

# STORAGE IN APPROVED MAGAZINES OF JSOW (AGM-154) MISSILES PACKED IN CNU-710 CONTAINERS

<u>ITEM</u>	<u>INDEX</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS	- - - - -	2
CNU-710 CONTAINER	- - - - -	3
TYPICAL STORAGE IN ARCHED OR ROUNDED ROOF MAGAZINES	- - - - -	4-7
CORBETTA MAGAZINE	- - - - -	8, 9
100' -8" L X 50' -0" W RECTANGULAR MAGAZINE	- - - - -	10, 11
SHIP LOCATION DETAILS	- - - - -	12

**DISTRIBUTION STATEMENT A:**

APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION IS UNLIMITED.

## U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, COMBAT CAPABILITIES DEVELOPMENT COMMAND ARMAMENTS CENTER  HANSSSEN.JOSEPH H.W.1376495538  <small>Digitally signed by HANSSSEN.JOSEPH.W.1376495538 38 Date: 2021.09.23 08:26:43 -05'00'</small>	<b>CAUTION: VERIFY PRIOR TO USE AT <a href="https://www.dau.edu/cop/ammo/Pages/Default.aspx">https://www.dau.edu/cop/ammo/Pages/Default.aspx</a> THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 12.</b>		
FCDD-ACE-LTP	<b>DO NOT SCALE</b>	<b>SEPTEMBER 2021</b>	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  BRAILSFORD.KEITH H.ANTHONY.10286 55661  <small>Digitally signed by BRAILSFORD.KEITH.ANTHONY. 1028655661 Date: 2021.09.23 09:24:07 -05'00'</small>	ENGINEERING DIVISION  TEST ENGINEER TEST REPORT <b>NA</b>  EXPLOSIVE SAFETY DIRECTORATE	FIEFFER.LAUR A.A.1230375727  <small>Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2021.09.22 14:52:13 -05'00'</small>	SPENCER HOVEY  REV.  FIEFFER.LAUR A.A.1230375727  <small>Digitally signed by FIEFFER.LAURA.A.1230375727 Date: 2021.09.23 06:26:34 -05'00'</small>
U.S. ARMY DEFENSE AMMUNITION CENTER	FAIRHURST.ROBE RT.JOHN.10157668 80  <small>Digitally signed by FAIRHURST.ROBERT.JOHN.101 5766880 Date: 2021.09.23 07:46:14 -05'00'</small>	CLASS  <b>19</b>	DIVISION  <b>48</b>
		DRAWING  <b>8880</b>	FILE  <b>SP1-3-4-14- 22J56</b>

**GENERAL NOTES**

**(GENERAL NOTES CONTINUED)**

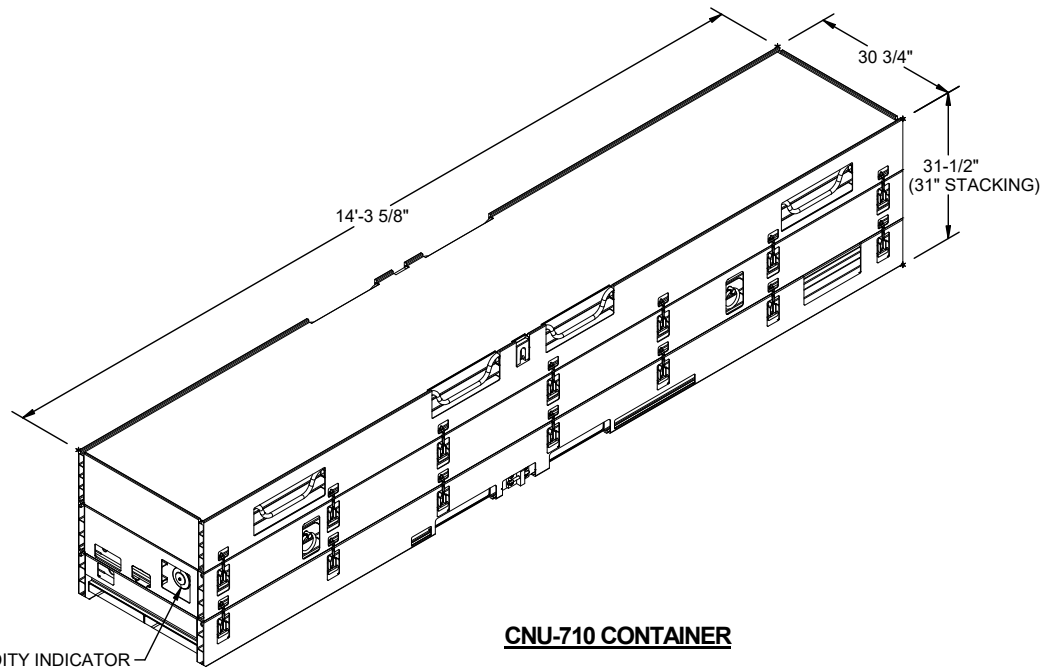
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE STORAGE PROCEDURES DEPICTED WITHIN THIS DOCUMENT ARE APPLICABLE FOR STORAGE IN VARIOUS TYPES AND SIZES OF MAGAZINES. THE STORAGE PROCEDURES DEPICTED FOR THE SPECIFIC TYPES OF MAGAZINES MAY ALSO BE UTILIZED TO STORE JSOW MISSILES PACKED IN CNU-710 CONTAINERS IN OTHER TYPES OF APPROVED MAGAZINES. MINOR ADJUSTMENTS MAY BE MADE TO FACILITATE STORAGE IN OTHER TYPES OF MAGAZINES; HOWEVER, THE BASIC PRINCIPLES AS DEPICTED HEREIN WILL BE FOLLOWED.
- C. THE STORAGE PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO JSOW MISSILES PACKED IN CNU-710 CONTAINERS. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS CONTAINER WITH MISSILE ITEMS. SEE PAGE 3 AND NAVSEA SPI-PHST-285 FOR DETAILS OF THE CONTAINER.
- D. **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.
- E. STORED CONTAINERS MUST NOT CONTACT THE SIDES OF A MAGAZINE. THEREFORE, CONTAINERS MUST BE STORED A MINIMUM OF 6" FROM THE SIDEWALL OR CURVATURE OF THE MAGAZINE AS APPLICABLE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, CONTAINERS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.
- F. AISLE DIMENSION SHOWN FOR STORAGE PROCEDURES IN MAGAZINES MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS, VARIATIONS IN CONTAINER DIMENSIONS, AND/OR AVAILABLE MATERIAL HANDLING EQUIPMENT (MHE). HOWEVER, A 24" MINIMUM INSPECTION AISLE MUST BE MAINTAINED TO FACILITATE INSPECTION.
- G. **CAUTION:** THESE ITEMS ARE IN A "PROPULSIVE STATE" AND MUST BE STORED WITH THE NOSE END FACING TOWARD THE REAR WALL OR SIDE WALL OF THE MAGAZINE, NOT TOWARD THE DOOR/FRONT WALL.
- H. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE AS PRESCRIBED WILL NOT BE EXCEEDED.
- J. IF AVAILABLE MHE PERMITS, ADDITIONAL CONTAINERS MAY BE STORED WITHIN THE MHE AREA AND/OR OTHER AVAILABLE AREA OF THE MAGAZINE.
- K. THE HEIGHT OF THE PACKAGE GUARD ON SOME FORKLIFT TRUCKS MAY NOT PERMIT PLACEMENT OF SOME TOP LAYER CONTAINERS IN THE STACKS SHOWN IN THE STORAGE VIEWS HEREIN, UNLESS TWO UPPER CONTAINERS 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 CONTAINERS AS ONE LIFT. REFER TO NAVSEA DRAWING 8411078 FOR UNITIZATION OF CONTAINERS FOR TWO HIGH CONTAINER LIFT.
- L. THE USE OF "FLOOR DUNNAGE" IS OPTIONAL, ALTHOUGH THE USE OF THIS TYPE OF DUNNAGE IS DELINEATED WITHIN THIS STORAGE PROCEDURE DRAWING. THE PURPOSE OF FLOOR DUNNAGE IS TO KEEP THE SKIDS OF THE CONTAINER 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. ALSO, IN LIEU OF USING ONE-INCH THICK FLOOR DUNNAGE AS SPECIFIED, THE USE OF THICKER FLOOR DUNNAGE MAY BE REQUIRED, AND SHOULD BE USED, TO ACHIEVE THE DESIRED OBJECTIVE. **NOTE:** SOME VIEWS WITHIN THIS DRAWING WILL NOT DEPICT ALL FLOOR DUNNAGE THAT IS REQUIRED WHEN DUNNAGE IS USED. FLOOR DUNNAGE IS SHOWN AT SOME LOCATIONS TO PROVIDE POSITIONING GUIDANCE. SEE GENERAL NOTE "R" AT RIGHT.

(CONTINUED AT RIGHT)

- M. 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.
- N. CONTAINERS PRESENTLY STORED IN ACCORDANCE WITH A PRIOR APPROVED DRAWING NEED NOT BE RE-STORED SOLELY TO CONFORM TO THE PROCEDURES SPECIFIED IN THIS DOCUMENT.
- O. OTHER COMPATIBLE ITEMS MAY BE STORED IN A MAGAZINE, WHICH IS PARTIALLY FILLED WITH THE DESIGNATED ITEM.
- P. IN IGLOO, ARCH TYPE AND STRADLEY MAGAZINES WHICH HAVE SLOPING FLOORS, THE DEPICTED STORAGE PATTERNS, IN SOME CASES, INCLUDE CONTAINER STACKS WHICH STRADDLE THE RIDGE OF THE FLOOR AT THE CENTER OF THE MAGAZINE. FLOOR DUNNAGE IN THE FORM OF SHIMS WILL BE USED AS REQUIRED TO ACHIEVE SOUND AND ACCEPTABLE STABLE STACKS. SEE THE DETAIL ON PAGE 12.
- Q. PORTIONS OF THE MAGAZINES, SUCH AS SIDEWALLS, END WALLS, AND ROOFS HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- R. 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.
- S. 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.

**MATERIAL SPECIFICATIONS**

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

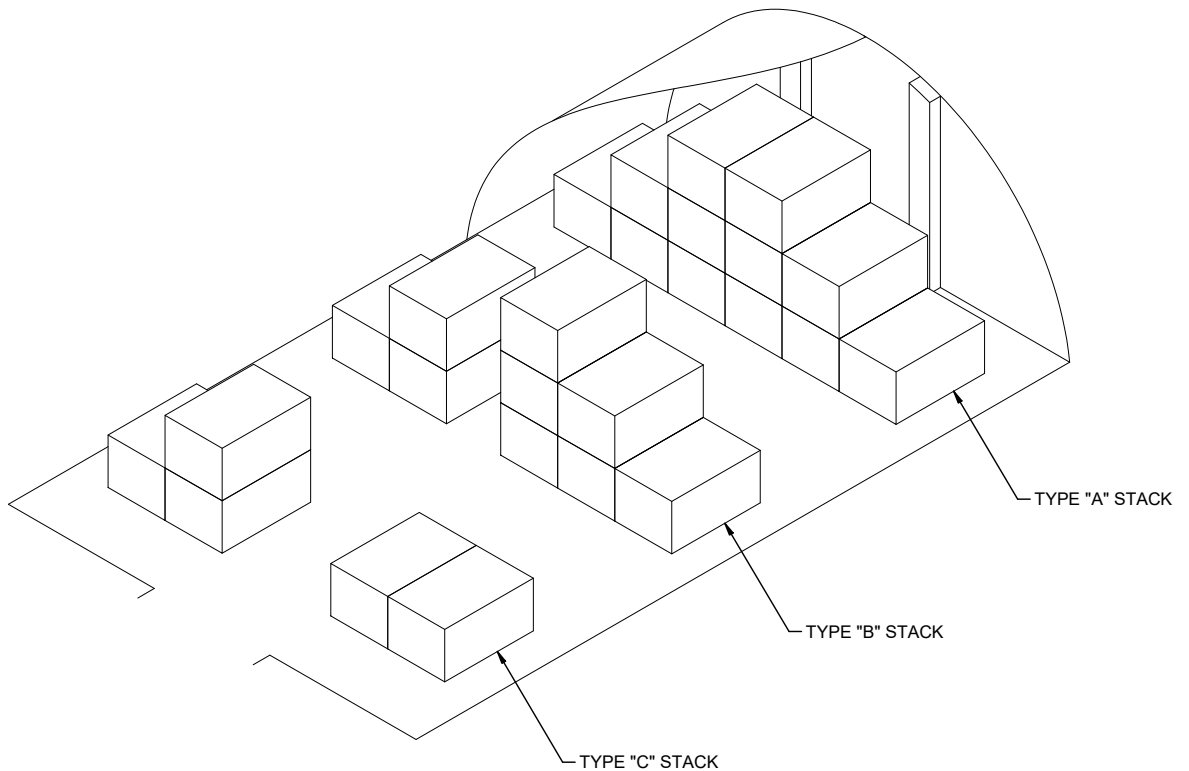


HUMIDITY INDICATOR

**CNU-710 CONTAINER**

GROSS WEIGHT - - - - - 2,120 LBS (APPROX)  
 CUBE - - - - - 94.7 CU FT (APPROX)

← INDICATES FORWARD END

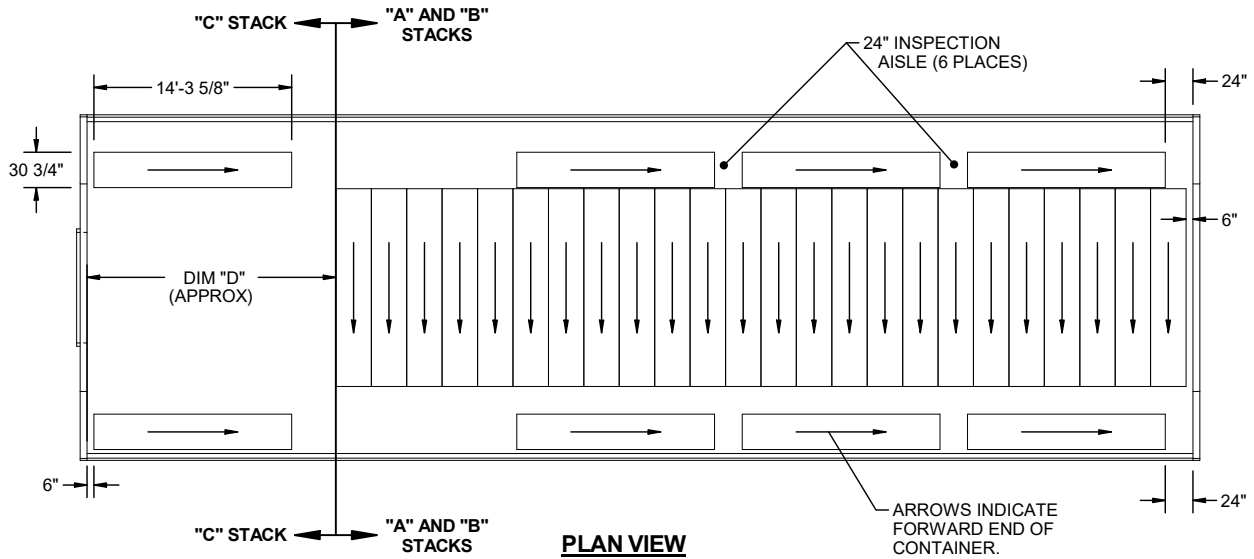


**STACK IDENTIFICATION**

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.

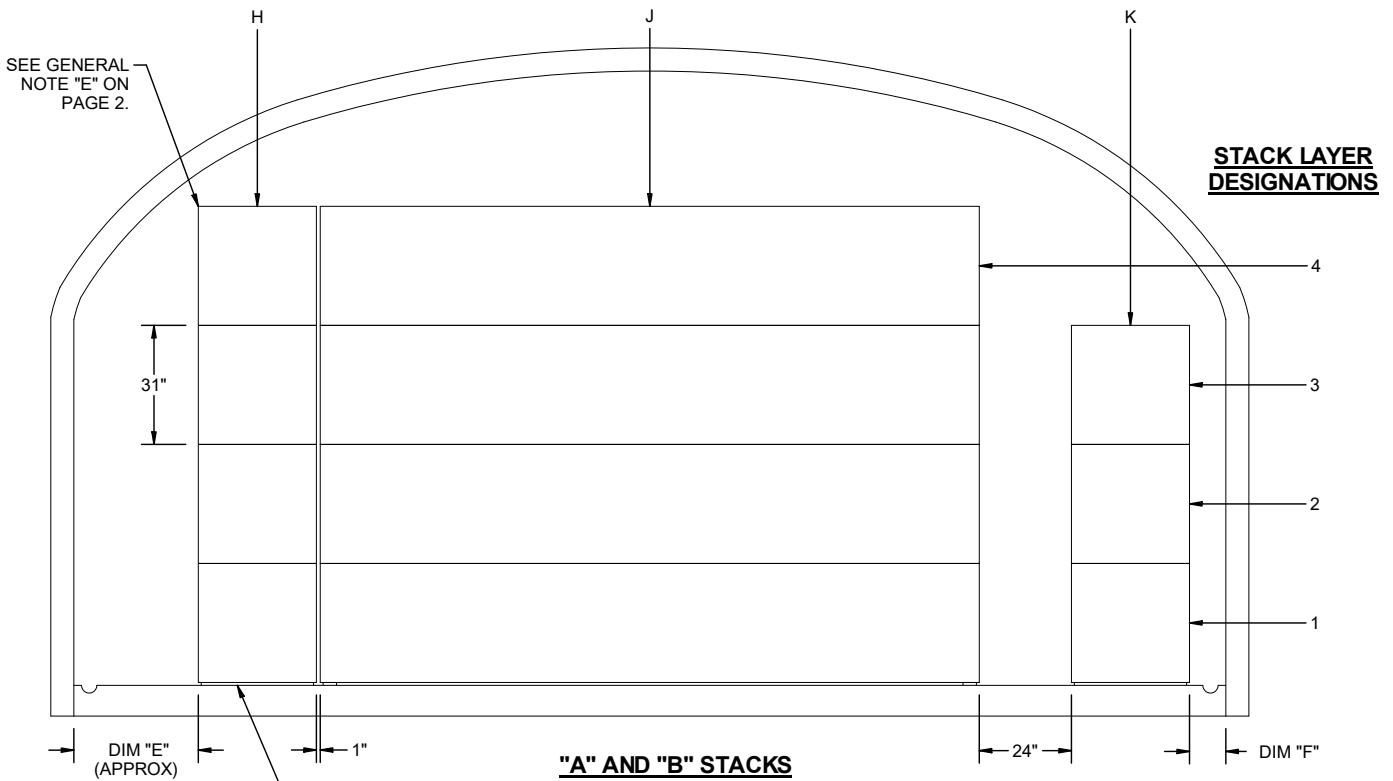
A TYPE "B" STACK IS IDENTIFIED AS A GROUP OF ITEMS/UNITS WHICH EXTEND FULL WIDTH AND HEIGHT OF THE MAGAZINE, AND IS ONE UNIT/ITEM LONG, BUT HAS AN AISLE AT OR NEAR THE CENTER OF THE WIDTH OF THE STACK.

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

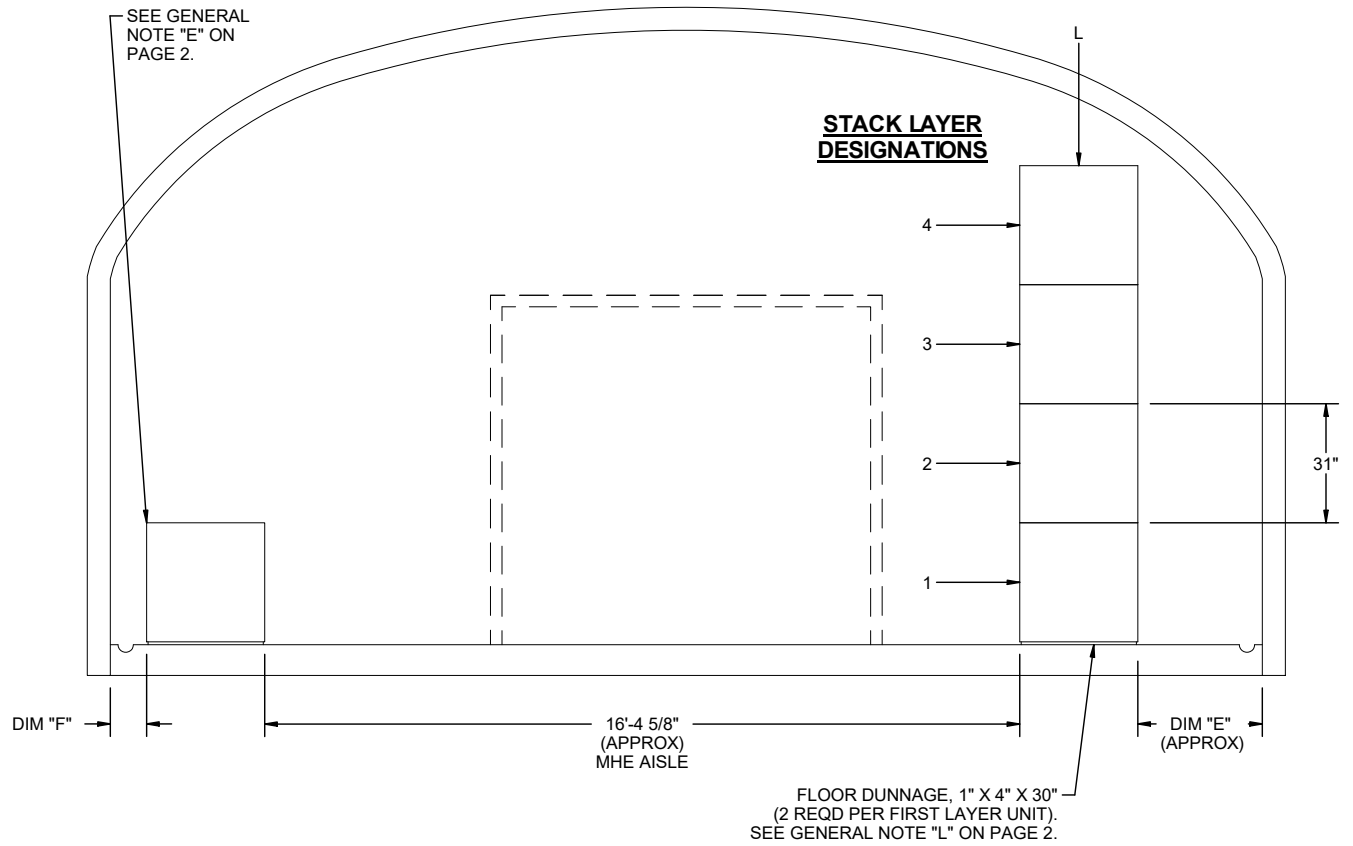
**STACK COLUMN DESIGNATIONS**



FLOOR DUNNAGE, 1" X 4" X 30" (2 REQD PER FIRST LAYER UNIT). SEE GENERAL NOTE "L" ON PAGE 2.

(TYPICAL "A" AND "B" STACKS FOR STRADLEY MAGAZINE. SEE "STACK IDENTIFICATION" ON PAGE 3 AND "CHART 2 - STACK CONFIGURATION" ON PAGE 7. NOTE THAT THE "G" COLUMN IS NOT SHOWN IN THE STRADLEY. FLOOR DUNNAGE IS SHOWN AS AN EXAMPLE).

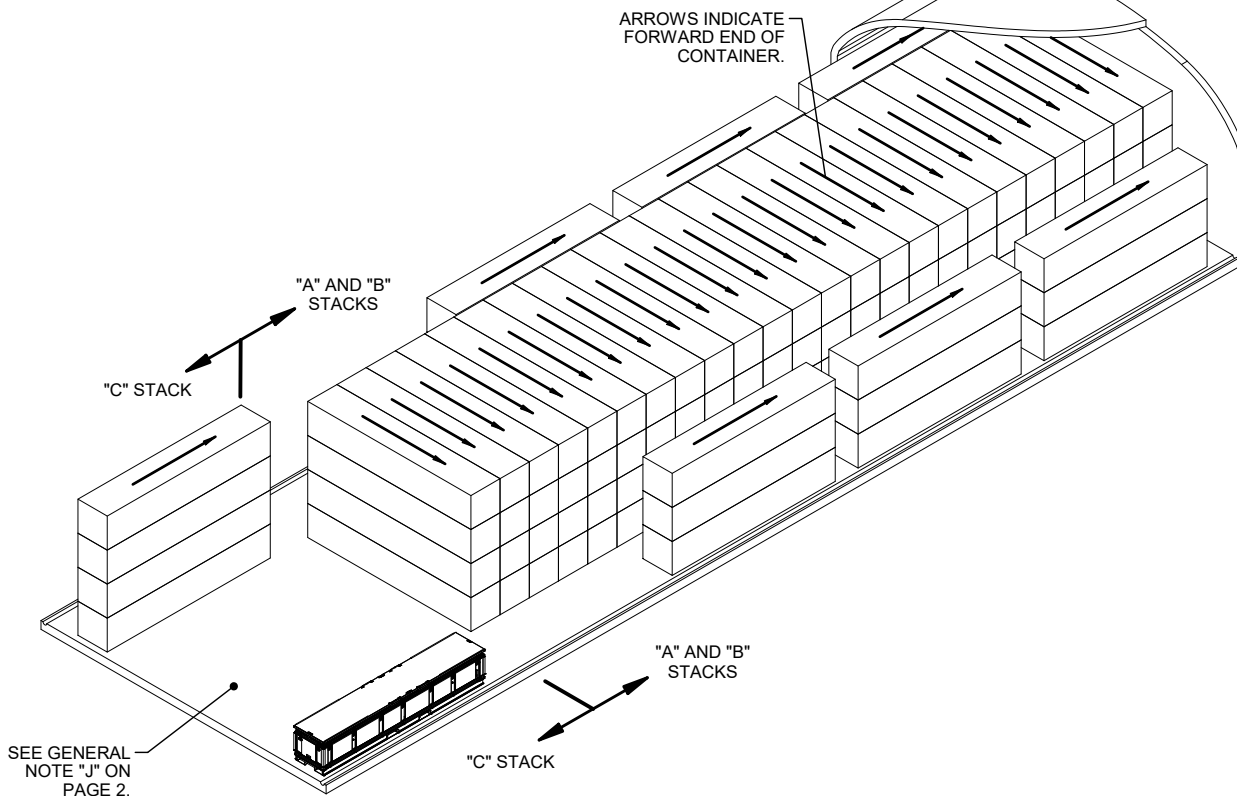
**STACK COLUMN  
DESIGNATIONS**



**"C" STACK**

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

TYPICAL "C" STACK FOR STRADLEY MAGAZINE.  
(SEE "STACK IDENTIFICATION " ON PAGE 3 AND "CHART 2 - STACK CONFIGURATION" ON PAGE 7).  
NOTE THAT THE "M" COLUMN IS NOT SHOWN IN THE STRADLEY.



**ISOMETRIC VIEW**

STRADLEY MAGAZINE SHOWN AS TYPICAL.

**CHART 1 - DIMENSIONS**

MAGAZINE DIMENSIONS	MAGAZINE TYPE													
	IGLOO			ARCH 12'		ARCH 11'		ARCH 10'		OVVAL ARCH	STRADLEY	STEEL ARCH		
LENGTH	40'-4"	60'-8"	81'-0"	26'-6"	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"		1'-0"		10'-0"		14'-5"	14'-0"	14'-4"	14'-4"	13'-6"
DIMENSIONS	CONTAINER SPACING DIMENSIONS													
DIM "D" (MHE AREA APPROX)	16'-9"	16'-7"	16'-5"	15'-11"	15'-9"	17'-4"	15'-9"	17'-4"	16'-5"	15'-5"	16'-9"	15'-5"	14'-11"	16'-9"
DIM "E" ("B" AND "C" STACK LEFT APPROX)	12"	12"	12"		21"	21"	27'-1/2"	27'-1/2"	18"	18"	5"	33"	6"	5"
DIM "F" ("B" AND "C" STACK RIGHT)	20"	20"	20"		21"	21"	14'-1/2"	14'-1/2"	18"	18"	5"	9"	6"	5"

**SPECIAL NOTES:**

1. THE FOLLOWING NOTES, CHART 1 ON THIS PAGE AND CHART 2 ON PAGE 7 ARE PRESENTED AS GUIDANCE IN THE SELECTION OF A STORAGE PATTERN, AND IN DETERMINING THE QUANTITY OF CONTAINERS, WHICH CAN BE STORED IN THE STORAGE MAGAZINES, LISTED IN THESE CHARTS.
2. CHART 1 ON THIS PAGE DESCRIBES THE STORAGE MAGAZINE GENERAL DIMENSIONS AND THE DIMENSIONS OF THE CONTAINER 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 2 ON PAGE 7 DETAILS THE QUANTITY OF CONTAINERS IN EACH TYPE OF MAGAZINE AND THE LAYOUT OF THE STACKS FOR EACH TYPE OF MAGAZINE. THE CHART SHOWS THE NUMBER OF UNITS IN EACH STACK LAYER AND THE LOCATION OF THE CONTAINER ON EACH LAYER.

(CONTINUED AT RIGHT)

**EXAMPLE:**

CHART 2 – "A" STACK CONFIGURATION  
MAGAZINE: STRADLEY

- LAYER NUMBER 1: 1 (J)
- LAYER NUMBER 2: 1 (J)
- LAYER NUMBER 3: 1 (J)
- LAYER NUMBER 4: 1 (J)

**EXPLANATION:**

- LAYER 1 (BOTTOM LAYER) HAS ONE CONTAINER IN THE "J" COLUMN.
- LAYER 2 (ABOVE LAYER 1) HAS ONE CONTAINER IN THE "J" COLUMN.
- LAYER 3 (ABOVE LAYER 2) HAS ONE CONTAINER IN THE "J" COLUMN.
- LAYER 4 (TOP LAYER) HAS ONE CONTAINER IN THE "J" COLUMN.

**CHART 2 - STACK CONFIGURATION**

MAGAZINE TYPE														
QUANTITY 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
	46	66	95	88	34	87	31	80	25	61	164	122	83	137
<b>"A" STACK CONFIGURATION</b>														
LAYER	CONTAINERS PER LAYER													
1	1(J)			1(J)	1(J)		1(J)		1(J)		1(J)	1(J)	1(J)	
2	1(J)			1(J)	1(J)		1(J)		1(J)		1(J)	1(J)	1(J)	
3	1(J)			1(J)	1(J)		1(J)		--		1(J)	1(J)	1(J)	
4	--			--	--		--		--		1(J)	1(J)	1(J)	
SINGLE STACK TOTAL	3			3	3		3		2		4	4	4	
NUMBER OF STACKS	12	17	25	24	9	24	9	24	9	24	28	24	17	28
"A" STACK TOTAL	36	51	75	72	27	72	27	72	18	48	112	96	68	112
<b>"B" STACK CONFIGURATION - TO THE LEFT OF "A" STACK</b>														
LAYER	CONTAINERS PER LAYER													
1	2(G-H)			2(G-H)	1(H)		1(H)		2(G-H)		2(G-H)	1(H)	2(G-H)	
2	1(H)			1(H)	1(H)		--		1(H)		2(G-H)	1(H)	1(H)	
3	1(H)			--	--		--		--		2(G-H)	1(H)	1(H)	
4	--			--	--		--		--		1(H)	1(H)	--	
SINGLE STACK TOTAL	4			3	2		1		3		7	4	4	
NUMBER OF STACKS	1	2	3	3	1	3	1	3	1	3	4	3	2	4
"B" STACK LF TOTAL	4	8	12	9	2	6	1	3	3	9	28	12	8	16
<b>"B" STACK CONFIGURATION - TO THE RIGHT OF "A" STACK</b>														
LAYER	CONTAINERS PER LAYER													
1	1(K)			1(K)	1(K)		1(K)		--		1(K)	1(K)	1(K)	1(K)
2	--			--	1(K)		--		--		1(K)	1(K)	--	--
3	--			--	--		--		--		1(K)	1(K)	--	--
4	--			--	--		--		--		--	--	--	--
SINGLE STACK TOTAL	1			1	2		1		0		4	3	1	1
NUMBER OF STACKS	1	2	3	3	1	3	1	3	0	0	4	3	2	4
"B" STACK RT TOTAL	1	2	3	3	2	6	1	3	0	0	16	9	2	4
<b>"C" STACK CONFIGURATION - LEFT SIDE</b>														
LAYER	CONTAINERS PER LAYER													
1	2(L-M)			2(L-M)	1(L)		1(L)		2(L-M)		2(L-M)	1(L)	1(L-M)	
2	1(L)			1(L)	1(L)		--		1(L)		2(L-M)	1(L)	1(L)	
3	1(L)			--	--		--		--		2(L-M)	1(L)	1(L)	
4	--			--	--		--		--		1(L)	1(L)	--	
SINGLE STACK TOTAL	4			3	2		1		3		7	4	4	
NUMBER OF STACKS	1			1			1		1		1	1	1	
"C" STACK LF TOTAL	4			3	2		1		3		7	4	4	
<b>"C" STACK CONFIGURATION - RIGHT SIDE</b>														
"C" STACK RT TOTAL	1			1			1		1		1	1	1	

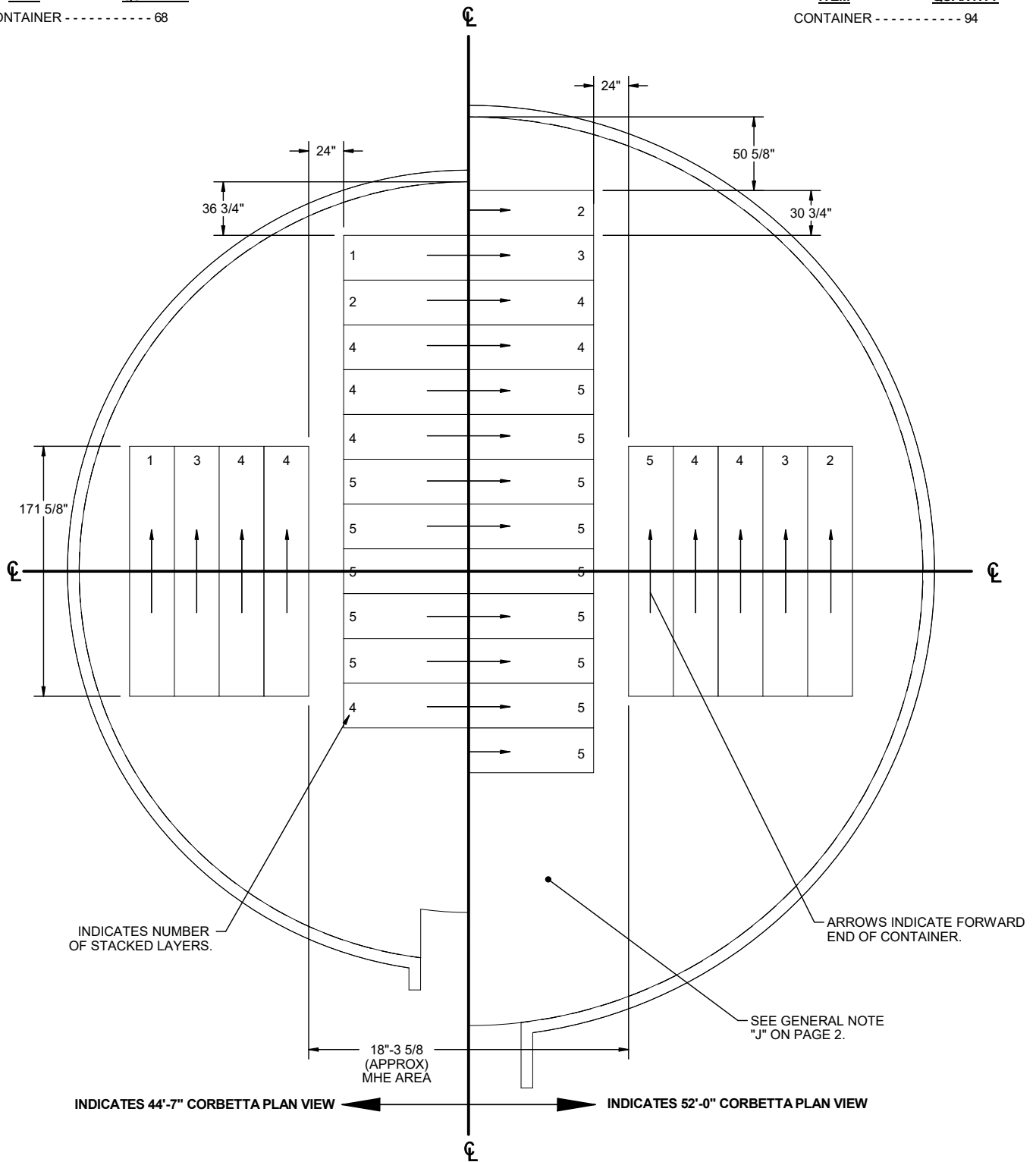
NOTE: REFER TO THE SPECIAL NOTES ON PAGE 6.

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

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

ITEM                      QUANTITY  
CONTAINER ----- 68

ITEM                      QUANTITY  
CONTAINER ----- 94



INDICATES NUMBER OF STACKED LAYERS.

ARROWS INDICATE FORWARD END OF CONTAINER.

SEE GENERAL NOTE "J" ON PAGE 2.

INDICATES 44'-7" CORBETTA PLAN VIEW

INDICATES 52'-0" CORBETTA PLAN VIEW

**PLAN VIEW**

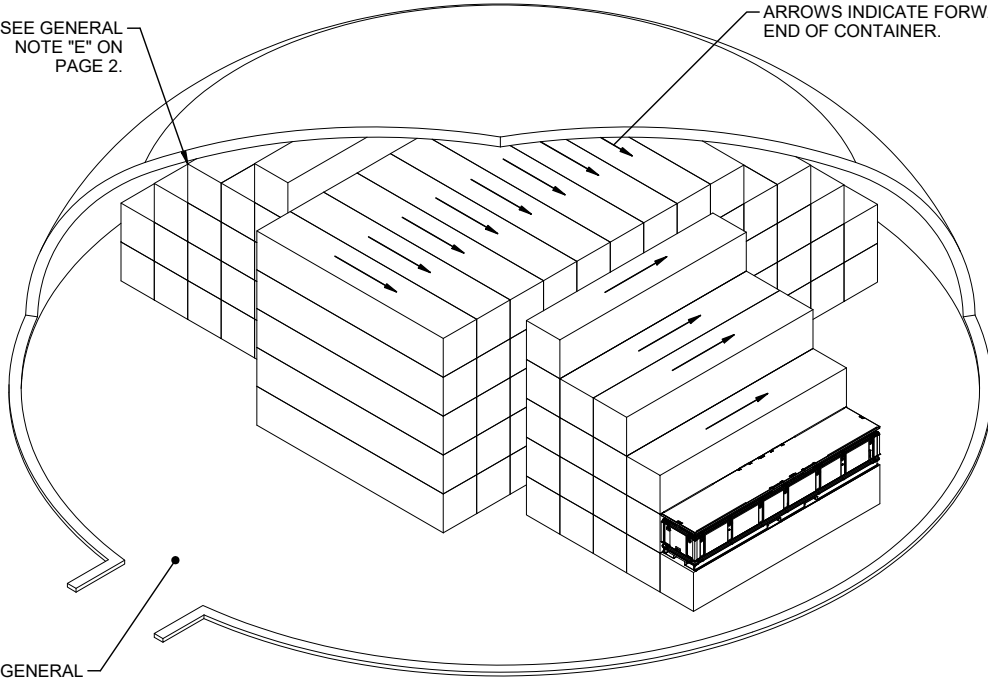
THE RIGHT HAND PLAN VIEW INDICATES A 52'-0" CORBETTA MAGAZINE, AND THE LEFT HAND PLAN VIEW INDICATES A 44'-7" CORBETTA MAGAZINE. BOTH SIZE MAGAZINE LAYOUTS ARE SYMMETRICAL AROUND THE VERTICAL CENTER LINE.



SEE GENERAL  
NOTE "E" ON  
PAGE 2.

ARROWS INDICATE FORWARD  
END OF CONTAINER.

SEE GENERAL  
NOTE "J" ON  
PAGE 2.



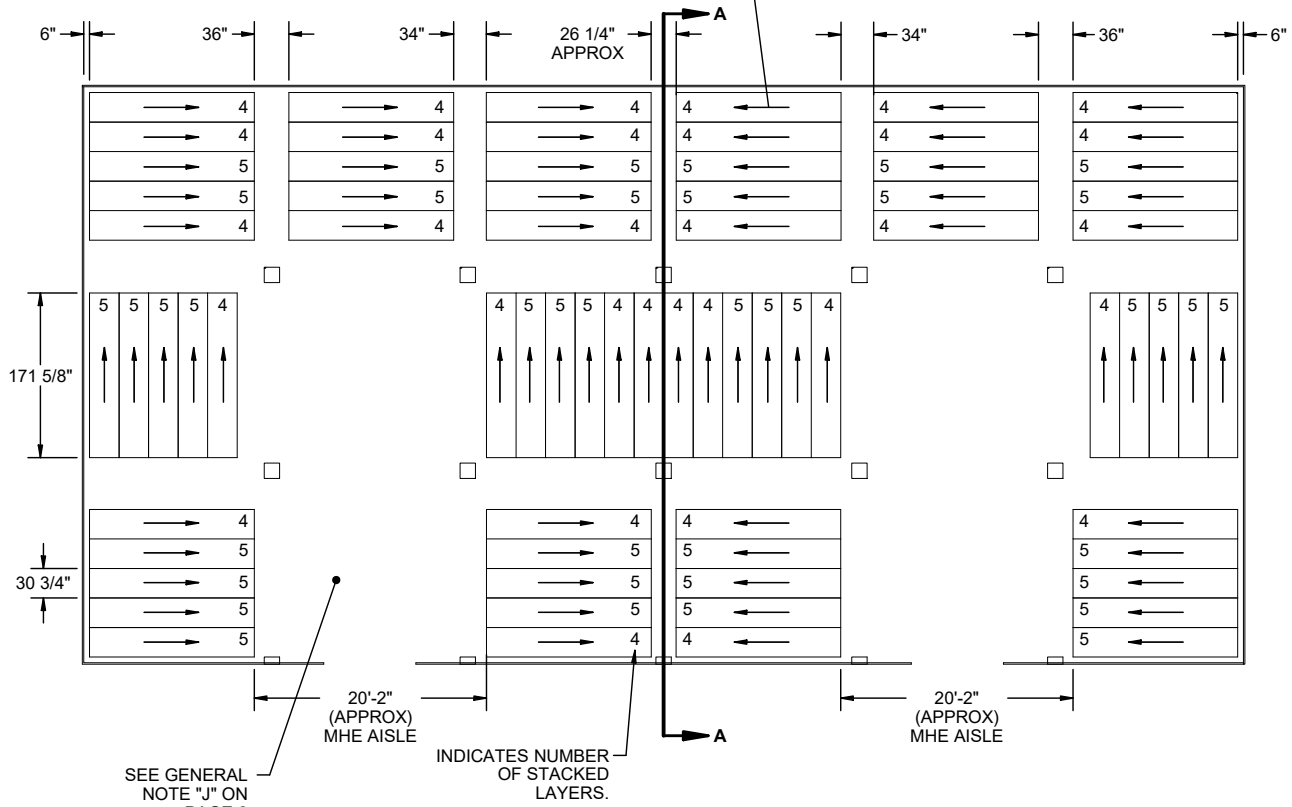
**ISOMETRIC VIEW**

(52' - 0" DIA MAGAZINE)

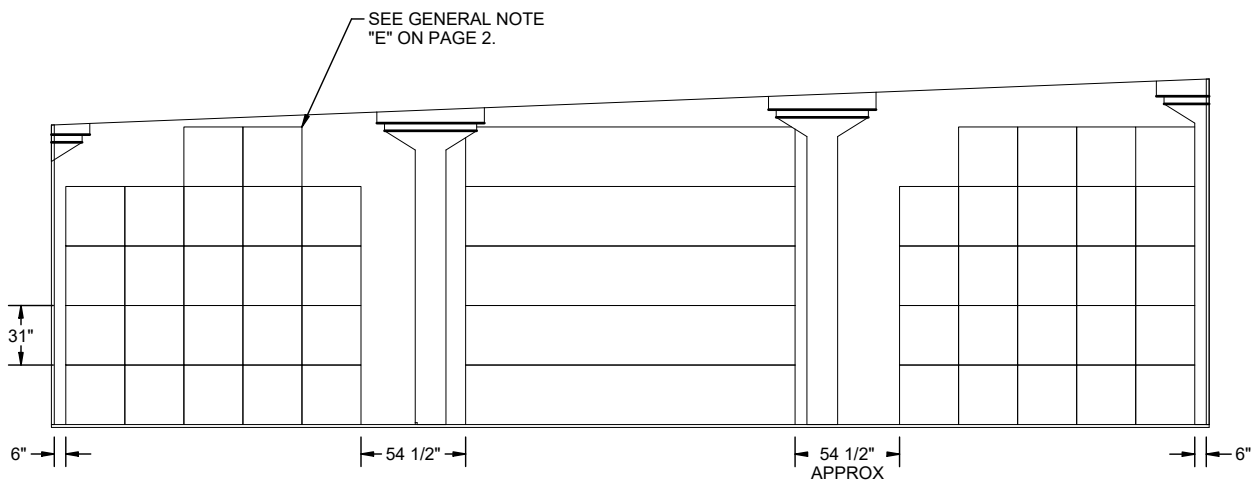
**STORAGE IN RECTANGULAR  
MAGAZINE**

**ITEM**                      **QUANTITY**  
CONTAINER ----- 328

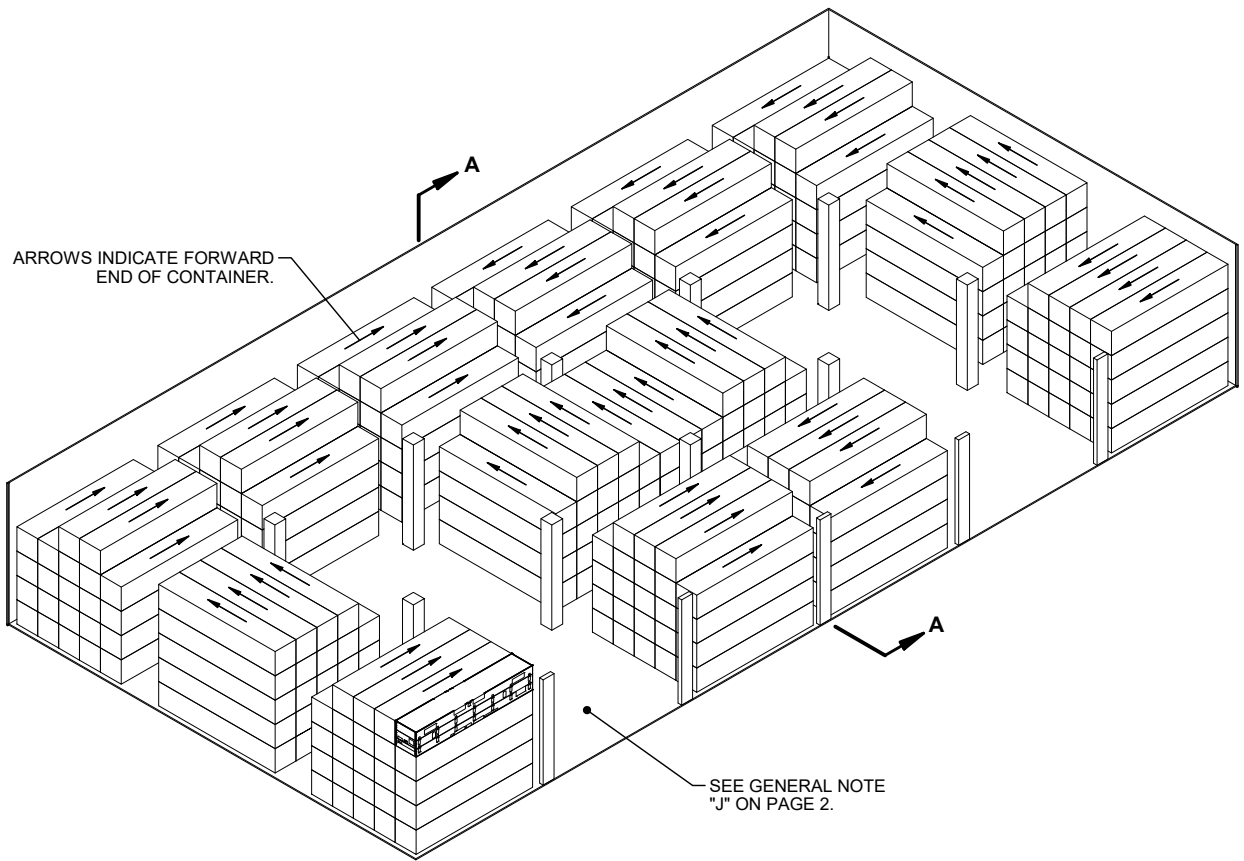
ARROWS INDICATE FORWARD  
END OF CONTAINER



**PLAN VIEW**

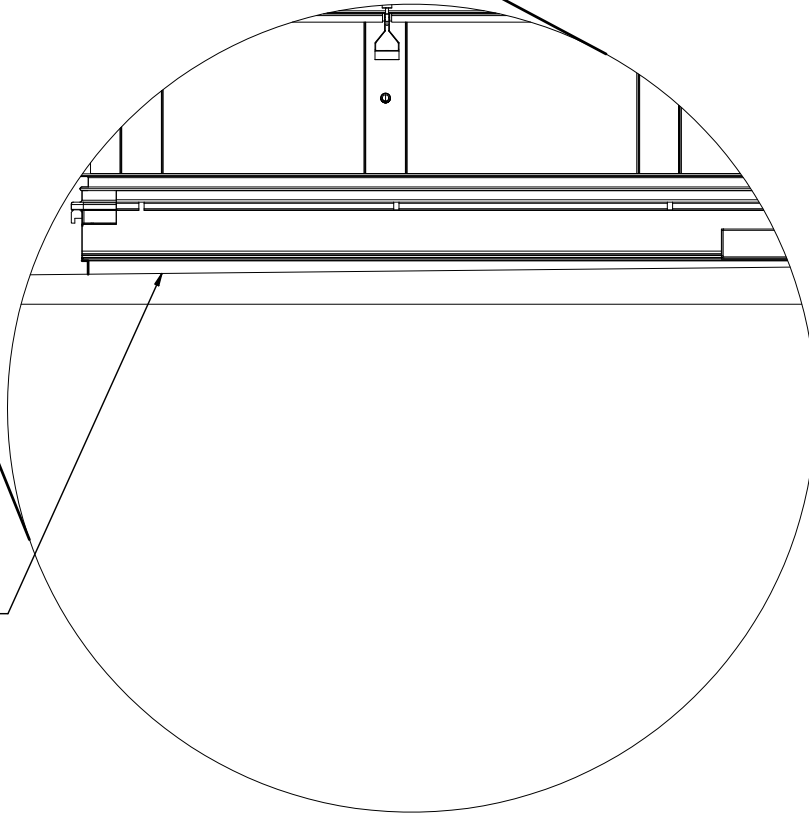
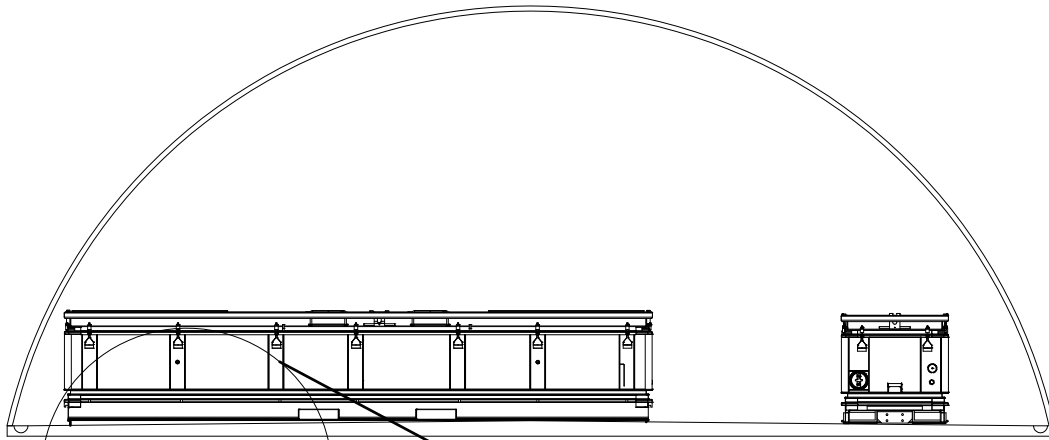


**SECTION A-A**



**ISOMETRIC VIEW**

(50'-0" MAGAZINE)



SHIM (AS REQD TO PROVIDE A LEVEL BEARING SURFACE FOR THE CONTAINER SKIDS). POSITION UNDER CONTAINER SKIDS. SEE GENERAL NOTE "P" ON PAGE 2.