
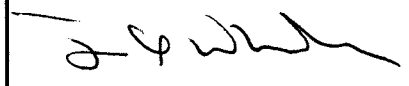
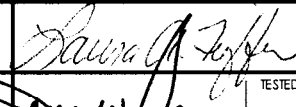



# STORAGE IN APPROVED MAGAZINES OF STANDARD MISSILE, RIM-66, PACKED 1 PER MK372 SHIPPING AND STORAGE CONTAINER

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## U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY FIELD SUPPORT COMMAND		<b>CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 12.</b>					
 AMSTA-AR-WEP-RP		<b>DO NOT SCALE</b>		<b>FEBRUARY 2005</b>			
		ENGINEER OR TECHNICIAN	BASIC REV.	<b>MELVIN SIX</b>			
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND   U.S. ARMY DEFENSE AMMUNITION CENTER		TRANSPORTATION ENGINEERING DIVISION					
		VALIDATION ENGINEERING DIVISION	TESTED	CLASS	DIVISION	DRAWING	FILE
		ENGINEERING DIRECTORATE			19	48	8803

## GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO LOADS OF STANDARD MISSILE, RIM-66 PACKED IN MK372 CONTAINER. SUBSEQUENT REFERENCE TO CONTAINER HEREIN MEANS CONTAINER WITH AMMUNITION ITEMS. SEE NAVAL SEA SYSTEMS COMMAND DRAWING OR-68/21B AND PAGE 3 FOR DETAILS OF THE CONTAINER.
- C. **CAUTION:** THIS ITEM IS IN A "PROPULSIVE STATE" AND MUST BE STORED WITH THE FORWARD END FACING TOWARD THE SAME MAGAZINE SIDEWALL OR THE REAR WALL AS INDICATED BY THE DIRECTIONAL ARROWS ON THE STORAGE VIEWS.
- D. 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 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.
- 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 CONTAINERS MUST NOT CONTACT THE WALLS OF A MAGAZINE. THEREFORE, CONTAINERS WILL BE STORED A MINIMUM OF 6" FROM THE SIDEWALL OR CURVATURE OF THE MAGAZINE AS APPLICABLE. TO PROVIDE FOR THIS MANDATORY CLEARANCE REQUIREMENT, UNITS MAY BE ELIMINATED FROM THE DEPICTED STORAGE PATTERN AS NECESSARY.
- G. AISLE DIMENSIONS SHOWN FOR STORAGE PROCEDURES IN MAGAZINES MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS, AND/OR AVAILABLE MATERIALS HANDLING EQUIPMENT (MHE). HOWEVER, A 24" MINIMUM INSPECTION AISLE MUST BE MAINTAINED AT THE FORWARD END OF THE CONTAINERS WHERE HUMIDITY INDICATORS ARE LOCATED.
- H. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE AS PRESCRIBED BY LOCAL STANDARDS 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. IF THE QUANTITY OF CONTAINERS 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.
- L. 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.

(CONTINUED AT RIGHT)

## (GENERAL NOTES CONTINUED)

- M. PORTIONS OF THE MAGAZINES, SUCH AS SIDE WALLS, END WALLS, AND ROOFS HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- N. 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 25.4 MM, AND ONE POUND EQUALS 0.454 KG.
- O. OTHER COMPATIBLE ITEMS MAY BE STORED IN A MAGAZINE, WHICH IS PARTIALLY FILLED WITH THE DESIGNATED ITEM.
- P. THE USE OF NOMINAL SIZE 1" X 6" X 28" OR 2" X 6" X 32" FLOOR DUNNAGE UNDER EACH END AND THE CENTER OF THE FIRST-LAYER CONTAINER IS OPTIONAL, AND IS SHOWN ON PAGES 4 THROUGH 6 AS AN EXAMPLE ONLY. THE PURPOSE OF FLOOR DUNNAGE IS TO HELP KEEP THE RUNNERS OF A 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. IN IG-LOO, ARCH TYPE AND STRADLEY MAGAZINES THAT HAVE FLOORS SLOPING TOWARD THE SIDEWALLS, THE DEPICTED STORAGE PATTERNS INCLUDE CONTAINER STACKS THAT STRADDLE THE RIDGE OF THE FLOOR AT THE CENTER OF THE MAGAZINE. AT THESE LOCATIONS 2" THICK MATERIAL MUST BE USED FOR FLOOR DUNNAGE UNDER THESE STACKS TO PREVENT THE BOTTOM OF THE CONTAINERS FROM CONTACTING THE CONCRETE FLOOR. SHIM MATERIAL OF VARYING THICKNESSES OR THICKER FLOOR DUNNAGE MAY BE USED AS REQUIRED UNDER THE LOAD BEARING LOCATIONS AT THE ENDS OF THE FIRST LAYER CONTAINERS TO ACHIEVE SOUND AND ACCEPTABLE STABLE STACKS. SEE THE "FLOOR DUNNAGE DETAIL" ON PAGE 12 AND THE VIEWS ON PAGES 4 THROUGH 6 FOR EXAMPLES.
- Q. 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.
- R. 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.

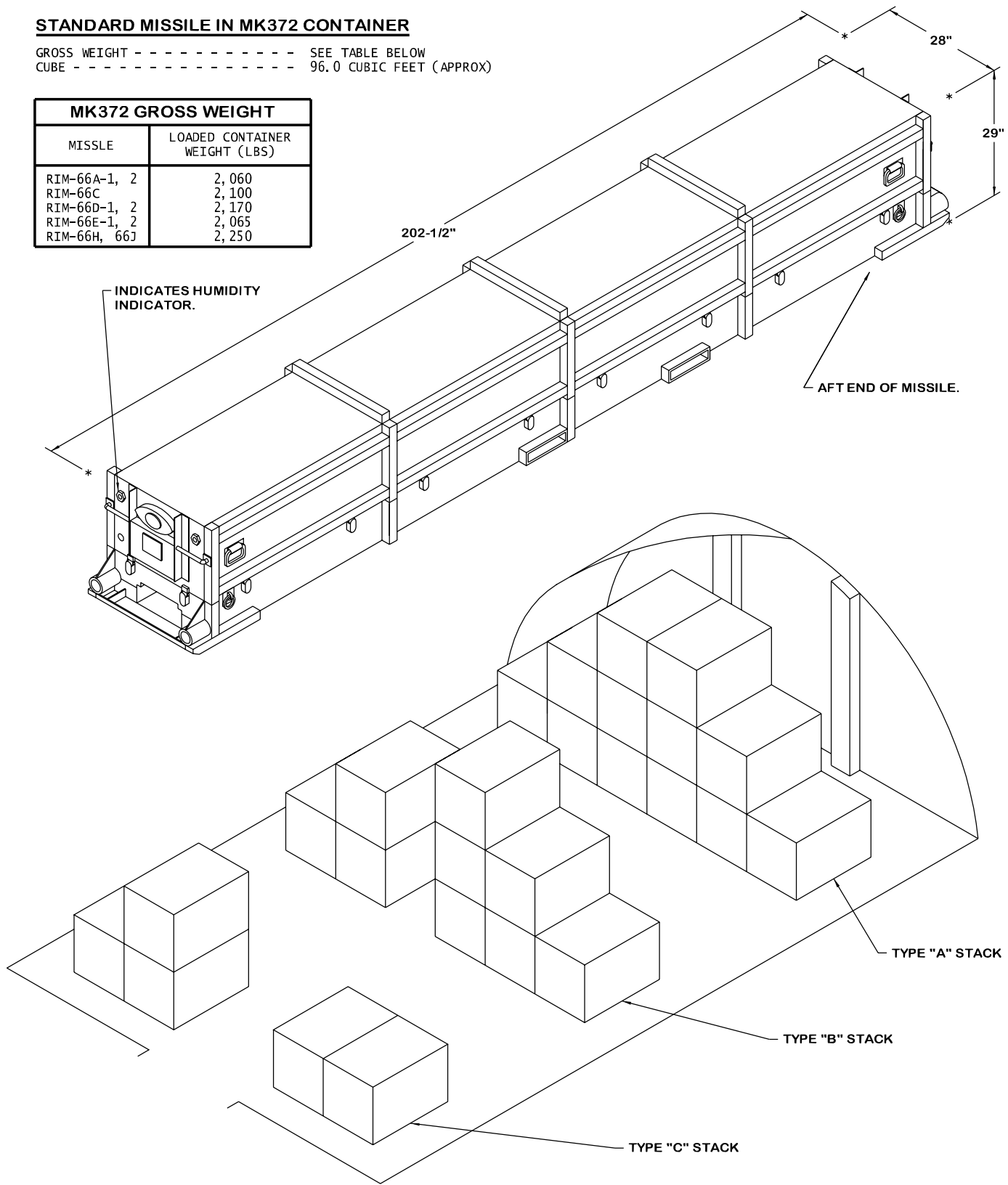
## MATERIAL SPECIFICATIONS

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

**STANDARD MISSILE IN MK372 CONTAINER**

GROSS WEIGHT - - - - - SEE TABLE BELOW  
 CUBE - - - - - 96.0 CUBIC FEET (APPROX)

MK372 GROSS WEIGHT	
MISSILE	LOADED CONTAINER WEIGHT (LBS)
RIM-66A-1, 2	2,060
RIM-66C	2,100
RIM-66D-1, 2	2,170
RIM-66E-1, 2	2,065
RIM-66H, 66J	2,250

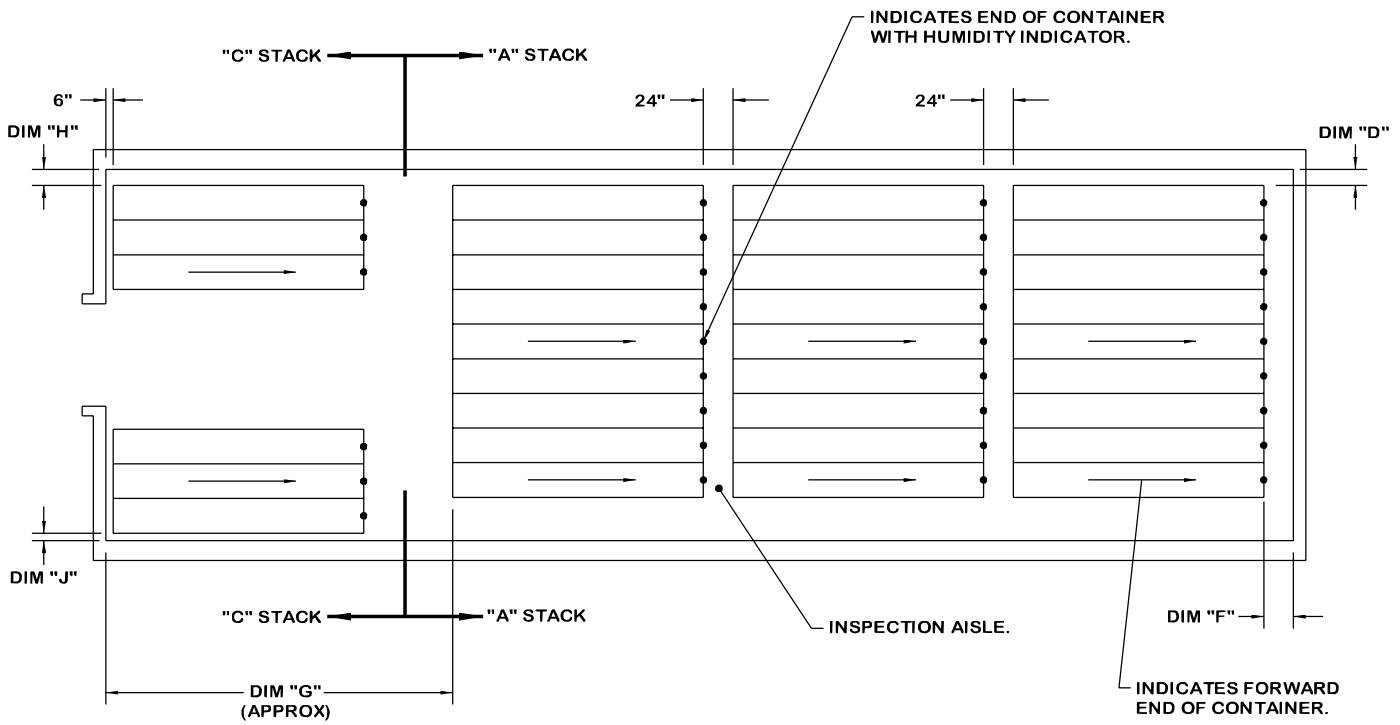


**STACK IDENTIFICATION**

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 EXTENDS FULL WIDTH AND HEIGHT OF THE MAGAZINE, AND IS ONE ITEM/UNIT LONG, BUT HAS AN AISLE AT OR NEAR THE CENTER OF THE WIDTH OF THE STACK.

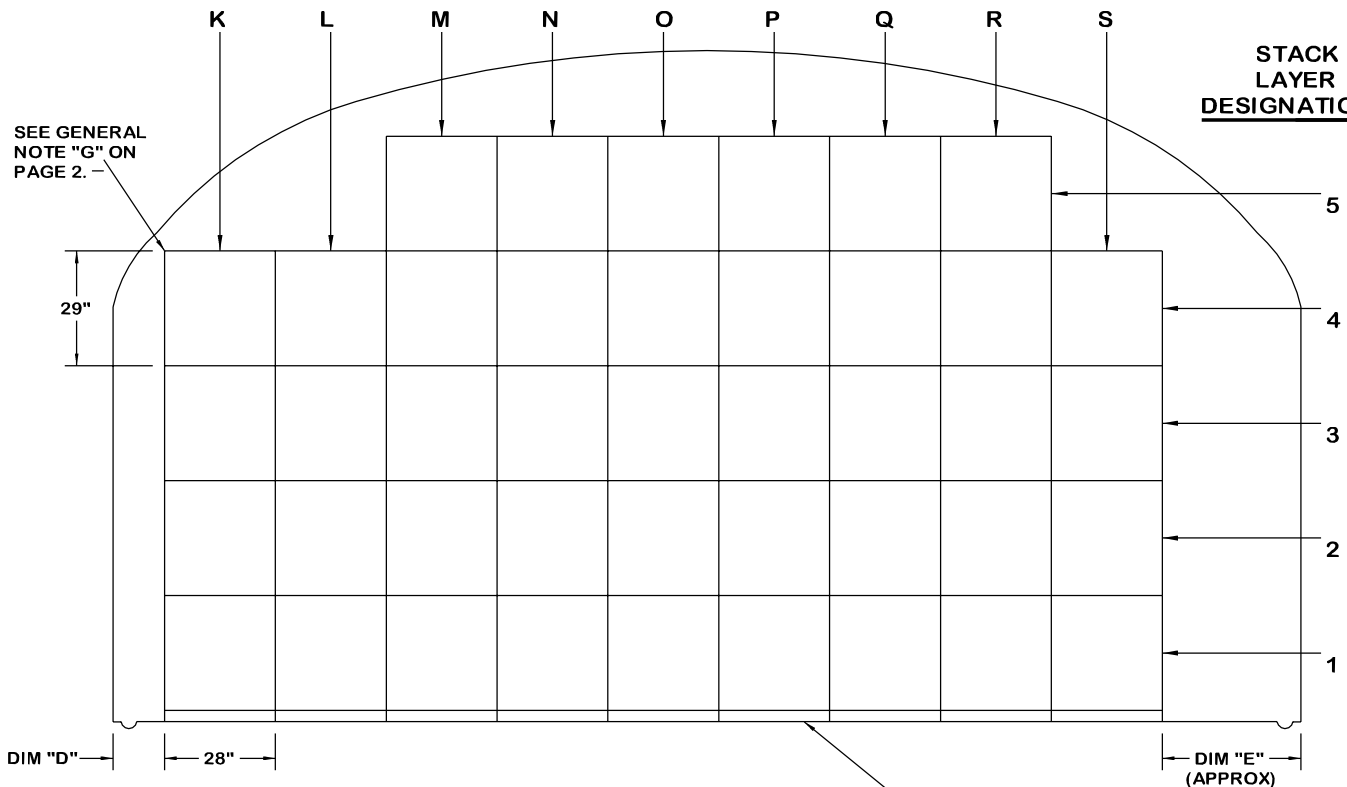
A TYPE "C" STACK IS IDENTIFIED AS A GROUP OF ITEMS/UNITS WHICH IS ONE ITEM/UNIT LONG AND CONSISTS OF PARTIAL STACKS ON EACH SIDE OF THE MAGAZINE, USUALLY ONE ITEM/UNIT HIGH ON ONE SIDE OF THE MAGAZINE.



**NOTE: FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 1 ON PAGE 7.**

**STACK COLUMN DESIGNATIONS**

**STACK LAYER DESIGNATIONS**



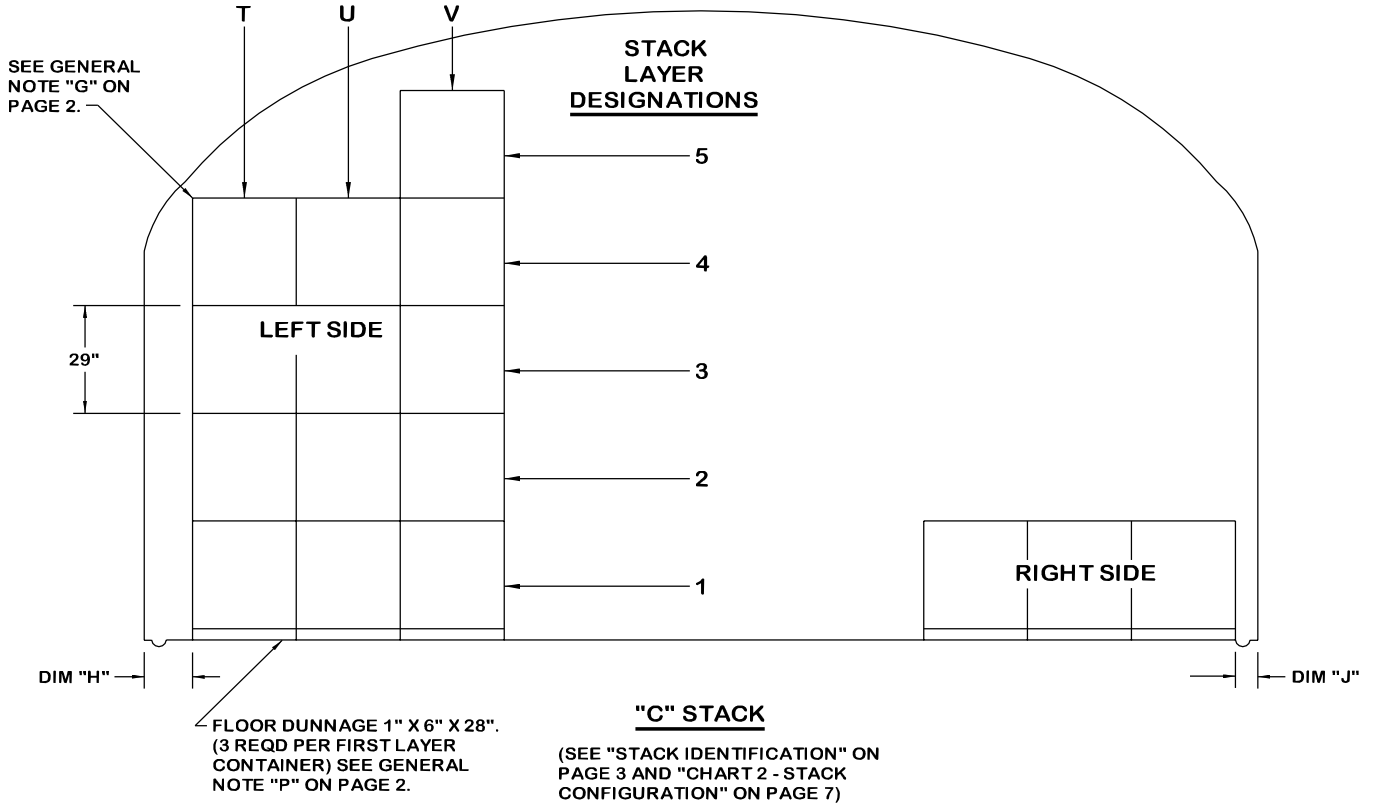
**"A" STACK**

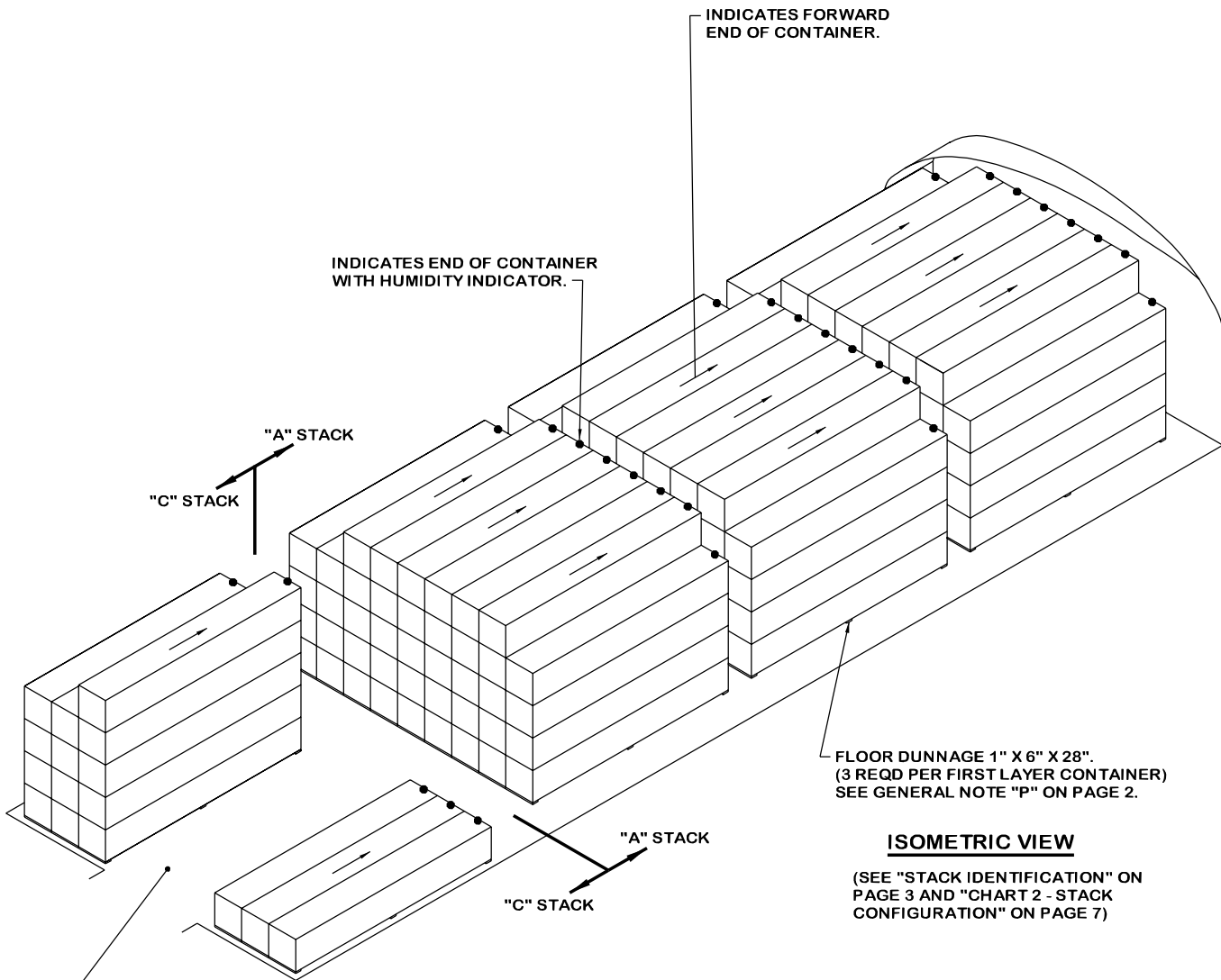
(SEE "STACK IDENTIFICATION" ON PAGE 3 AND "CHART 2 - STACK CONFIGURATION" ON PAGE 7)

FLOOR DUNNAGE 1" X 6" X 28".  
(3 REQD PER FIRST LAYER CONTAINER)  
SEE GENERAL NOTE "P" ON PAGE 2.

**STACK COLUMN DESIGNATIONS**

**NOTE: FOR IDENTIFICATION OF LETTERED DIMENSIONS REFER TO CHART 1 ON PAGE 7.**





FLOOR DUNNAGE 1" X 6" X 28".  
 (3 REQD PER FIRST LAYER CONTAINER)  
 SEE GENERAL NOTE "P" ON PAGE 2.

**ISOMETRIC VIEW**

(SEE "STACK IDENTIFICATION" ON  
 PAGE 3 AND "CHART 2 - STACK  
 CONFIGURATION" ON PAGE 7)

SEE GENERAL NOTE  
 "J" ON PAGE 2.

**CHART 1 - DIMENSIONS\***

MAGAZINE DIMENSIONS	MAGAZINE TYPE													
	IGLOO			26'-6"	ARCH 12' 25'-0"	ARCH 11'		ARCH 10'		OV 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"	11'-0"	25'-0"	11'-0"	24'-10"	25'-0"	25'-0"	24'-11"
HEIGHT		12'-9"		12'-9"	12'-1-3/4"						14'-5"	14'-0"	13'-10"	13'-6"
DIMENSIONS	CONTAINER SPACING DIMENSIONS													
DIM "D" (A STACK LEFT)	14-1/2"			17-1/2"	12"	20"		36-1/2"		14-1/2"	13"	18"	10"	
DIM "E" (A STACK RIGHT)	51-1/2"			48-1/2"	36"	56"		66"		45-1/2"	35"	30"	37"	
DIM "F" (A STACK REAR)	24"			24"	24"	32"		24"		24"	24"	24"	24"	
DIM "G" (MHE AISLE APPROX)	21'-10"	22'-11"	24'-4"	23'-10"	21'-1"	23'-4"	20'-5"	22'-8"	21'-1"	23'-4"	32'-4"	23'-4"	21'-3"	32'-4"
DIM "H" (C STACK LEFT)	14-1/2"			17-1/2"	12"	20"		17"		14-1/2"	13"	18"	10"	
DIM "J" (C STACK RIGHT)	6"			6"	6"	6"		6"		15-1/2"	6"	6"	6"	

\* SEE CHART 2 - STACK CONFIGURATION AND SPECIAL NOTES BELOW.

**CHART 2 - STACK CONFIGURATION**

QUANTITY PER MAGAZINE	MAGAZINE TYPE													
	40'-4"L	60'-6"L	81'-0"L	ARCH 12' 26'-6"W	ARCH 12' X 25' L 40'-0"L 80'-0"L	ARCH 11' 40'-0"L 80'-0"L	ARCH 10' 40'-0"L 80'-0"L	OV ARCH	STRADLEY	STEEL ARCH 59'-0"L 89'-0"L	ARCH	89'-0"L	ARCH	89'-0"L
	42	73	104	104	40	98	35	85	29	69	139	142	87	123
"A" STACK CONFIGURATION														
LAYER	CONTAINERS PER LAYER													
1	9 (K-S)			9 (K-S)	9 (K-S)		8 (K-R)		7 (K-Q)		9 (K-S)	9 (K-S)	9 (K-S)	9 (K-S)
2	8 (L-S)			8 (L-S)	8 (L-S)		7 (L-R)		7 (K-Q)		9 (K-S)	9 (K-S)	9 (K-S)	9 (K-S)
3	8 (L-S)			8 (L-S)	7 (L-R)		7 (L-R)		6 (L-Q)		9 (K-S)	9 (K-S)	8 (L-S)	8 (L-S)
4	6 (M-R)			6 (M-R)	5 (M-Q)		3 (N-P)		--		9 (K-S)	9 (K-S)	7 (L-R)	6 (M-R)
5	--			--	--		--		--		5 (M-Q)	6 (M-R)	4 (N-Q)	5 (N-Q)
SINGLE STACK TOTAL	31			31	29		25		20		41	42	37	37
NUMBER OF STACKS	1	2	3	3	1	3	1	3	1	3	3	3	2	3
STACK TOTAL	31	62	93	93	29	87	25	75	20	60	123	126	74	111
"C" STACK CONFIGURATION - LEFT SIDE														
LAYER	CONTAINERS PER LAYER													
1	3 (T-V)			3 (T-V)		3 (T-V)		3 (T-V)		3 (T-V)	3 (T-V)	3 (T-V)	3 (T-V)	3 (T-V)
2	2 (U-V)			2 (U-V)		2 (U-V)		2 (U-V)		3 (T-V)	3 (T-V)	3 (T-V)	3 (T-V)	3 (T-V)
3	2 (U-V)			2 (U-V)		2 (U-V)		2 (U-V)		1 (V)	3 (T-V)	3 (T-V)	2 (U-V)	2 (U-V)
4	1 (W)			1 (W)		--		--		--	3 (T-V)	3 (T-V)	2 (U-V)	1 (W)
5	--			--		--		--		--	1 (V)	1 (V)	--	--
STACK TOTAL	8			8		7		6		13	13	10	9	
"C" STACK CONFIGURATION - RIGHT SIDE														
STACK TOTAL	3	3	3	3	3	3	3	3	3	3	3	3	3	3

**SPECIAL NOTES:**

- THE FOLLOWING NOTES AND CHART 1 AND CHART 2 ABOVE ARE PRESENTED AS GUIDANCE IN THE SELECTION OF A STORAGE PATTERN, AND IN DETERMINING THE QUANTITY OF UNITS WHICH CAN BE LOADED IN THE STORAGE MAGAZINES LISTED IN CHARTS 1 AND 2.
- CHART 1 ABOVE DESCRIBES THE STORAGE MAGAZINE GENERAL DIMENSIONS AND THE DIMENSIONS OF THE CONTAINER SPACING WITHIN THE VARIOUS STORAGE MAGAZINES.
- DIMENSIONS "A", "B" AND "C" HAVE BEEN OMITTED TO AVOID CONFUSION WITH STACKS "A", "B" AND "C".
- CHART 2 ABOVE 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 CONTAINERS IN EACH STACK LAYER AND THE LOCATION OF THE CONTAINERS ON EACH LAYER.

**EXAMPLE: CHART 2 - "A" STACK CONFIGURATION - MAGAZINE: IGLOO**

- LAYER NUMBER 1: 9 (K-S)  
 LAYER NUMBER 2: 8 (L-S)  
 LAYER NUMBER 3: 8 (L-S)  
 LAYER NUMBER 4: 6 (M-R)  
 LAYER NUMBER 5: --

**EXPLANATION:**

LAYER 1 HAS NINE CONTAINERS EACH FROM THE "K" COLUMN (AGAINST THE LEFT SIDE OF THE MAGAZINE) TO THE "S" COLUMN (AGAINST THE RIGHT SIDE OF THE MAGAZINE).

LAYERS 2 AND 3 (ON TOP OF LAYER 1) HAVE EIGHT CONTAINERS EACH FROM THE "L" COLUMN (THE SECOND CONTAINER FROM THE LEFT ON THE BOTTOM LAYER) TO THE "S" COLUMN.

LAYER 4 (ON TOP OF LAYER 3) HAS SIX CONTAINERS FROM THE "M" COLUMN (THE THIRD CONTAINER FROM THE LEFT ON THE BOTTOM LAYER) TO THE "R" COLUMN (THE SECOND CONTAINER FROM THE RIGHT ON THE BOTTOM LAYER).

LAYER 5 (ON TOP OF LAYER 4) HAS NO CONTAINERS.

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

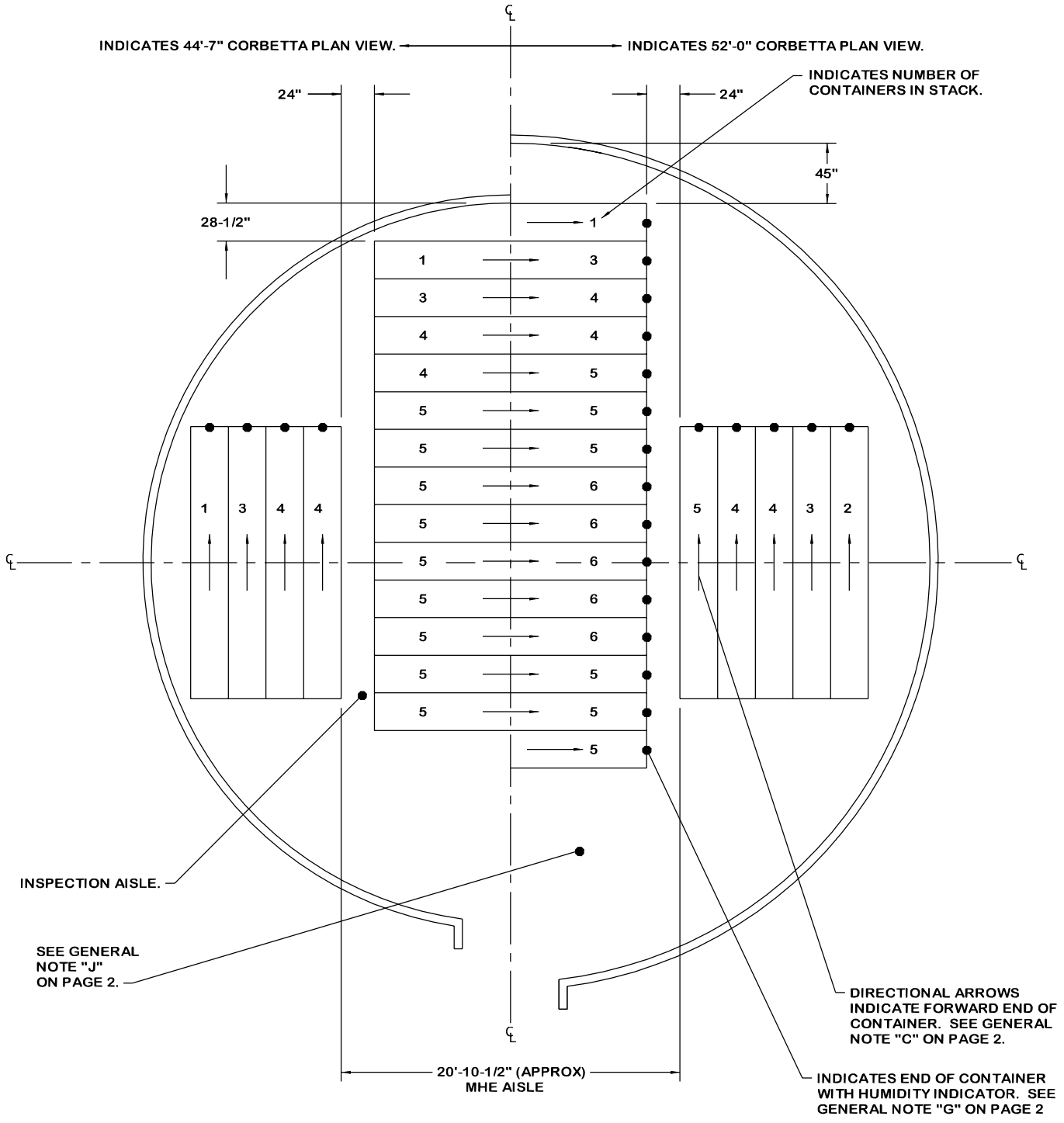
(15'-2-1/4" HIGH)

ITEM	QUANTITY
CONTAINERS -----	81

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

(16'-2-1/8" HIGH)

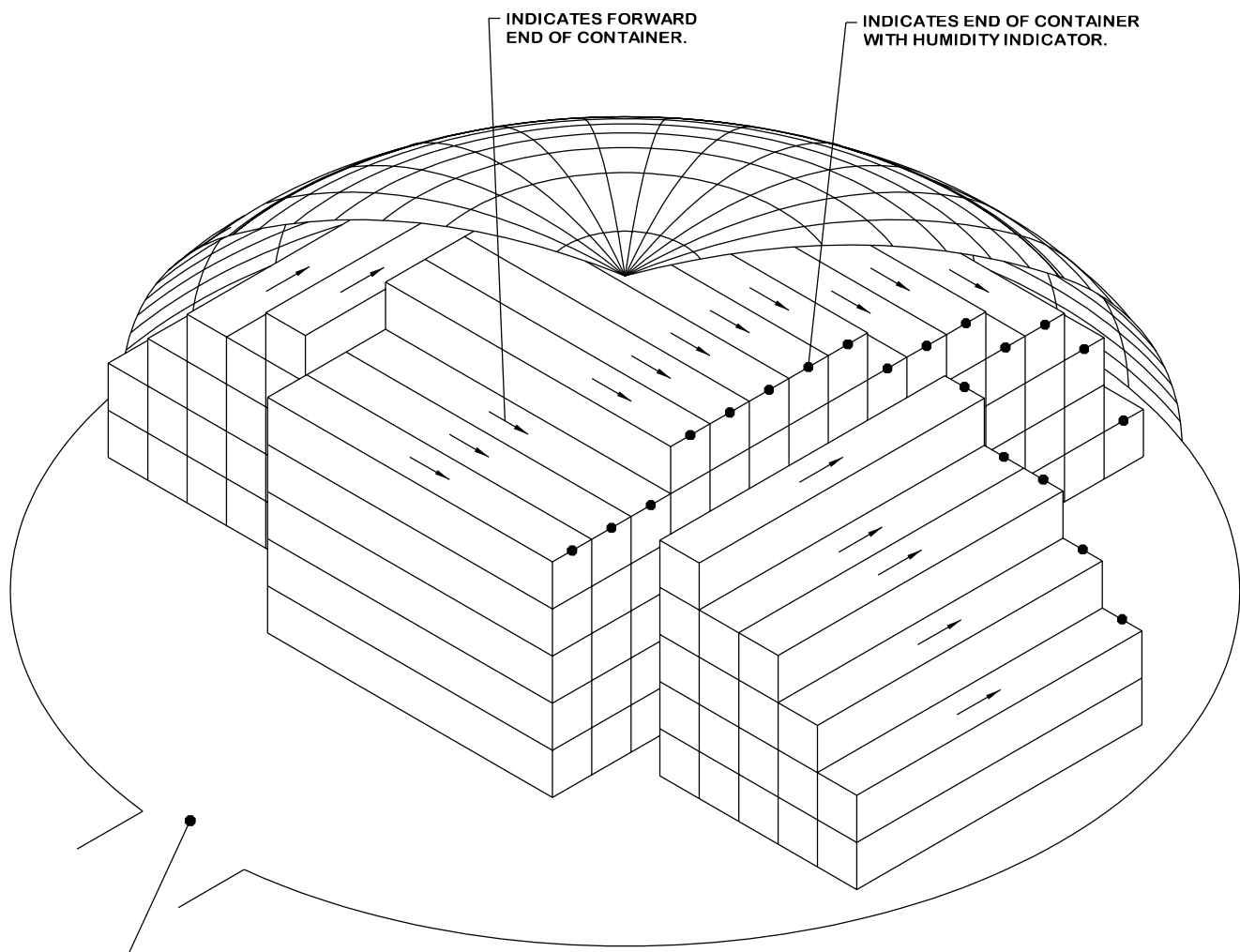
ITEM	QUANTITY
CONTAINERS -----	108



**PLAN VIEW**

NOTE: ONE-HALF OF THE 44'-7" AND 52'-0" CORBETTA MAGAZINES ARE SHOWN, THE OTHER HALF OF THE MAGAZINES ARE MIRROR IMAGES OF WHAT IS SHOWN.

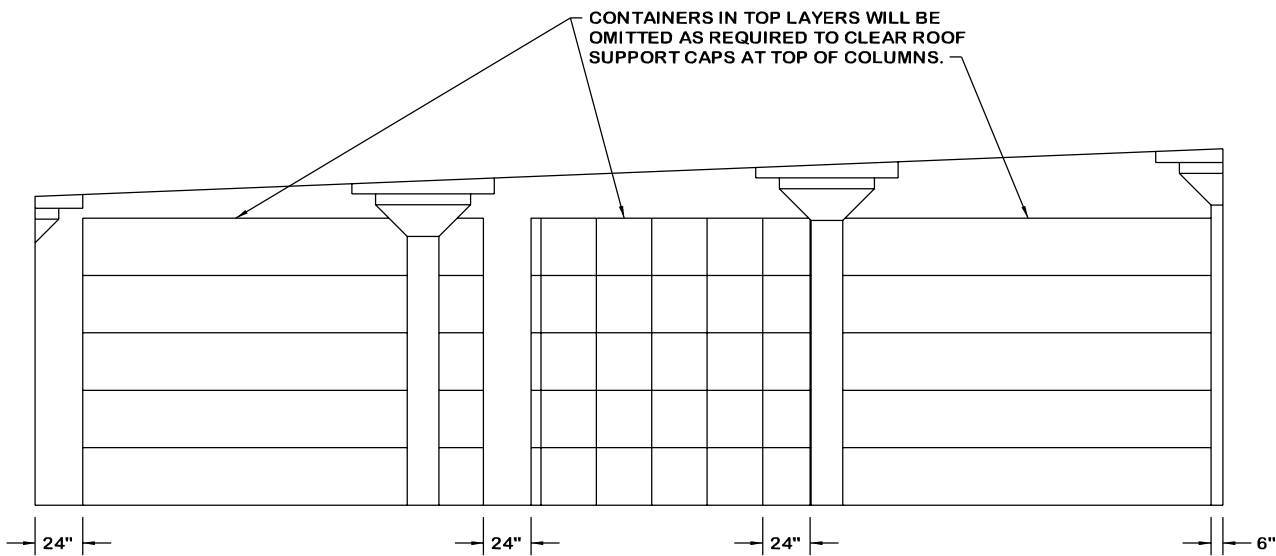
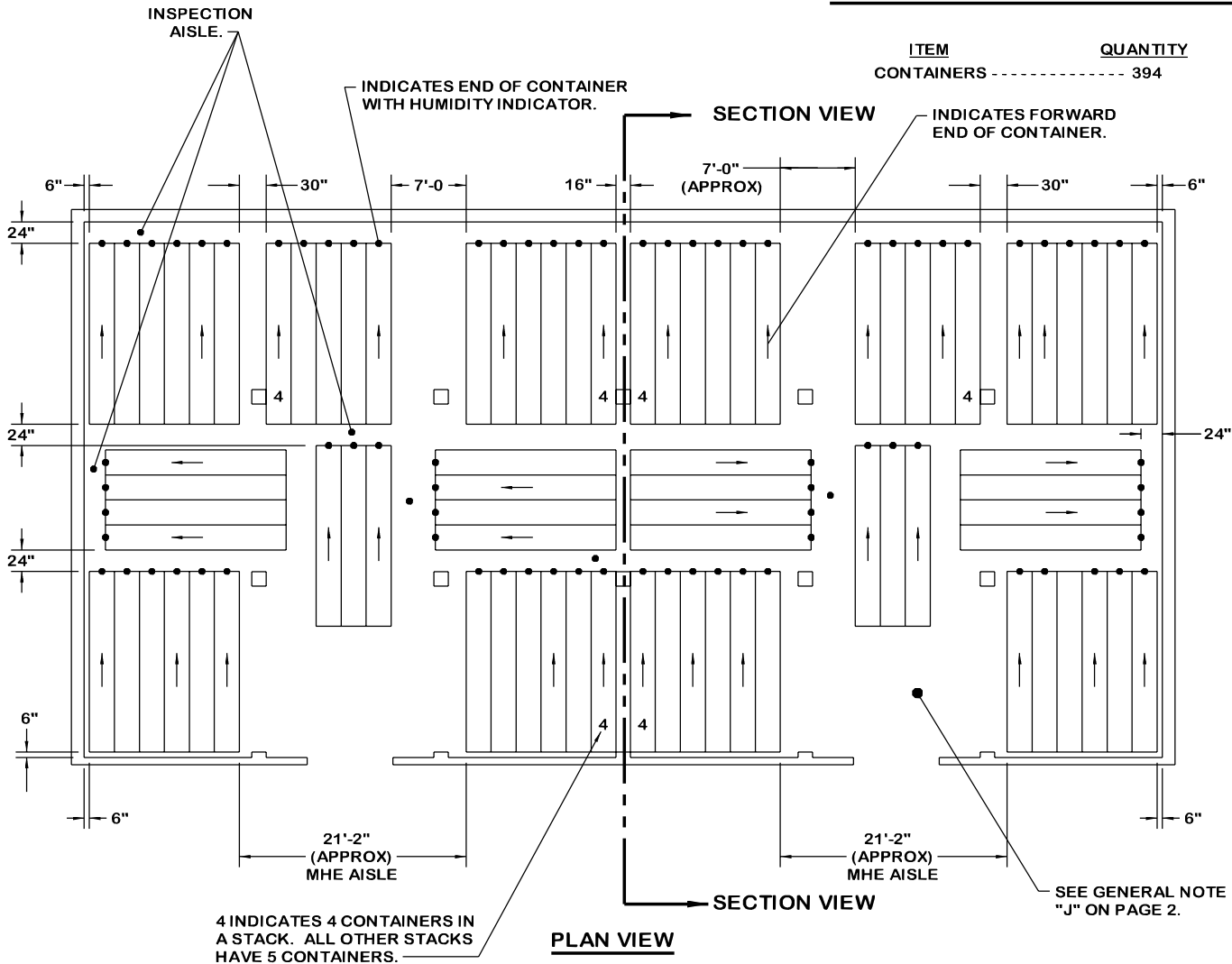




**ISOMETRIC VIEW**

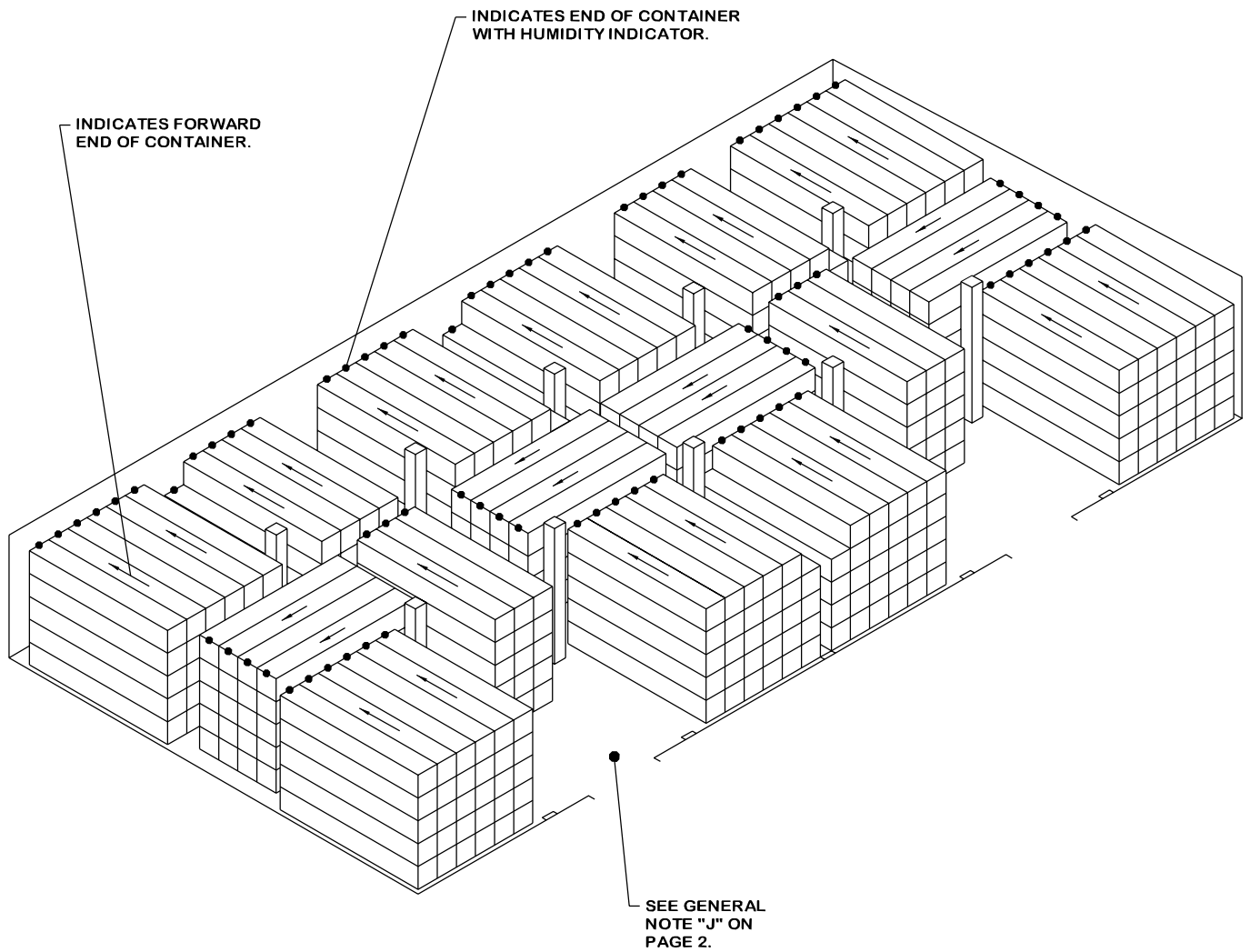
A 52'-0" CORBETTA MAGAZINE IS DEPICTED ABOVE. THE OPTIONAL FLOOR DUNNAGE IS NOT SHOWN IN THE VIEW ABOVE, BUT IS SHOWN ON PAGES 4 THROUGH 6 AS AN EXAMPLE.

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



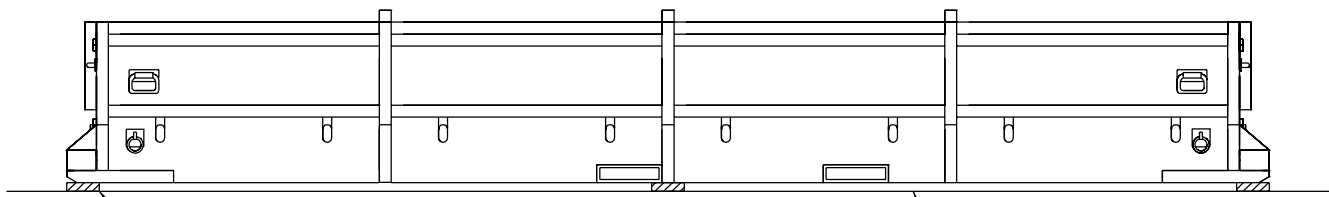
**SECTION VIEW**

THE OPTIONAL FLOOR DUNNAGE IS NOT SHOWN IN THE VIEW ABOVE, BUT IS SHOWN ON PAGES 4 THROUGH 6 AS AN EXAMPLE.



**ISOMETRIC VIEW**

THE OPTIONAL FLOOR DUNNAGE IS NOT SHOWN IN THE VIEW ABOVE, BUT IS SHOWN ON PAGES 4 THROUGH 6 AS AN EXAMPLE.



FLOOR DUNNAGE 1" OR 2" (SHOWN) X 6" X 28"  
(3 OPTIONAL PER FIRST LAYER CONTAINER).

INDICATES MAGAZINE FLOOR.

**FLOOR DUNNAGE LOACATION**

SEE NOTE "P" ON PAGE 2.