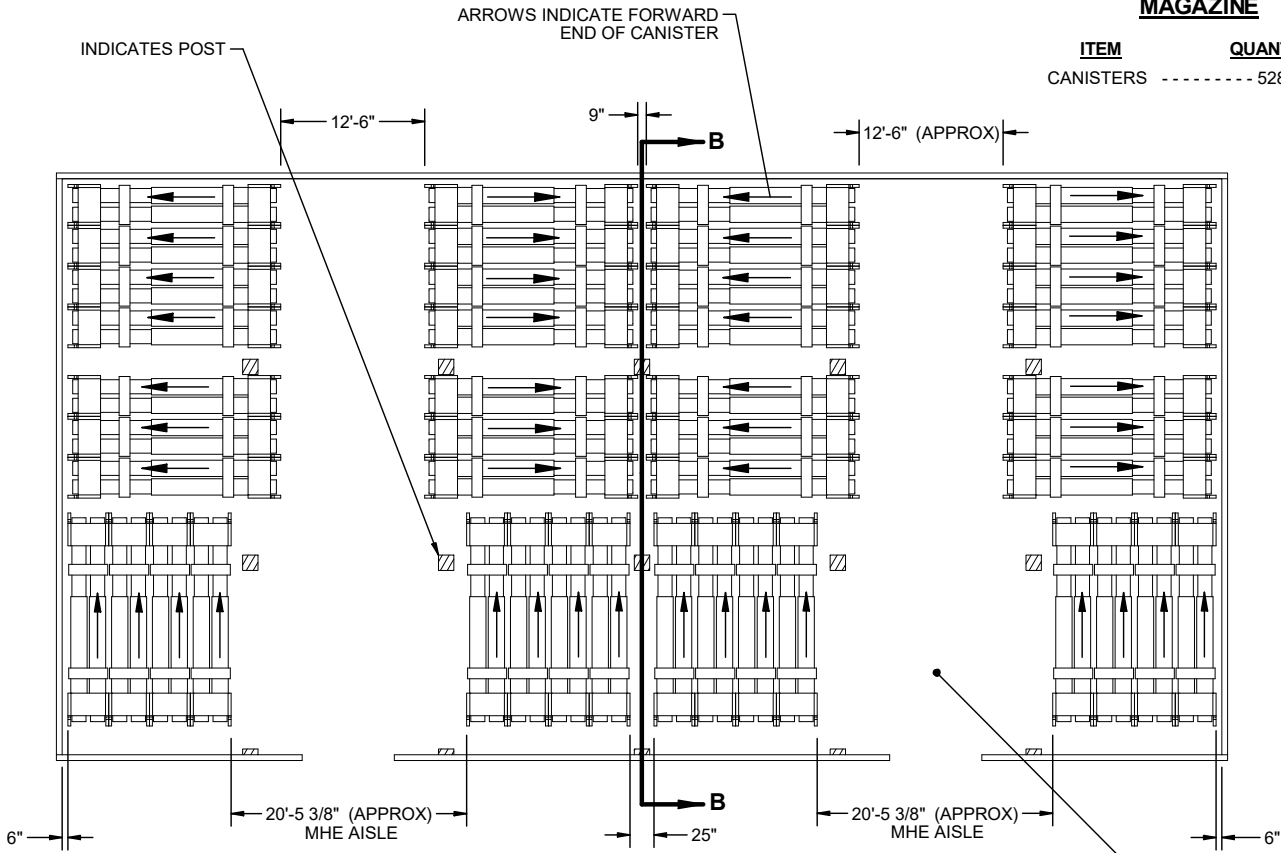
(50'-0" MAGAZINE)

BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	4	6

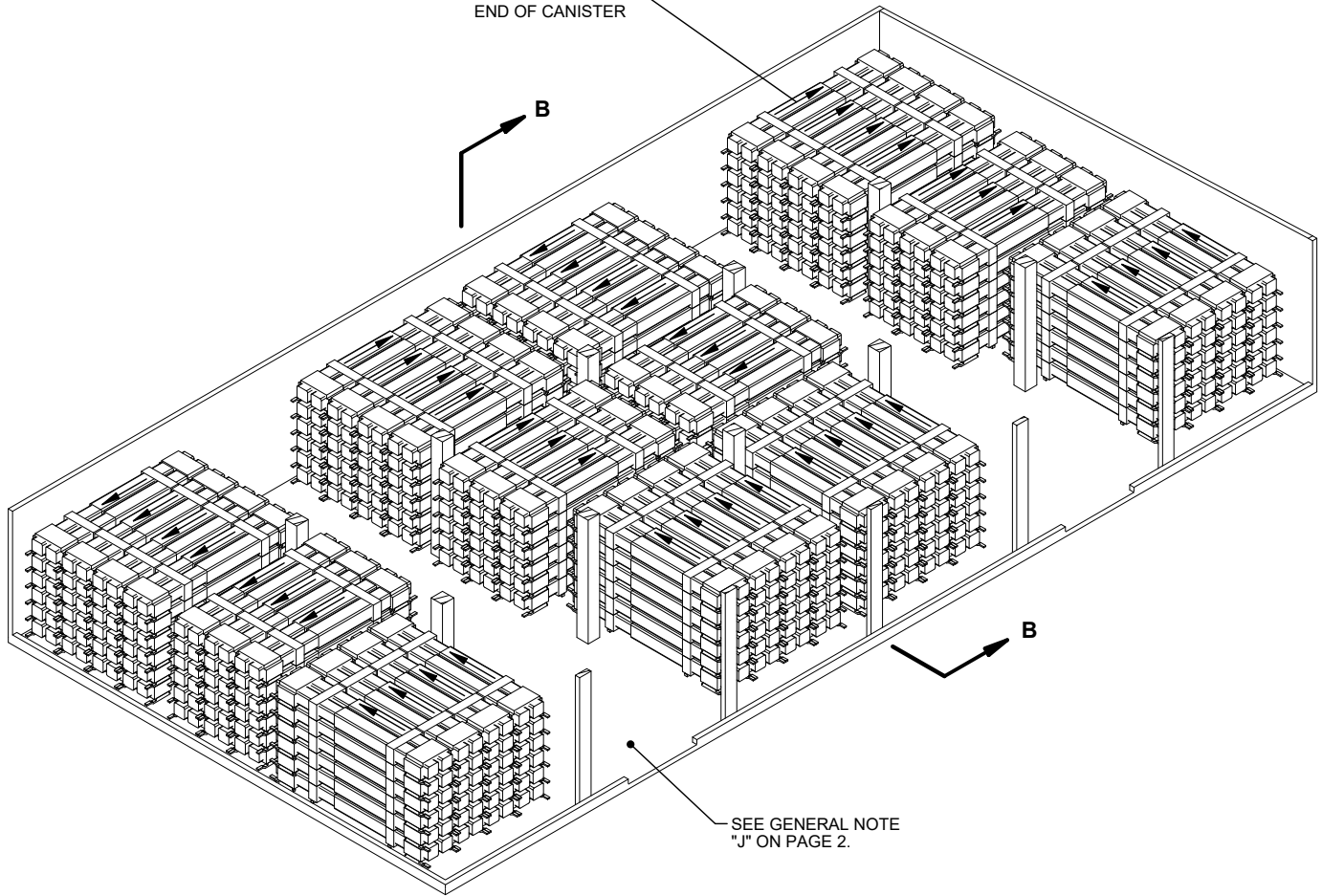
\*BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**STORAGE IN RECTANGULAR  
MAGAZINE**

ITEM	QUANTITY
CANISTERS	----- 528



ARROWS INDICATE FORWARD  
END OF CANISTER



**ISOMETRIC VIEW**

(50'-0" MAGAZINE)

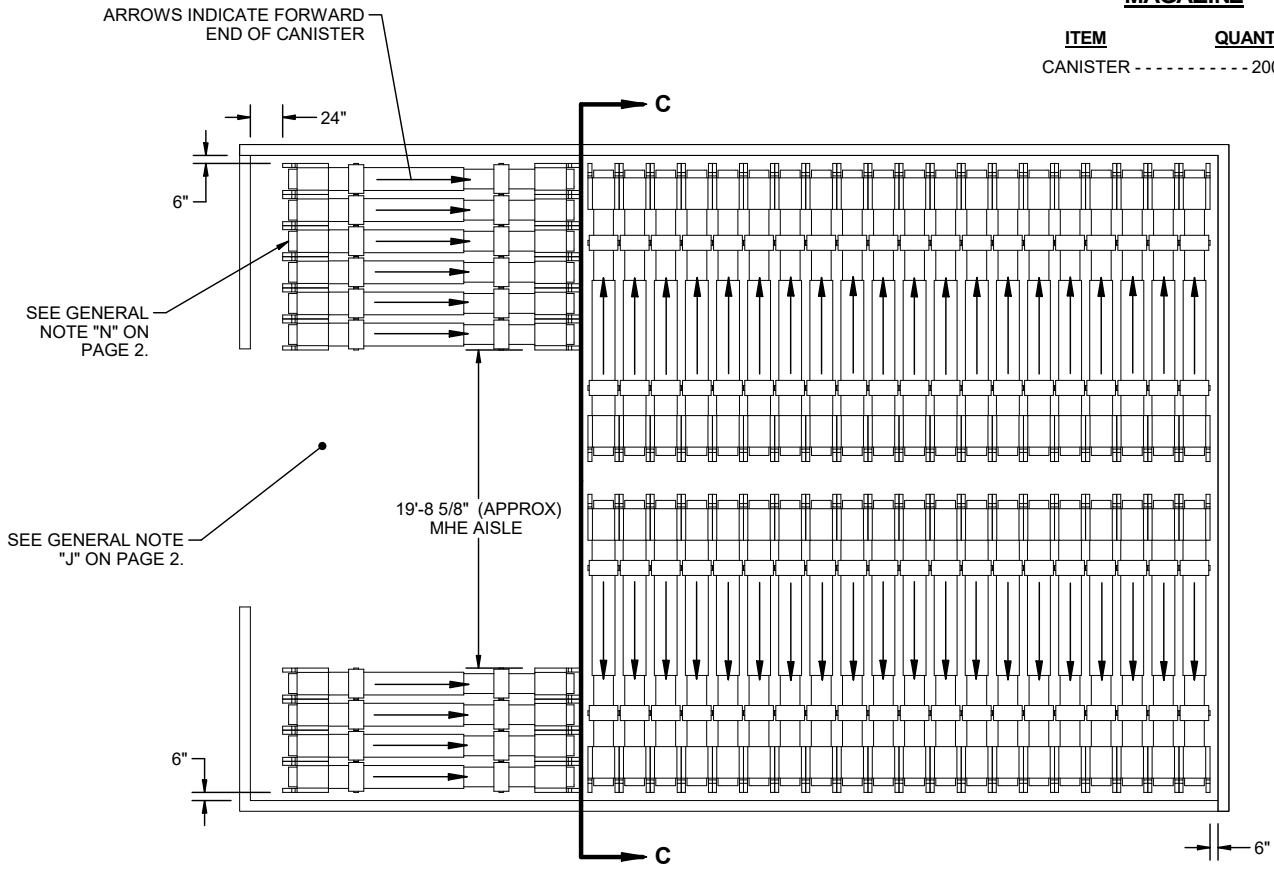
BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**100'-8" L X 50'-0" W RECTANGULAR MAGAZINE (TWO-PACK)**

**STORAGE IN TYPE II BUNKER  
MAGAZINE**

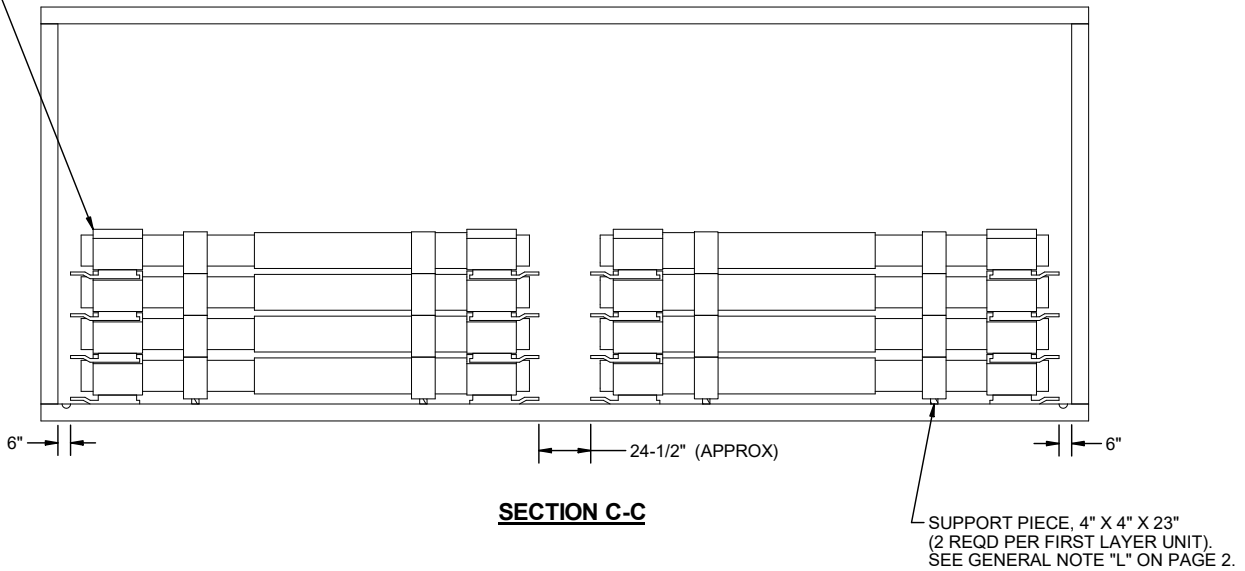
ITEM	QUANTITY
CANISTER - - - - -	200

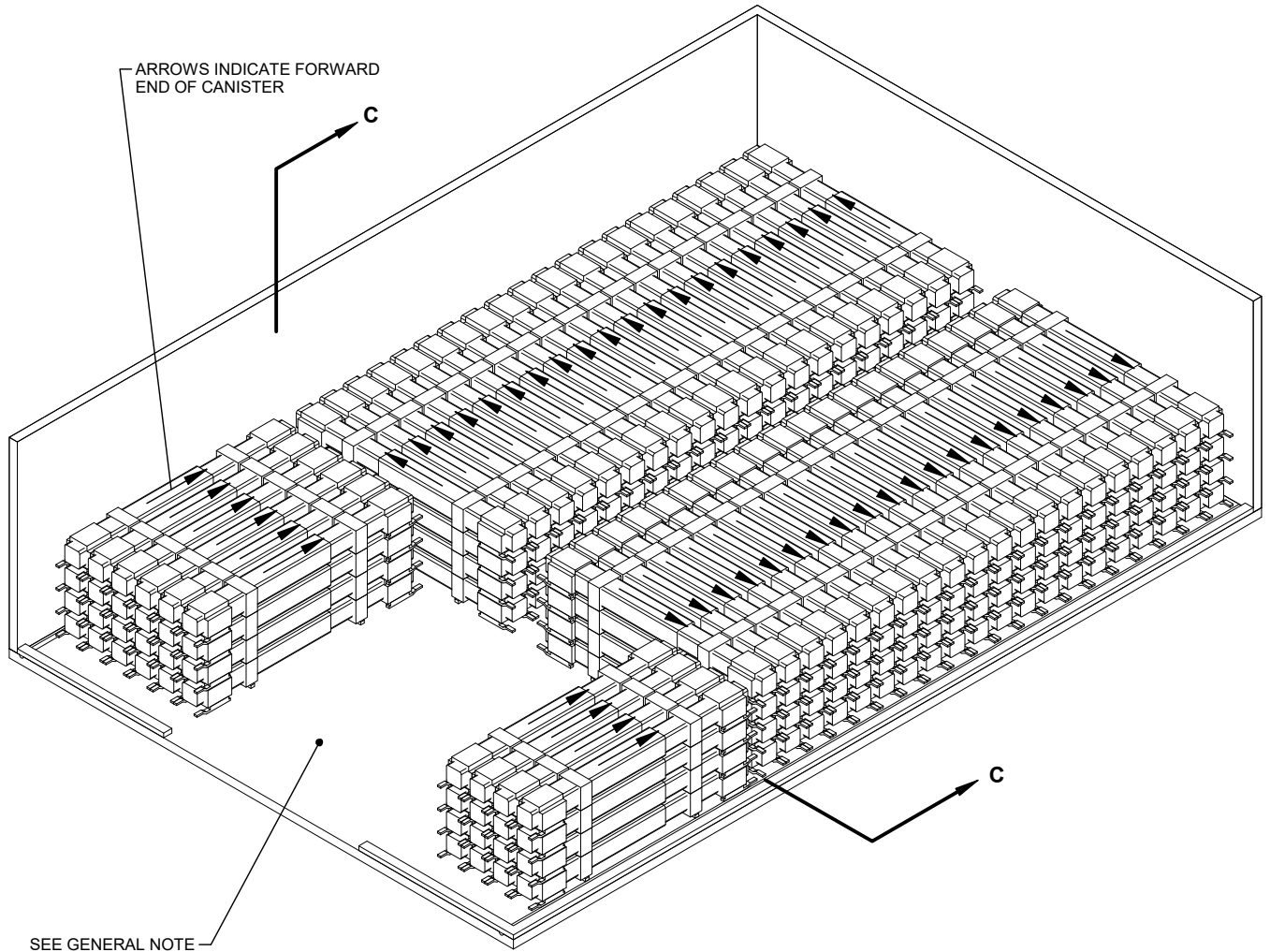


**PLAN VIEW**

ALL CANISTERS ARE STACKED FOUR LAYERS HIGH.

SEE GENERAL NOTE "F" ON PAGE 2.





**ISOMETRIC VIEW**

(TYPE II BUNKER MAGAZINE)

**BILL OF MATERIAL (PER STACK) \***

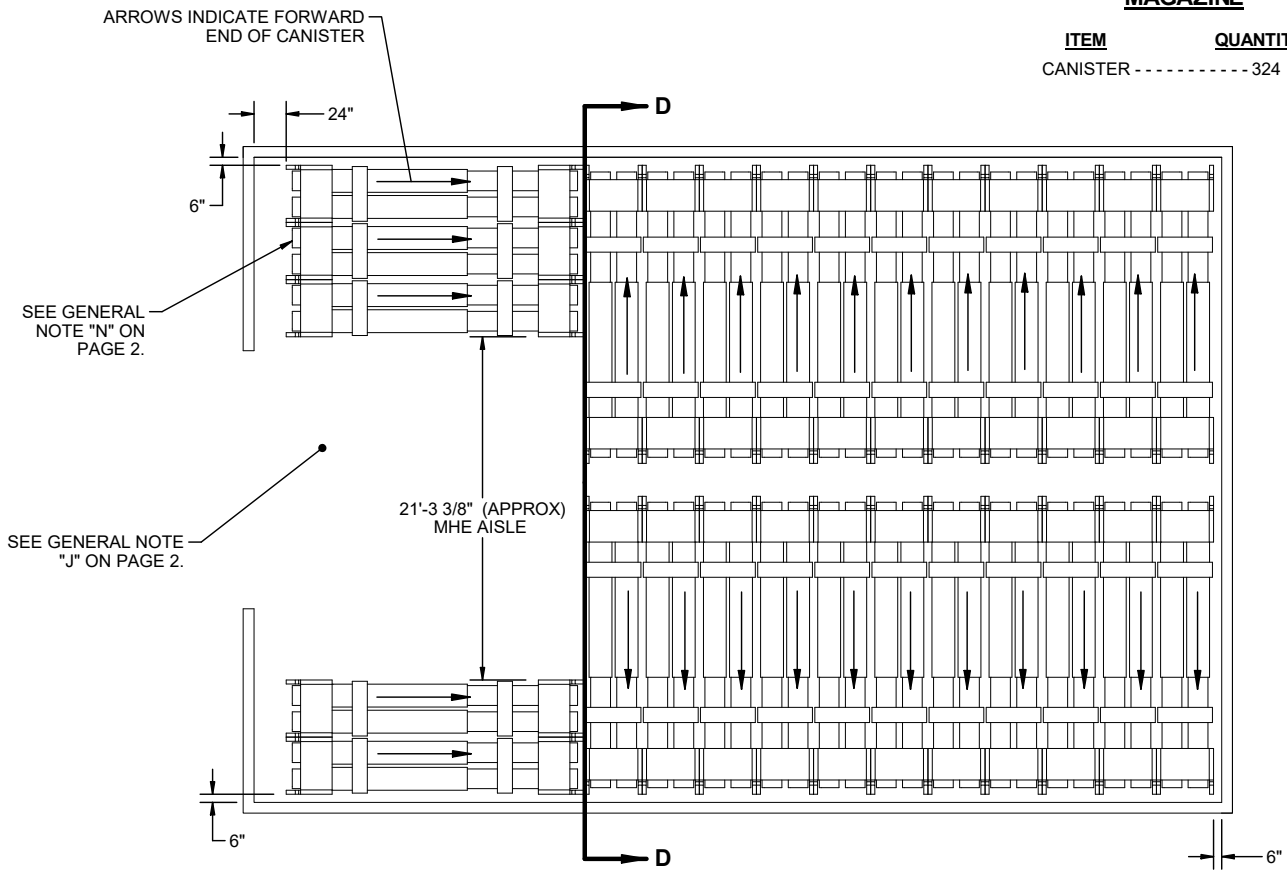
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	4	6

\*BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**60'-0" L X 40'-0" W X 15'-0" H TYPE II BUNKER MAGAZINE (ONE-PACK)**

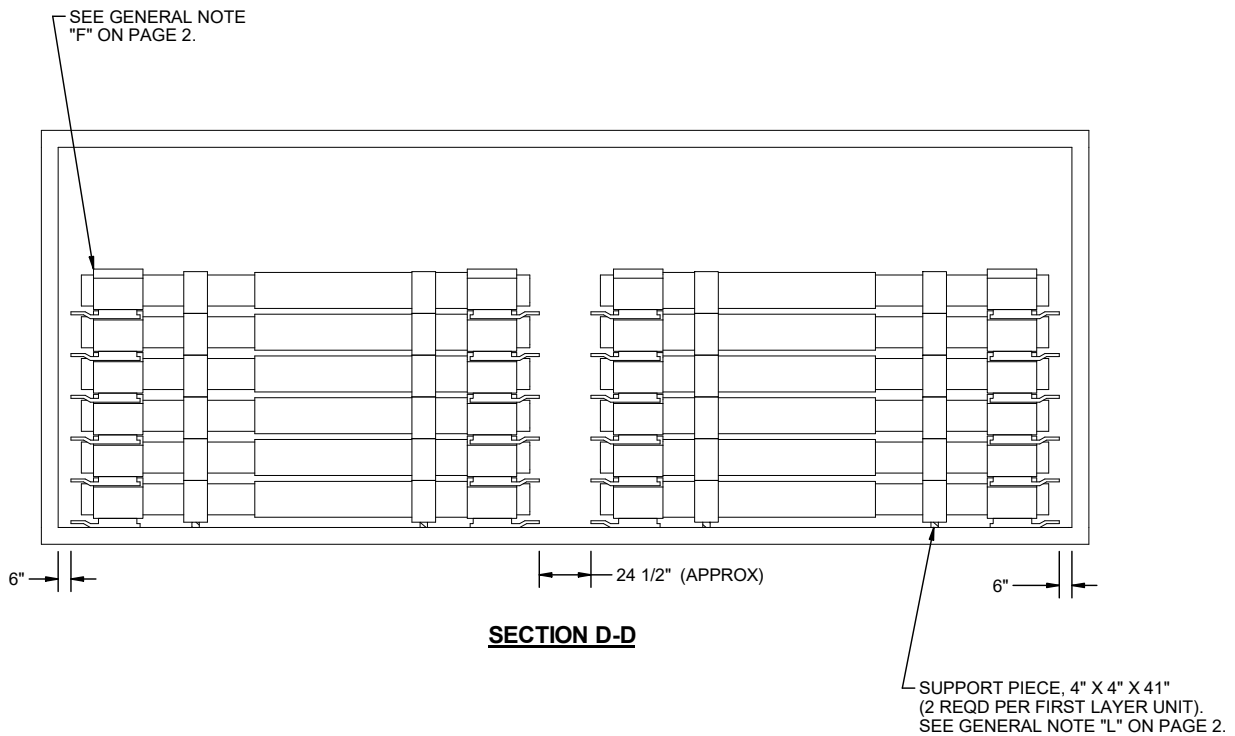
**STORAGE IN TYPE II BUNKER  
MAGAZINE**

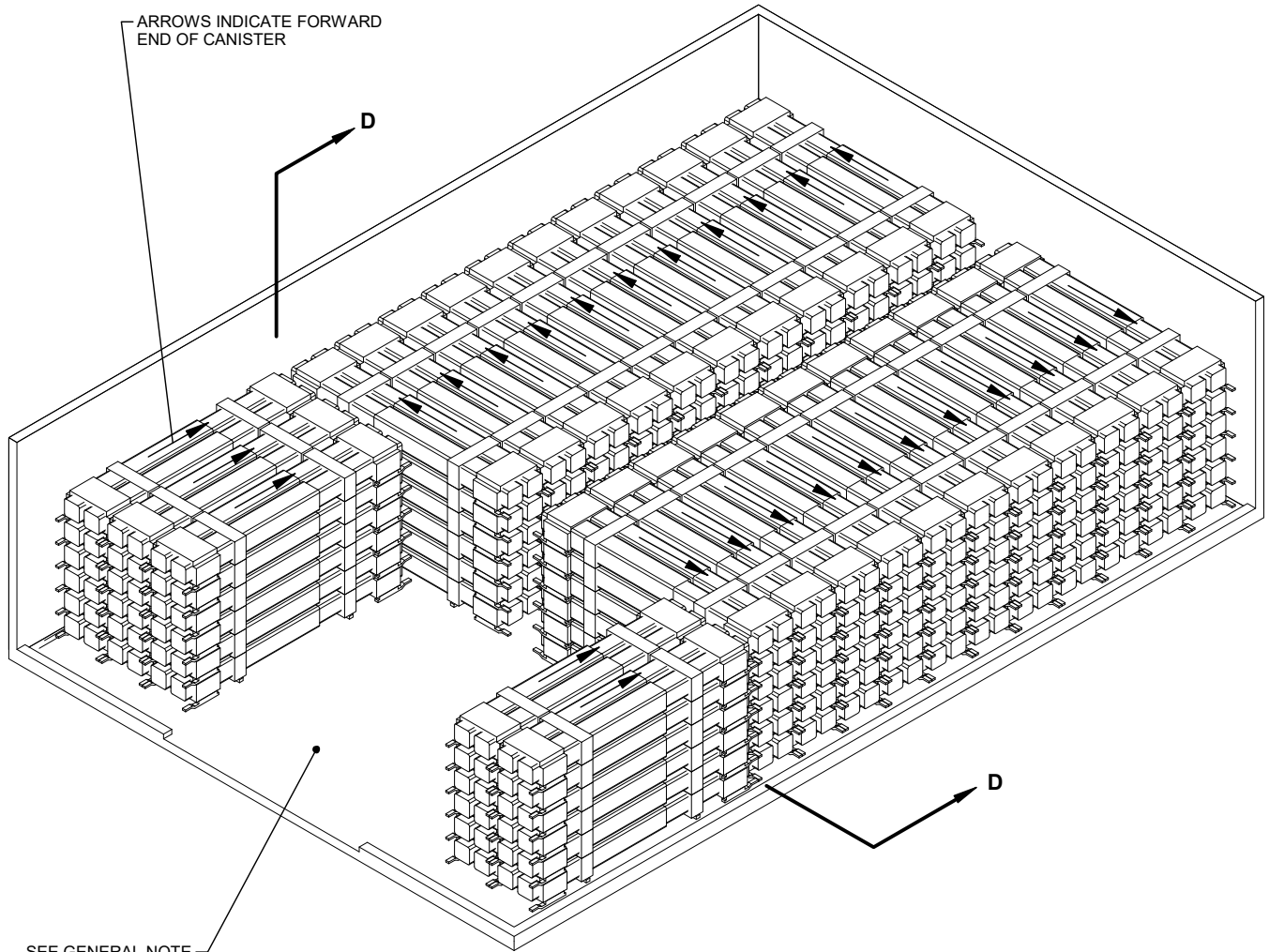
ITEM	QUANTITY
CANISTER - - - - -	324



**PLAN VIEW**

ALL CANISTERS ARE STACKED SIX LAYERS HIGH.





SEE GENERAL NOTE  
"J" ON PAGE 2.

**ISOMETRIC VIEW**

(TYPE II BUNKER MAGAZINE)

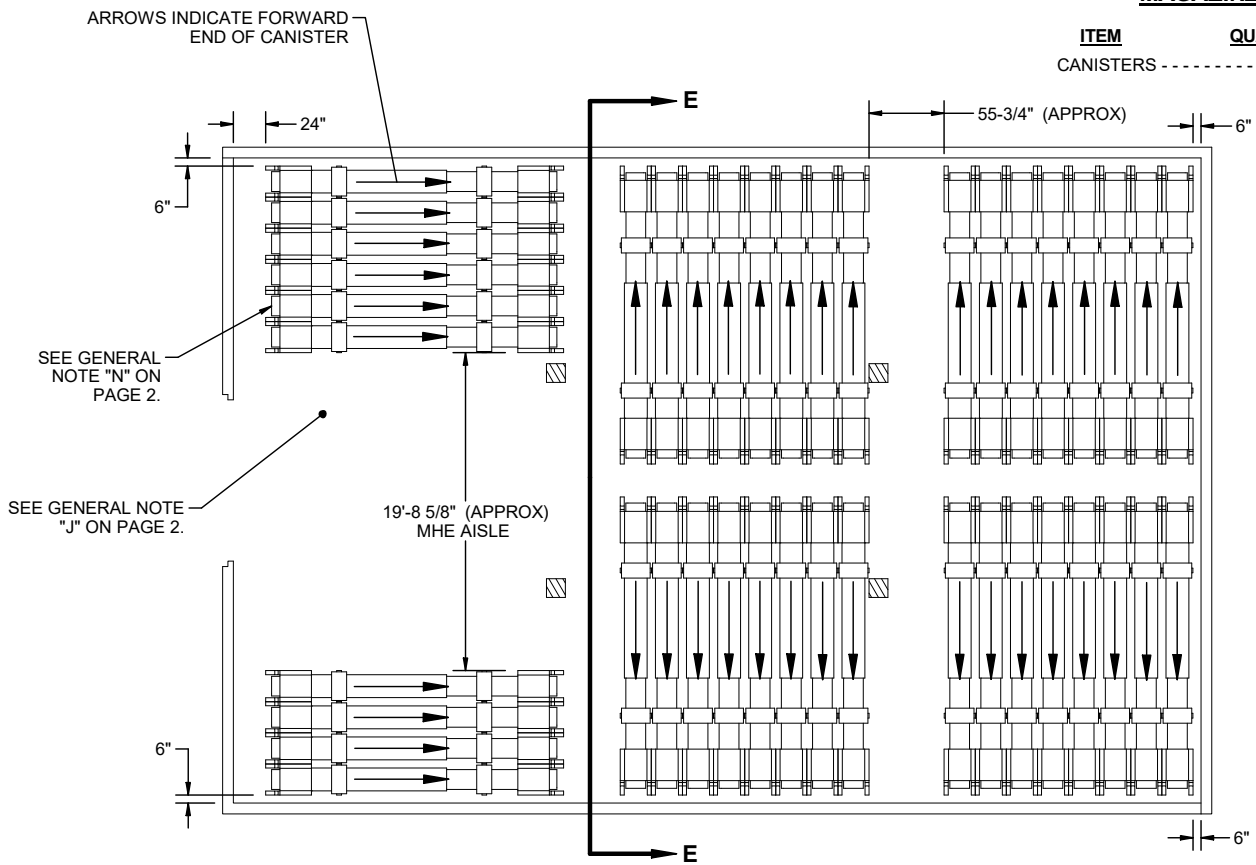
BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**60'-0" L X 40'-0" W X 15'-0" H TYPE II BUNKER MAGAZINE (TWO-PACK)**

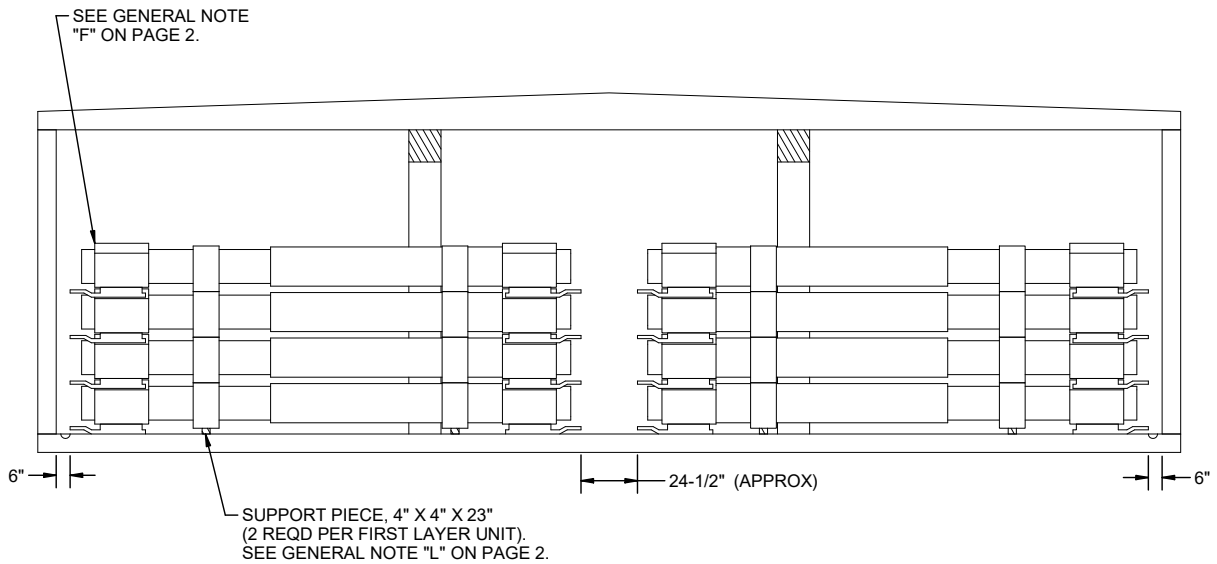
**STORAGE IN TYPE III BUNKER  
MAGAZINE**

ITEM	QUANTITY
CANISTERS	----- 168



**PLAN VIEW**

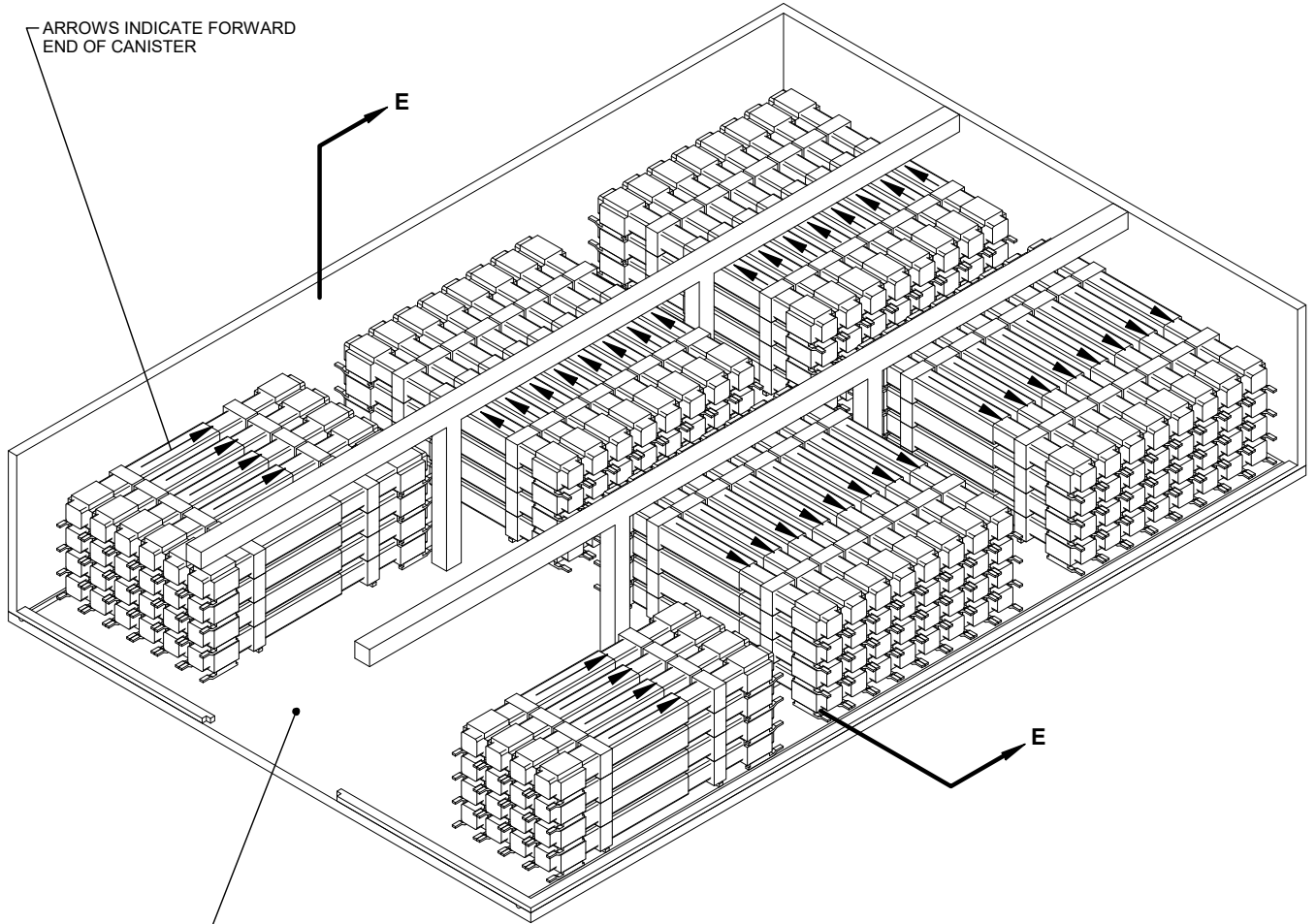
ALL CANISTERS ARE STACKED FOUR LAYERS HIGH.



**SECTION E-E**



ARROWS INDICATE FORWARD  
END OF CANISTER



SEE GENERAL NOTE  
"J" ON PAGE 2.

**ISOMETRIC VIEW**

(TYPE III BUNKER MAGAZINE)

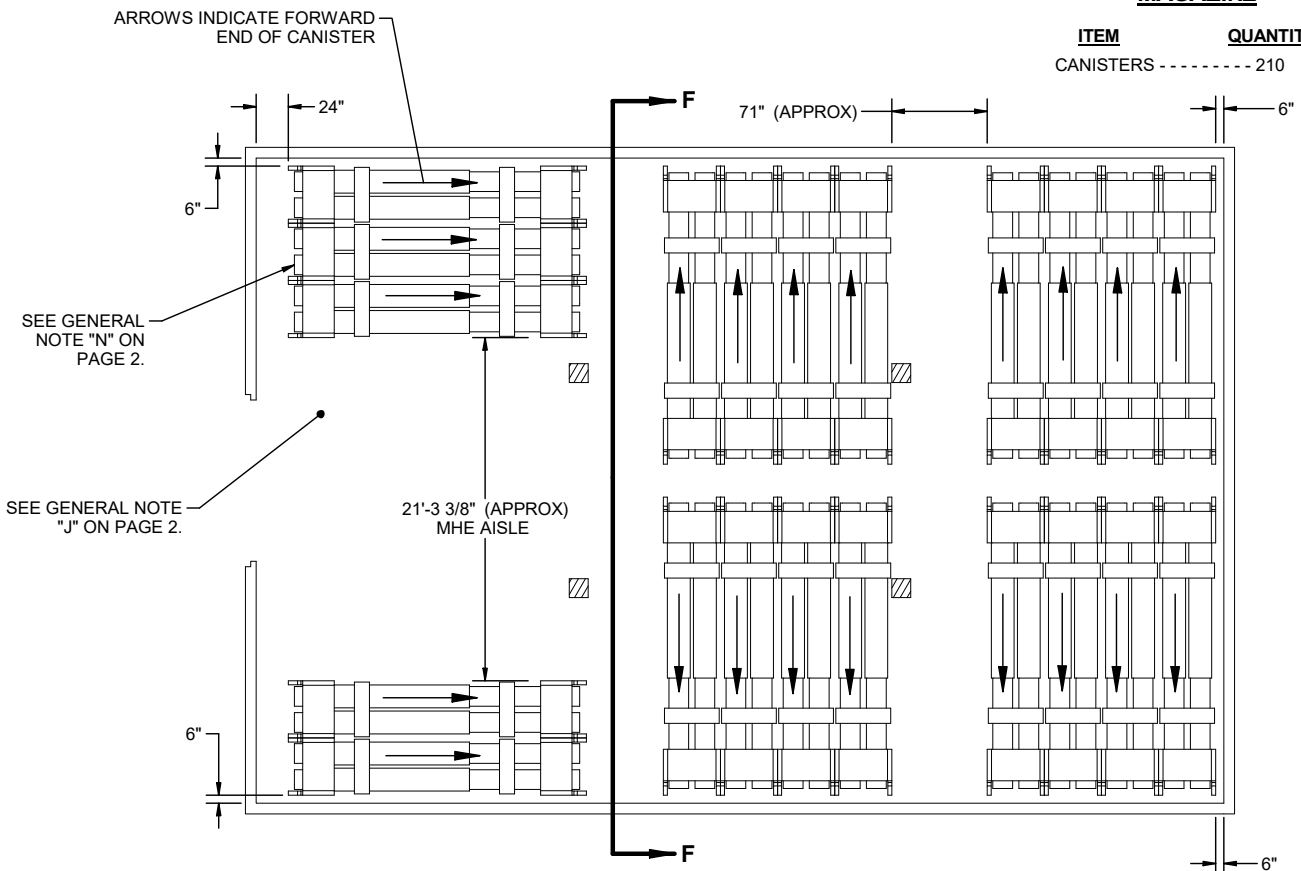
BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	4	6

\*BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**60'-0" L X 40'-0" W X 11'-0" H TYPE III BUNKER MAGAZINE (ONE-PACK)**

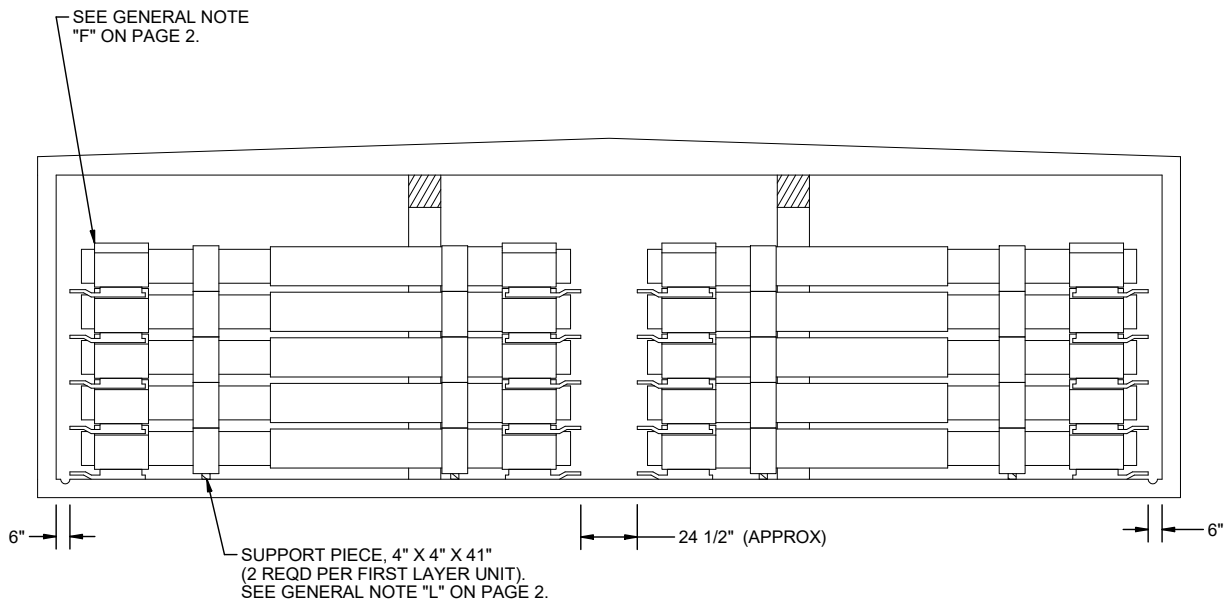
**STORAGE IN TYPE III BUNKER  
MAGAZINE**

ITEM	QUANTITY
CANISTERS	-----210



**PLAN VIEW**

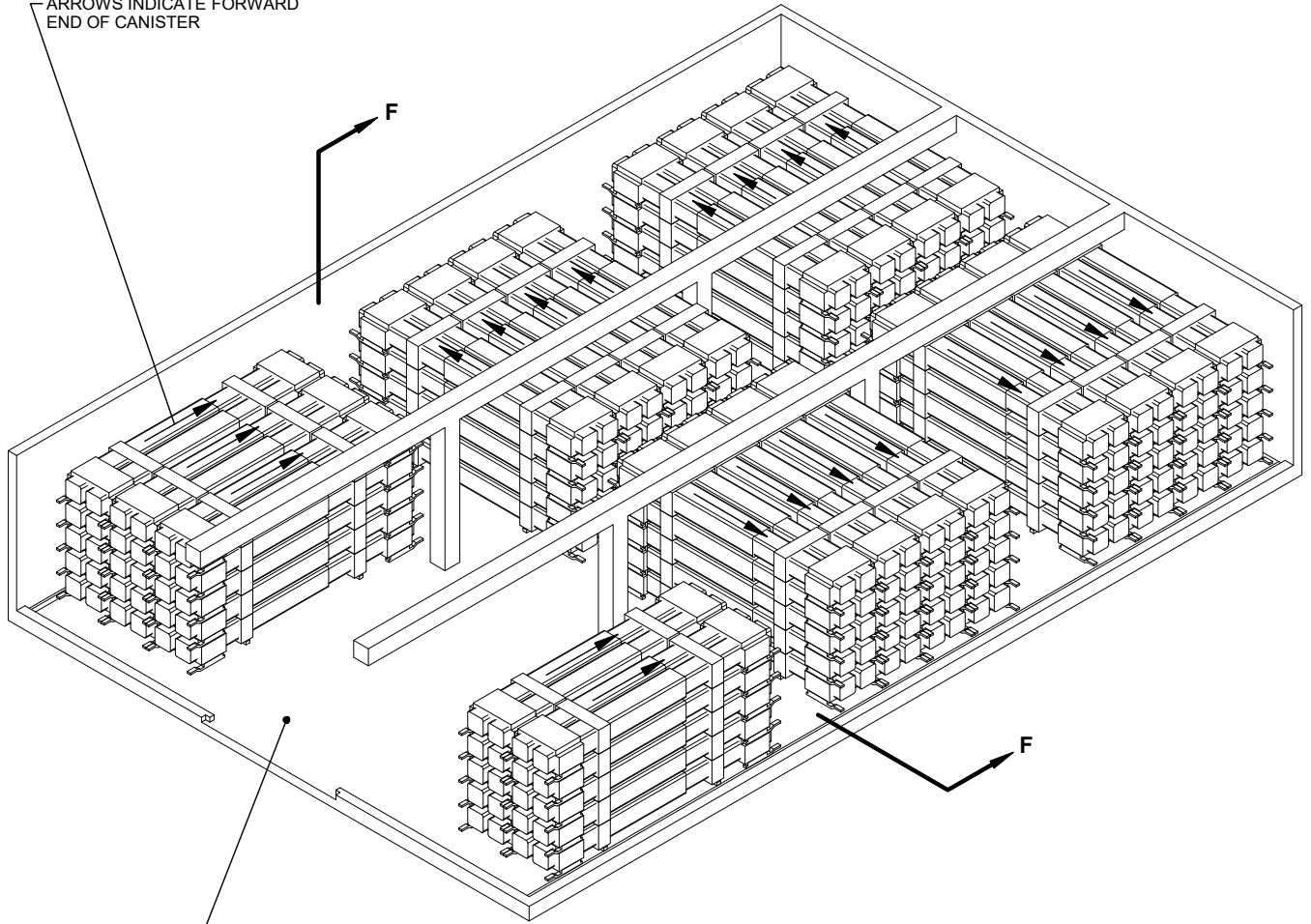
ALL CANISTERS ARE STACKED FIVE LAYERS HIGH.



**SECTION F-F**

**60'-0" L X 40'-0" W X 11'-0" H TYPE III BUNKER MAGAZINE (TWO-PACK)**

ARROWS INDICATE FORWARD  
END OF CANISTER



SEE GENERAL NOTE  
"J" ON PAGE 2.

**ISOMETRIC VIEW**

(TYPE III BUNKER MAGAZINE)

**BILL OF MATERIAL (PER STACK) \***

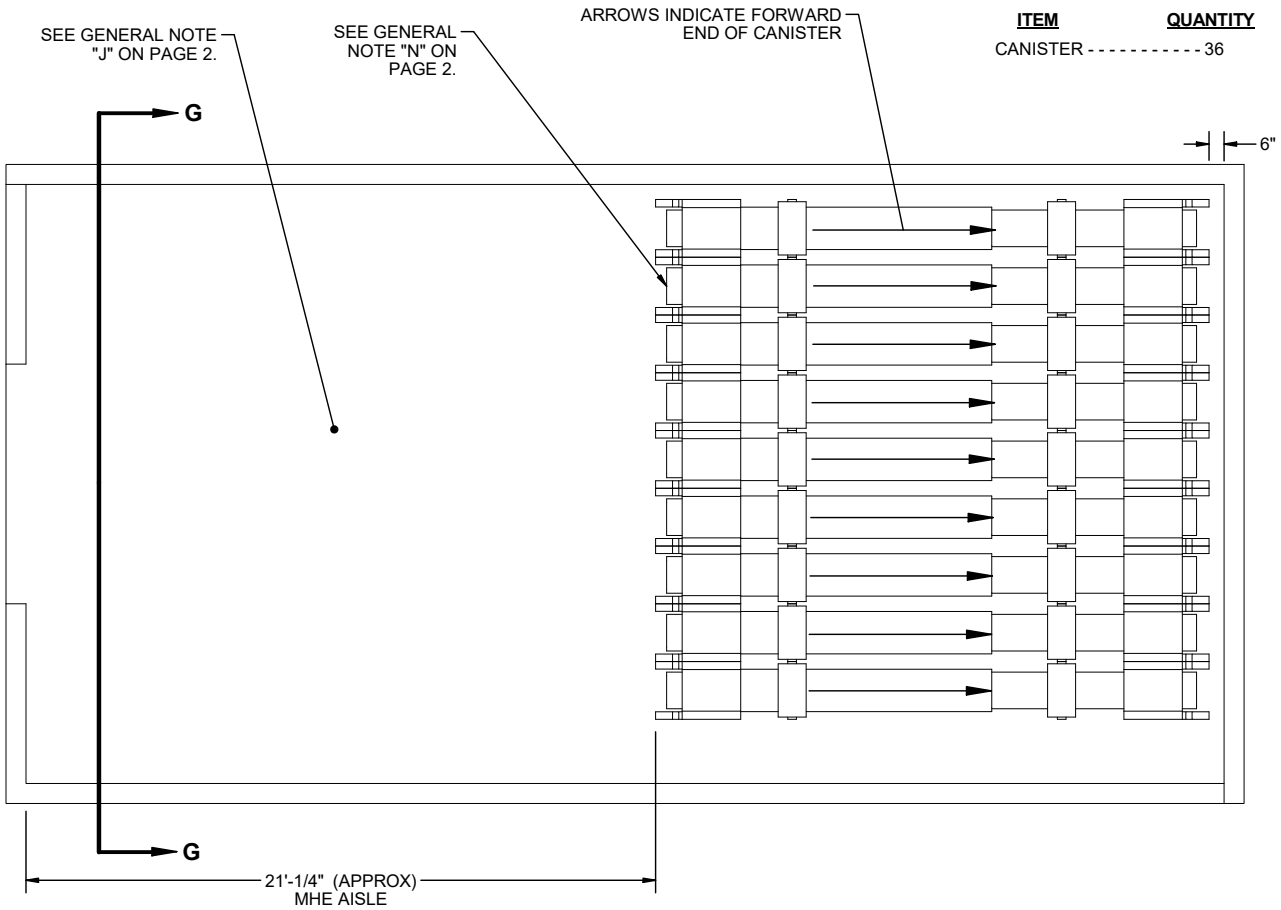
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**60'-0" L X 40'-0" W X 11'-0" H TYPE III BUNKER MAGAZINE (TWO-PACK)**

**STORAGE IN TYPE IV BUNKER  
MAGAZINE**

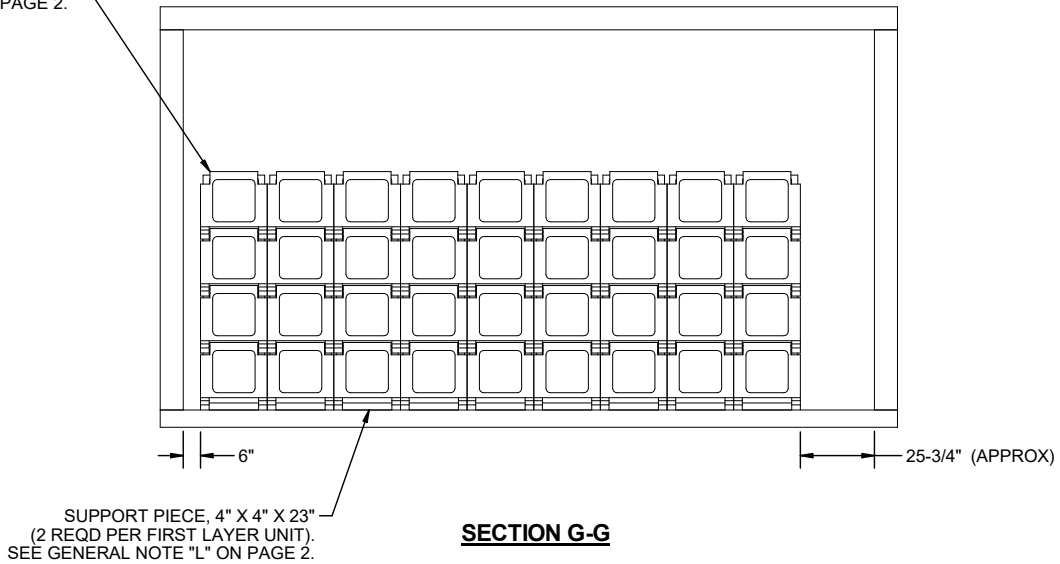
ITEM	QUANTITY
CANISTER -----	36

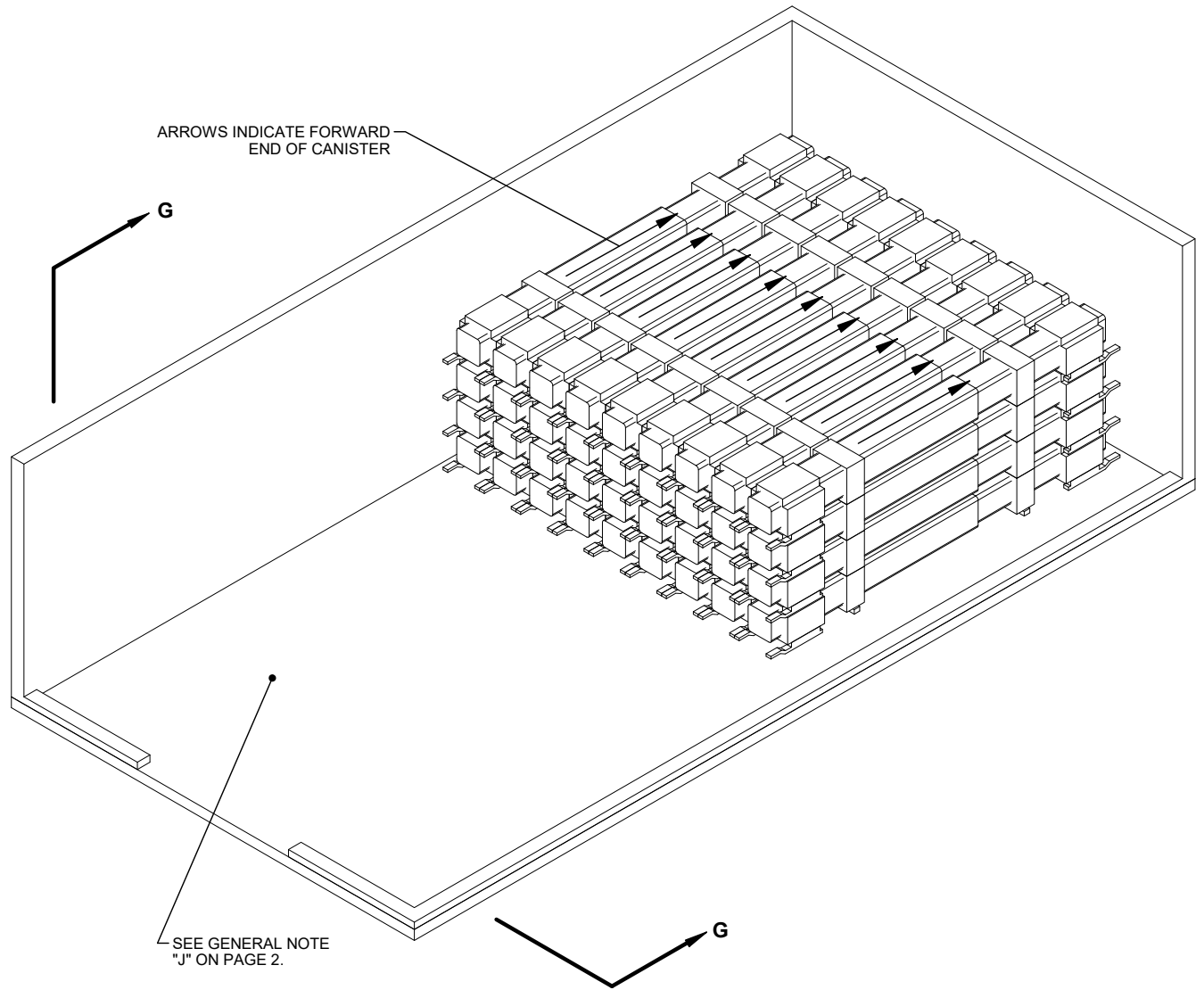


**PLAN VIEW**

ALL CANISTERS ARE STACKED FOUR LAYERS HIGH.

SEE GENERAL NOTE "F" ON PAGE 2.





**ISOMETRIC VIEW**

(TYPE IV BUNKER MAGAZINE)

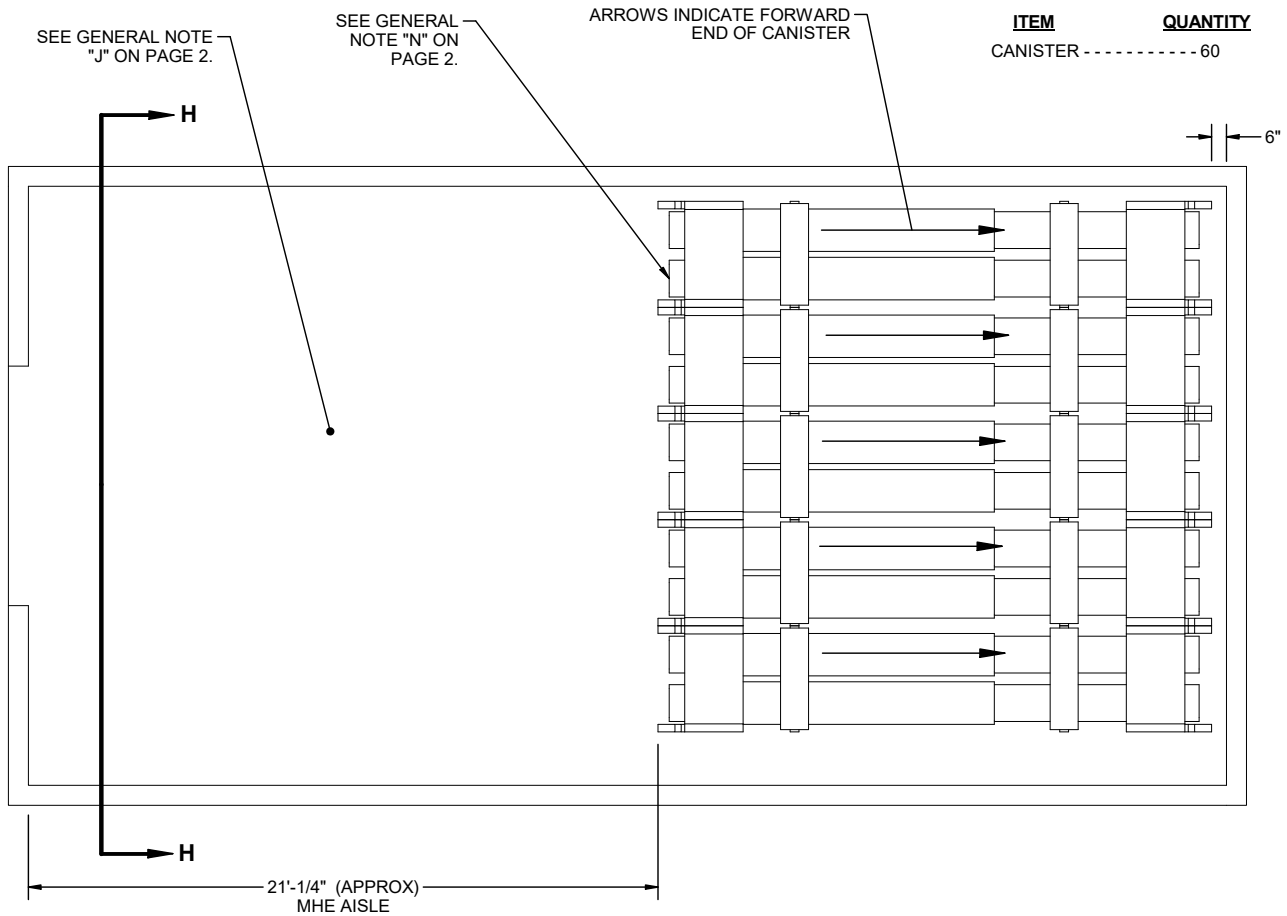
BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	4	6

\*BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**40'-0" L X 20'-0" W X 11'-0" H TYPE IV BUNKER MAGAZINE (ONE-PACK)**

**STORAGE IN TYPE IV BUNKER  
MAGAZINE**

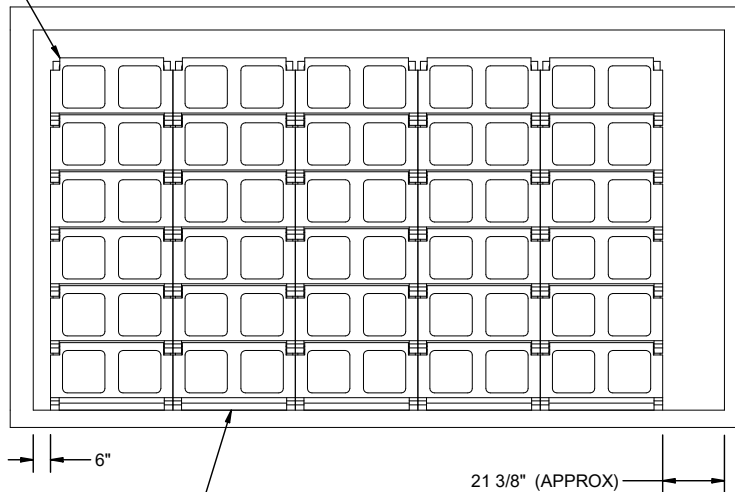
ITEM	QUANTITY
CANISTER -----	60



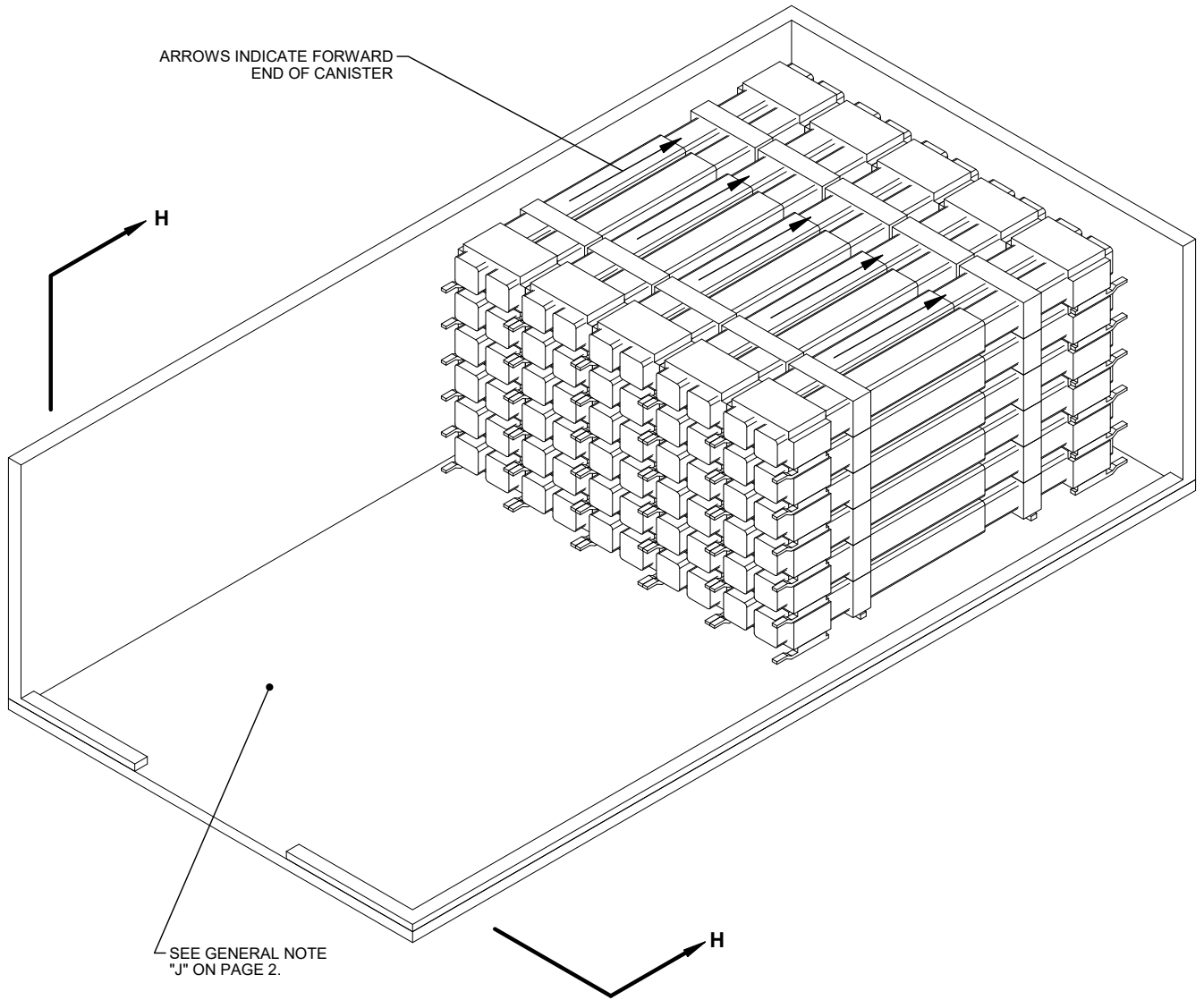
**PLAN VIEW**

ALL CANISTERS ARE STACKED SIX LAYERS HIGH.

SEE GENERAL NOTE "F" ON PAGE 2.



**SECTION H-H**



**ISOMETRIC VIEW**

(TYPE IV BUNKER MAGAZINE)

BILL OF MATERIAL (PER STACK) *		
LUMBER	LINEAR FEET	BOARD FEET
4" X 4"	7	10

\* BILL OF MATERIAL ONLY REFLECTS SUPPORT DUNNAGE. IF FLOOR DUNNAGE IS UTILIZED, BILL OF MATERIAL WILL INCREASE. SEE GENERAL NOTES "L" AND "S" ON PAGE 2.

**40'-0" L X 20'-0" W X 11'-0" H TYPE IV BUNKER MAGAZINE (TWO-PACK)**

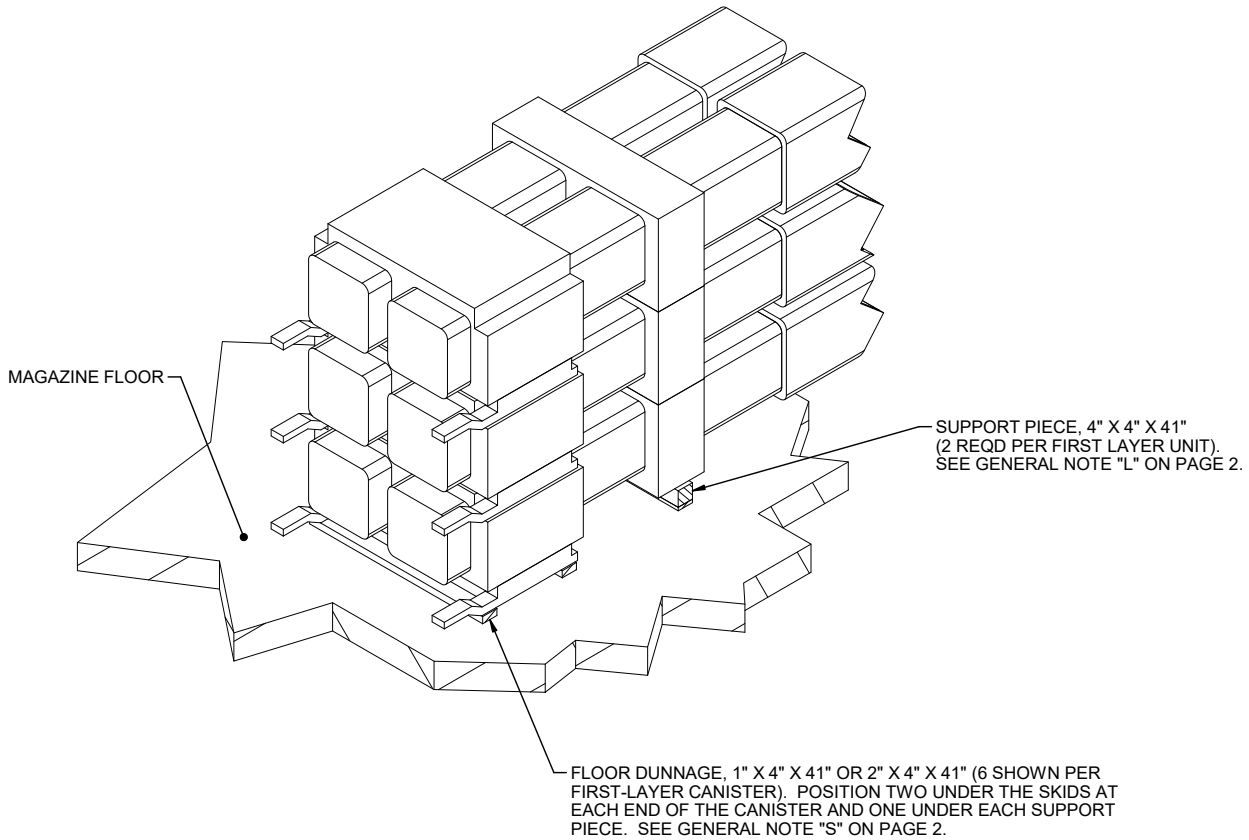
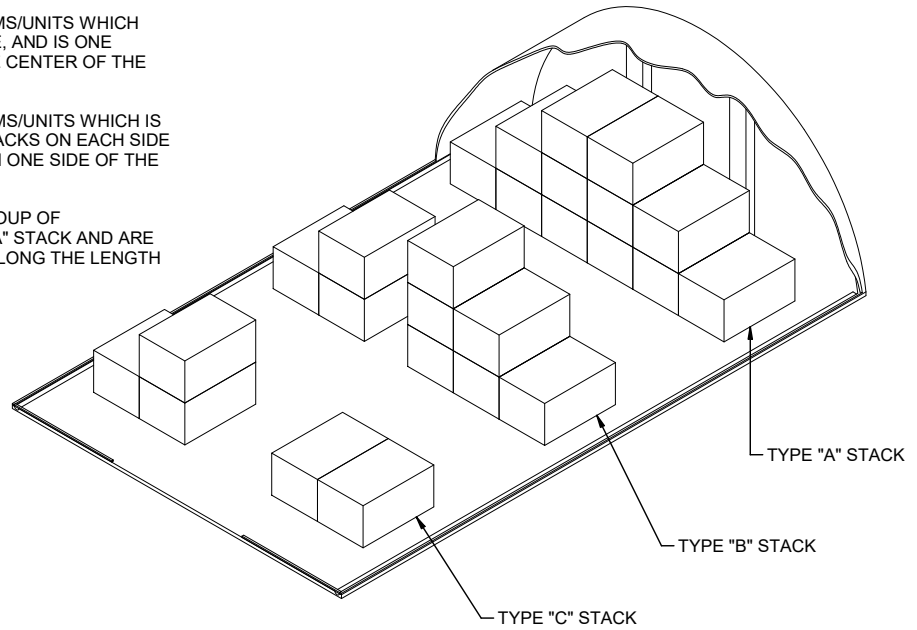
## **STACK IDENTIFICATION**

A TYPE "A" STACK IS IDENTIFIED AS A GROUP OF ITEMS /UNITS WHICH EXTENDS FULL WIDTH AND HEIGHT OF THE MAGAZINE, AND IS ONE ITEM/UNIT LONG IN THE LENGTH OF THE MAGAZINE.

A TYPE "B" STACK IS IDENTIFIED AS A GROUP OF ITEMS/UNITS WHICH EXTEND FULL WIDTH AND HEIGHT OF THE MAGAZINE, AND IS ONE UNIT/ITEM LONG, BUT HAS AN AISLE AT OR NEAR THE CENTER OF THE WIDTH OF THE STACK.

A TYPE "C" STACK IS IDENTIFIED AS A GROUP OF ITEMS/UNITS WHICH IS ONE UNIT/ITEM LONG AND CONSISTS OF PARTIAL STACKS ON EACH SIDE OF THE MAGAZINE, USUALLY ONE ITEM/UNIT HIGH ON ONE SIDE OF THE MAGAZINE.

**NOTE:** A MODIFIED "B" STACK IS IDENTIFIED AS A GROUP OF ITEMS/UNITS THAT ARE ON ONE SIDE OF THE TYPE "A" STACK AND ARE ORIENTED WITH THE LENGTH OF THE ITEMS/UNITS ALONG THE LENGTH OF THE STORAGE MAGAZINE.



### **TYPICAL SUPPORT PIECE AND FLOOR DUNNAGE DETAIL**

THE DETAIL ABOVE DEPICTS TWO-PACK CANISTERS. FLOOR DUNNAGE MAY ALSO BE INSTALLED FOR ONE-PACK CANISTERS, BUT WILL BE REDUCED TO 23" LONG.