

# STORAGE IN APPROVED STRUCTURES OF SMALL QUANTITIES / LOTS OF AMMUNITION, INCLUDING USE OF STORAGE AIDS

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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).
- B. THE STORAGE PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO FULL PALLET UNITS (ITEMS UNITIZED ONTO PALLETS), LESS-THAN-FULL PALLETS (ITEMS NOT UNITIZED ONTO PALLETS) AND SINGLE PACKAGE ITEMS OF AMMUNITION AND COMPONENTS. ALSO, FULL PALLET UNITS AS SHOWN HEREIN MAY CONTAIN FROM ONE LOT TO AS MANY DIFFERENT LOTS AS PACKAGES ON THE PALLET. MIXED-LOT-PALLET-UNITS MAY BE STORED AS RECEIVED IF ALL ITEMS IN THE UNIT HAVE THE SAME NATIONAL STOCK NUMBER (NSN) AND THE SAME CONDITION CODE.
- C. THIS DOCUMENT DEPICTS TYPICAL STORAGE PATTERNS IN A 60'-8" L X 26'-6" W X 12'-9" H EARTH COVERED IGLOO MAGAZINE AND AN 80'-0" L X 25'-0" W X 14'-0" H EARTH COVERED STRADLEY MAGAZINE. THE STORAGE PATTERNS INCLUDE THE USE OF THE STORAGE AIDS SHOWN ON PAGE 4. THESE PROCEDURES ARE ALSO TYPICAL FOR STORAGE OF AMMUNITION ITEMS IN OTHER TYPES OF APPROVED STORAGE STRUCTURES. MINOR ADJUSTMENTS MAY BE MADE TO FACILITATE STORAGE IN OTHER TYPES OF STRUCTURES, HOWEVER, THE BASIC PRINCIPLES AS DEPICTED HEREIN WILL BE COMPLIED WITH. ACCESS AISLES FOR MATERIALS HANDLING EQUIPMENT (MHE) MUST BE NOT LESS THAN 48" WIDE. INSPECTION/INVENTORY AISLES SHOULD BE A MINIMUM OF 24" WIDE.
- D. AMMUNITION ITEMS STORED FOLLOWING THE PROCEDURES SPECIFIED IN THIS DRAWING MAY BE STORED IN THE SAME MAGAZINE AS AMMUNITION ITEMS WHICH ARE STORED IN ACCORDANCE WITH PROCEDURES SPECIFIED IN OTHER APPROVED STORAGE DRAWINGS (I.E., QUANTITIES OF STACKED FULL PALLET UNITS), PROVIDED THE REQUIREMENTS OF ALL DRAWINGS CONCERNED ARE MET.
- E. THE STORAGE PATTERNS SHOWN ON PAGES 6 THROUGH 9 AND PAGES 16 THROUGH 18 ARE BASED ON THE USE OF FORK LIFT TRUCKS AND/OR HAND PALLET TRUCKS (PALLET JACKS). AISLE DIMENSIONS MAY BE ADJUSTED TO SUIT LOCAL CONDITIONS, VARIATIONS IN PALLET OR SHELVING UNIT DIMENSIONS, AND/OR AVAILABLE MHE.
- F. STORAGE AIDS OTHER THAN THOSE SHOWN ON PAGE 4 MAY BE USED, HOWEVER, THE APPROVED STACKING METHODS SPECIFIED ON PAGE 5 WILL BE FOLLOWED.
- G. THE USE OF 4-WAY ENTRY PALLETS IS PREFERRED TO FACILITATE HANDLING OPERATIONS, HOWEVER, OTHER TYPE PALLETS AND PALLETS OF OTHER DIMENSIONS MAY BE USED.
- H. THE WIDE-TYPE PALLET SUPPORT SETS SHOWN ARE NATIONAL STOCK NUMBER 3990-00-542-4771 AND COMPLY WITH MIL SPEC MIL-S-21859, SIZE 1, FOR 40" X 48" PALLETS. NARROW-TYPE PALLET SUPPORT SETS FOR 40" X 48" PALLETS, IF AVAILABLE, MAY BE USED. THE REQUIREMENTS FOR STACKING WING-TYPE PALLETS USING WIDE-TYPE OR NARROW-TYPE SUPPORT SETS ARE SHOWN IN THE DETAILS ON PAGE 10. PALLET SUPPORT SETS CAN BE USED FOR STACKING PALLETS UP TO 3-HIGH. THE PALLET STORAGE RACKS SHOWN COMPLY WITH FED SPEC AA-R-0045, STYLE A, SIZE 1, FOR 40" X 48" PALLETS. THE PALLET STORAGE RACKS SHOWN ON PAGES 4 AND 18 ARE 90" HIGH, WHICH IS A MODIFICATION TO THE 120" HIGH RACK DESIGNATED IN THE SPECIFICATION CITED. IF DESIRED, PALLET STORAGE RACKS MAY BE CONVERTED TO SHELVING UNITS BY PLACING A PIECE OF 3/4" MINIMUM THICK PLYWOOD TO BEAR ON THE HORIZONTAL SUPPORT MEMBERS OF THE RACK AT EACH HEIGHT LOCATION. NOMINAL 2" THICK BY RANDOM WIDTH LUMBER MAY ALSO BE USED AS A SHELF, HOWEVER, THE BOARDS MUST BE CLEATED TOGETHER TO PROVIDE A SOLID SURFACE.
- J. SHELVING UNITS MAY BE MADE OF WOOD OR METAL AND BE EITHER COMMERCIALY OR IN-HOUSE BUILT. THE UNITS CAN BE OF ANY WIDTH, DEPTH OR HEIGHT AND CONTAIN AS MANY SHELVES AS DESIRED. HOWEVER, TO PERMIT ENTRANCE THRU MOST IGLOO DOOR OPENINGS, EITHER THE WIDTH DIMENSION OR THE DEPTH DIMENSION SHOULD NOT EXCEED 46" AND THE HEIGHT SHOULD NOT EXCEED 84". THE ENTIRE SHELVING UNIT SHALL BE CAPABLE OF SUPPORTING A LOAD OF NOT LESS THAN 140 POUNDS PER SQUARE FOOT OF TOTAL SHELVING AREA IN THE UNIT. FOR WOOD OR METAL SHELVING UNITS, SEE THE DETAILS ON PAGES 11 THROUGH 15. STEEL SHELVING UNITS COMPLYING WITH THE ABOVE REQUIREMENTS MAY ALSO BE CONSTRUCTED IN ACCORDANCE WITH FED SPEC AA-S-271, KIND 1 PLAIN, CLASS 1, 1A, 2 OR 3, TYPE V.

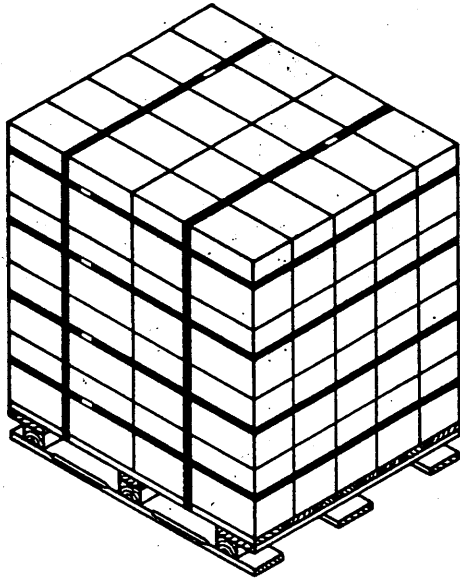
## MATERIAL SPECIFICATIONS \*

- LUMBER** ----- : SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS** ----- : COMMON, FED SPEC FF-N-105.
- BOLTS,  
NUTS AND WASHERS** --- : COMMERCIAL GRADE.
- STRAPPING, STEEL** ---- : CLASS I, TYPE I OR IV, HEAVY DUTY, FINISH B (GRADE 2).  
FED SPEC QQ-S-781.
- STRAP SEAL** ----- : TYPE D, STYLE I, II OR IV, CLASS H, FINISH B (GRADE 2).  
FED SPEC QQ-S-781.
- PLYWOOD** ----- : GROUP B, CONSTRUCTION AND INDUSTRIAL PLYWOOD, INTERIOR  
WITH EXTERIOR GLUE, GRADE C-D, FED SPEC NN-P-530. IF  
SPECIFIED GRADE IS NOT AVAILABLE, A BETTER INTERIOR OR AN  
EXTERIOR GRADE MAY BE SUBSTITUTED.
- STEEL, STRUCTURAL** ---- : ROLLED SHAPES, PLATE, AND BAR; FED SPEC QQ-S-741.

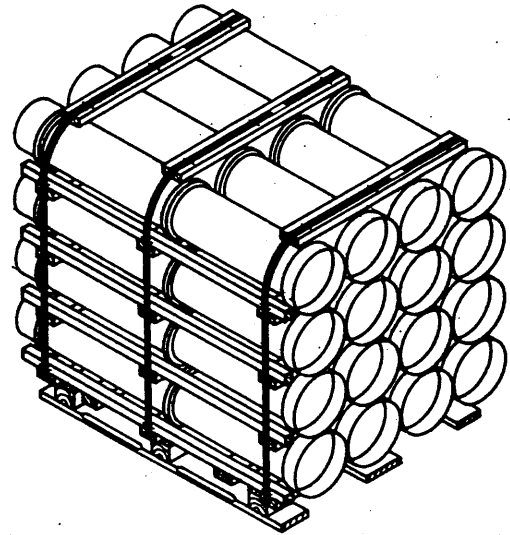
\* SPECIFICATIONS FOR PALLET SUPPORT SETS, PALLET STORAGE RACKS, AND PALLETS ARE IDENTIFIED ELSEWHERE WITHIN THIS DRAWING.

## (GENERAL NOTES CONTINUED)

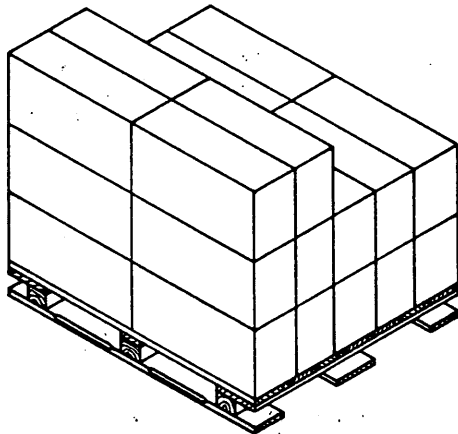
- K. CAUTION: THE ALLOWABLE "EXPLOSIVE LIMIT" ESTABLISHED FOR A MAGAZINE IS NOT TO BE EXCEEDED. ALSO, ALL ITEMS STORED WITHIN THE SAME MAGAZINE MUST BE COMPATIBLE.
- L. PORTIONS OF THE MAGAZINES, SUCH AS SIDEWALLS, END WALLS, AND ROOFS, HAVE NOT BEEN SHOWN IN THE STORAGE VIEWS FOR CLARITY PURPOSES.
- M. THE MAXIMUM FLOOR LOAD FOR A MAGAZINE AS PRESCRIBED BY LOCAL STANDARDS WILL NOT BE EXCEEDED.
- N. FOR ADDITIONAL SPECIFIC INFORMATION AND GUIDANCE SEE THE SPECIAL NOTES SECTIONS ON PAGES 5 AND 7, AND PAGES 16 THROUGH 18.
- O. THE STORAGE ARRANGEMENTS DELINEATED ON PAGES 6 THROUGH 9 WITHIN THIS DRAWING ARE TYPICAL IN CONFIGURATION. THESE STORAGE ARRANGEMENTS AS SHOWN OCCUPY ALL OF THE AVAILABLE STORAGE SPACE WITHIN A MAGAZINE. ALSO, THESE STORAGE ARRANGEMENTS REFLECT USE OF THE APPROVED METHODS FOR STORING "SMALL QUANTITIES AND/OR NUMEROUS LOTS" (FLOOR DUNNAGE, PALLETS, SUPPORT SETS, PALLET RACKS, AND SHELVING). IT IS NOT NECESSARY TO DEVOTE A TOTAL MAGAZINE TO THIS TYPE OF STORAGE. THE STORAGE ARRANGEMENTS DELINEATED ON PAGES 16 THROUGH 18 SHOW SMALL QUANTITIES AND/OR NUMEROUS LOTS STORED IN AVAILABLE SPACE IN MAGAZINES THAT ARE PARTIALLY FILLED WITH AMMUNITION OR AMMUNITION COMPONENTS REGULARLY STORED IN ACCORDANCE WITH OTHER APPROVED 19-48 SERIES DRAWINGS. THE DECISION AS TO WHICH ARRANGEMENT TO USE SHOULD BE MADE ON THE BASIS OF WHICH ARRANGEMENT BEST SUITS THE SITUATION. PROVISIONS MUST BE INCLUDED IN THIS TYPE OF ARRANGEMENT TO PERMIT ACCESS BY FORKLIFT TRUCK/HAND PALLET TRUCK TO EACH PALLET WITH MINIMUM MOVEMENT OF OTHER PALLETS THAT BLOCK READY ACCESS TO ANY ONE PALLET. ADDITIONALLY, ACCESS TO EACH PALLET FOR INSPECTION/INVENTORY PURPOSES MUST BE MAINTAINED AS STATED ELSEWHERE HEREIN.
- P. WHEN STORING SEPARATE LOADING PROJECTILE UNITS, STACKING IS LIMITED TO 2-HIGH. ADDITIONALLY, STACKING IS NOT PERMITTED ON TOP OF A "LESS-THAN-FULL" PALLET OF SEPARATE LOADING PROJECTILES. SEE THE "TYPICAL-LESS-THAN-FULL PALLET" DETAIL ON PAGE 3.



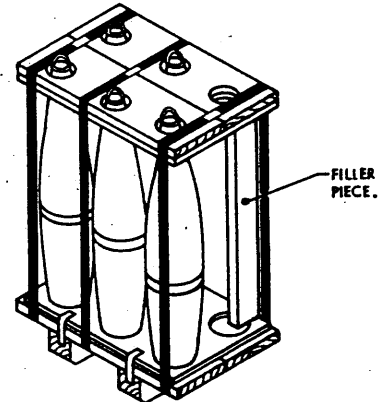
TYPICAL FULL PALLET UNIT  
(ITEMS SECURED TO PALLET)



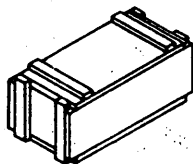
TYPICAL FULL PALLET UNIT  
(ITEMS SECURED TO PALLET)



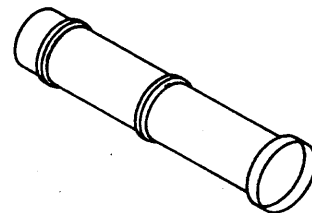
TYPICAL LESS-THAN-FULL PALLET  
(ITEMS NOT SECURED TO PALLET)



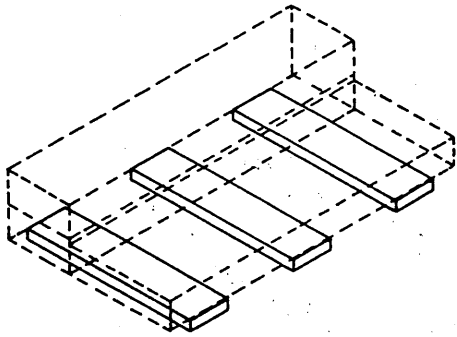
TYPICAL LESS-THAN-FULL PALLET  
(STRAPPING REQUIRED TO RETAIN THE COVER)  
SEE GENERAL NOTE "P" ON PAGE 2.



TYPICAL SINGLE PACKAGE

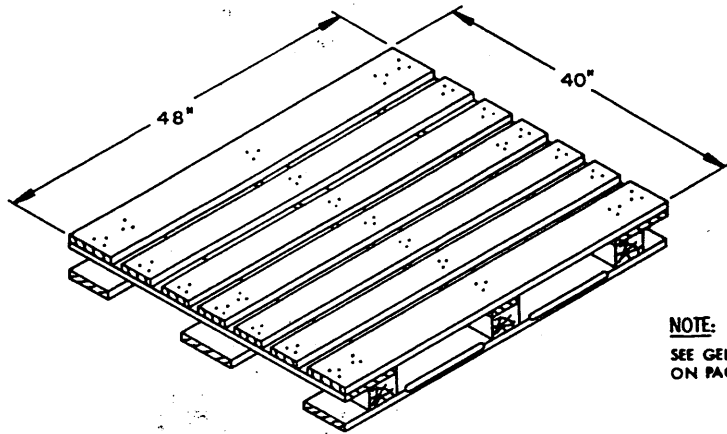


TYPICAL SINGLE PACKAGE

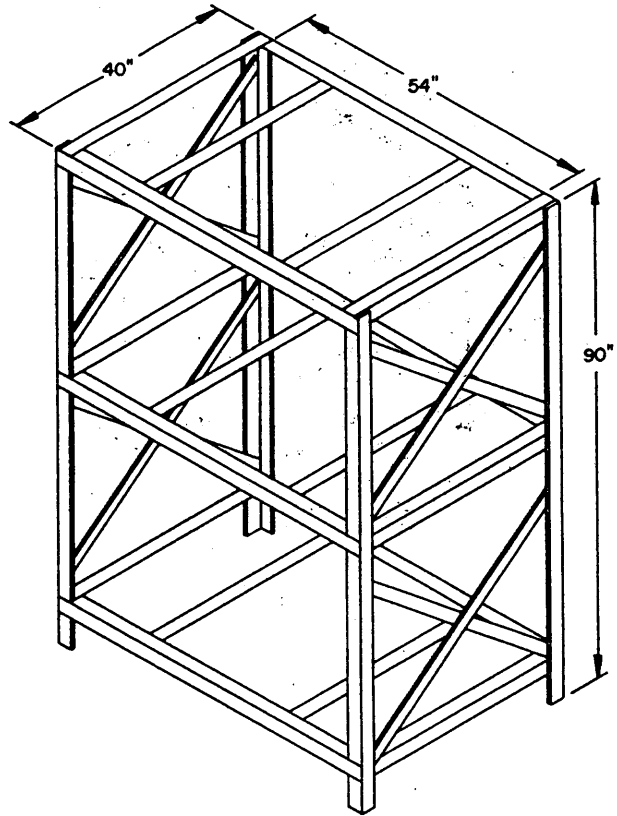


**FLOOR DUNNAGE**

NOMINAL 2" X 4" OR 2" X 6" BY  
RANDOM LENGTH LUMBER.

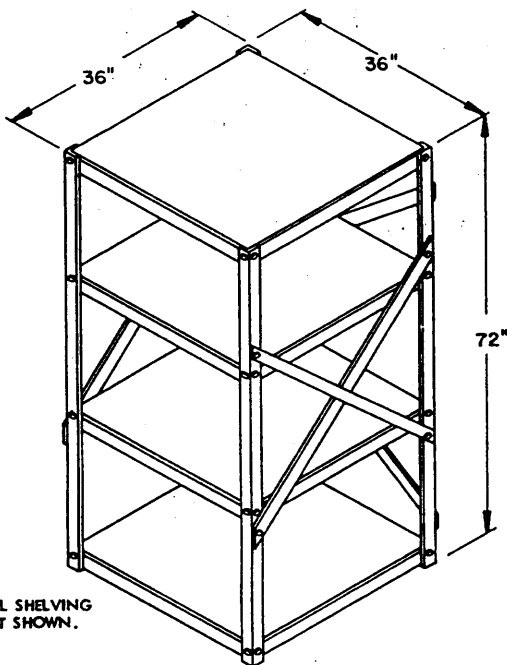


**40' X 48' WOOD, WING TYPE,  
4-WAY ENTRY PALLET**  
MIL-P-15011, STYLE I.  
SEE GENERAL NOTE "G" ON PAGE 2.



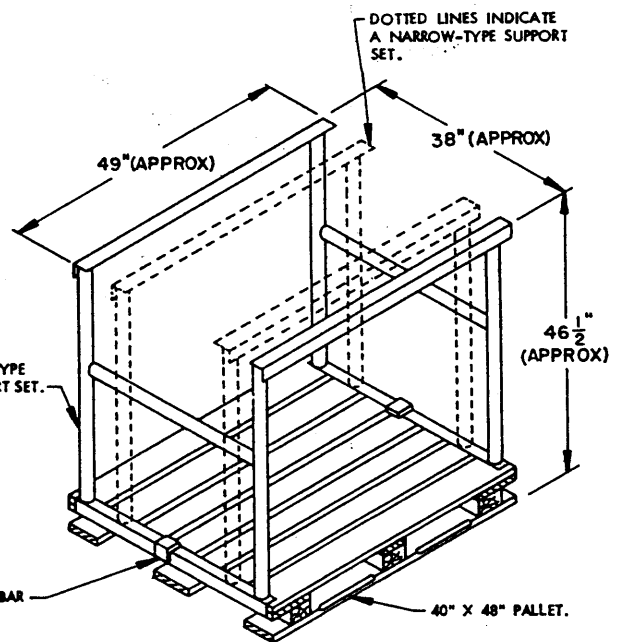
**NOTE:**  
SEE GENERAL NOTE "F"  
ON PAGE 2.

**PALLET STORAGE RACK**  
FED SPEC AA-R-0045, STYLE A,  
SIZE 1, FOR 40" X 48" PALLET.  
SEE GENERAL NOTE "H" ON PAGE 2.



STEEL SHELVING  
UNIT SHOWN.

**WOOD OR STEEL SHELVING UNITS**  
FOR WOOD SHELVING UNIT DETAILS SEE PAGES 11-13.  
FOR STEEL SHELVING UNIT DETAILS SEE PAGES 14-15.  
SEE GENERAL NOTE "J" ON PAGE 2.



DOTTED LINES INDICATE  
A NARROW-TYPE SUPPORT  
SET.

WIDE-TYPE  
SUPPORT SET.

TIE-BAR

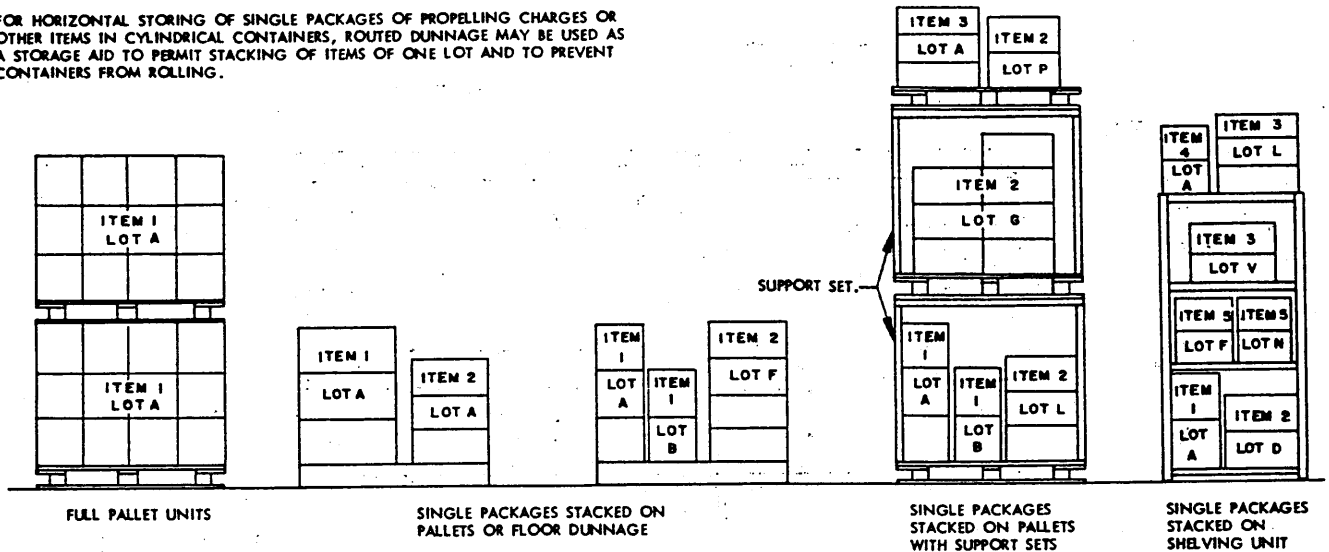
40" X 48" PALLET.

**PALLET SUPPORT SET**  
SEE GENERAL NOTE "H" ON PAGE 2  
AND STACKING DETAILS ON PAGE 10.

**TYPICAL STORAGE AIDS**

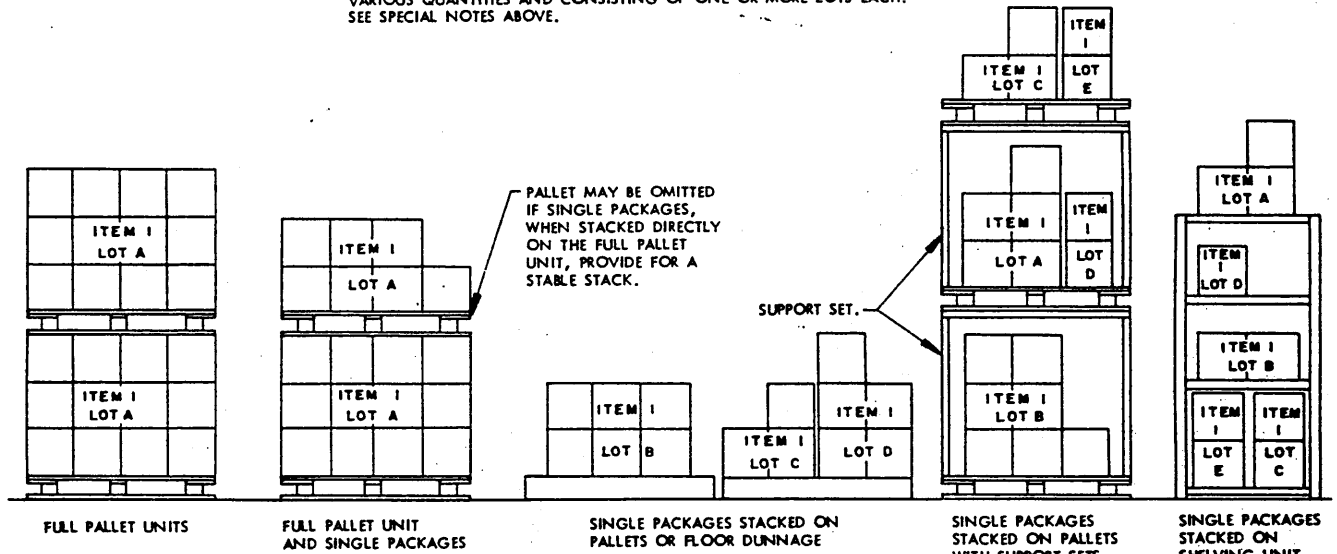
**SPECIAL NOTES:**

1. ALL ITEMS TO BE STORED WITHIN THE SAME MAGAZINE MUST BE COMPATIBLE.
2. TO FACILITATE REMOVAL OF ANY PALLET OR PACKAGE, A MINIMUM OF 1" SPACE SHOULD BE PROVIDED BETWEEN DIFFERENT (NSN) ITEMS AND/OR DIFFERENT LOTS.
3. ANY COMBINATION OF STORAGE AIDS MAY BE USED WITHIN THE SAME MAGAZINE.
4. FOR HORIZONTAL STORING OF SINGLE PACKAGES OF PROPELLING CHARGES OR OTHER ITEMS IN CYLINDRICAL CONTAINERS, ROUTED DUNNAGE MAY BE USED AS A STORAGE AID TO PERMIT STACKING OF ITEMS OF ONE LOT AND TO PREVENT CONTAINERS FROM ROLLING.



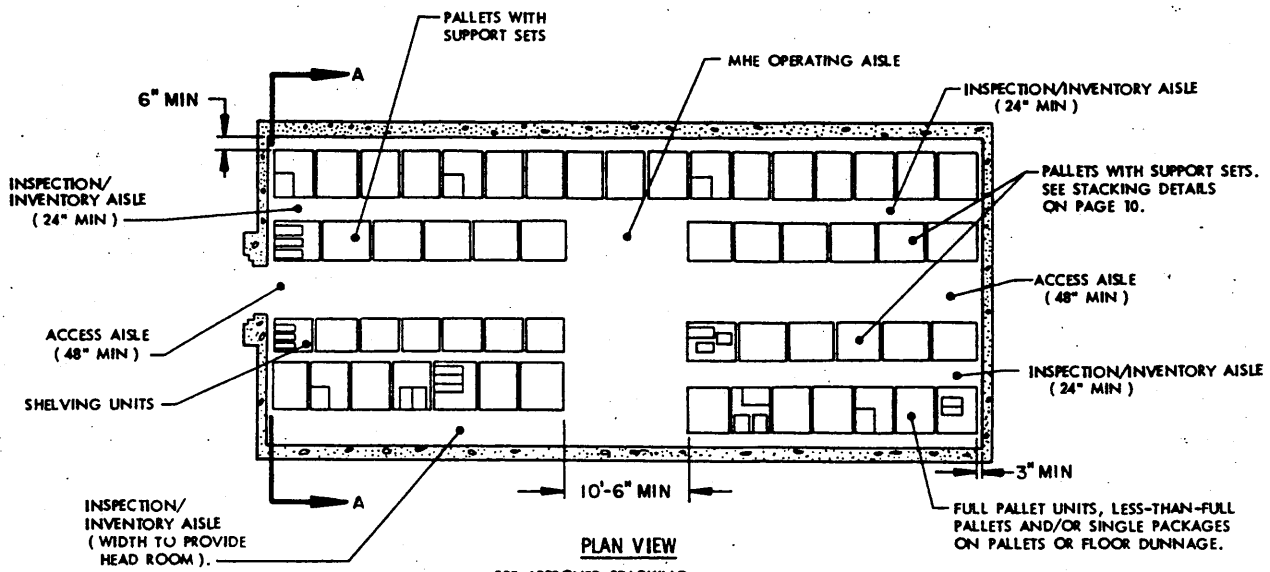
**APPROVED STACKING METHODS FOR MORE THAN ONE (NSN) ITEM EACH CONSISTING OF ONE OR MORE LOTS**

NOTE: SINGLE PACKAGES AND/OR PALLET UNITS OF ONE (NSN) ITEM WILL NOT BE STACKED DIRECTLY ON TOP OF A DIFFERENT (NSN) ITEM. ADDITIONALLY, ONE LOT OF AN ITEM WILL NOT BE STACKED DIRECTLY ON TOP OF A DIFFERENT LOT OF THAT ITEM. ITEMS STORED ON AN UPPER TIER OF STACKED SUPPORT SETS OR ON AN UPPER SHELF OF SHELVING ARE NOT TO BE CONSIDERED AS BEING "STACKED DIRECTLY ON TOP" OF ITEMS ON A LOWER TIER OR LOWER SHELF. THE STACKING METHODS SHOWN ABOVE APPLY TO VARIOUS LOTS FOR FIVE DIFFERENT AMMUNITION ITEMS. BECAUSE THE DELINEATED STACKING METHODS ARE TYPICAL, THEY CAN ALSO BE APPLIED FOR STACKING NUMEROUS ITEMS OF VARIOUS QUANTITIES AND CONSISTING OF ONE OR MORE LOTS EACH. SEE SPECIAL NOTES ABOVE.



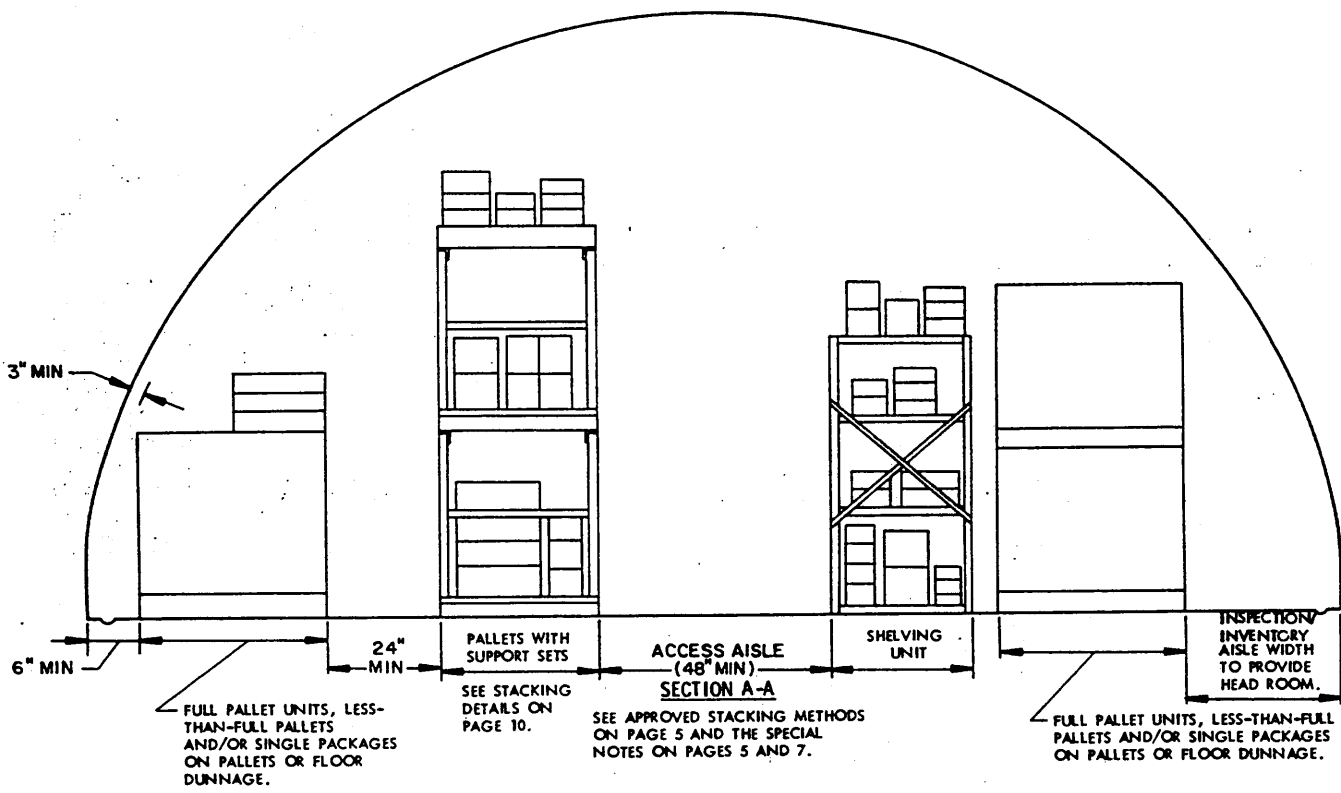
**APPROVED STACKING METHODS FOR ONE (NSN) ITEM CONSISTING OF MULTIPLE LOTS**

NOTE: SINGLE PACKAGES AND/OR PALLET UNITS OF ONE LOT OF AN ITEM WILL NOT BE STACKED DIRECTLY ON TOP OF A DIFFERENT LOT OF THAT ITEM OR ANOTHER ITEM. ITEMS STORED ON AN UPPER TIER OF STACKED SUPPORT SETS OR ON AN UPPER SHELF OF SHELVING ARE NOT TO BE CONSIDERED AS BEING "STACKED DIRECTLY ON TOP" OF ITEMS ON A LOWER TIER OR LOWER SHELF. THE STACKING METHODS SHOWN ABOVE APPLY TO VARIOUS LOTS FOR ONE AMMUNITION ITEM. BECAUSE THE DELINEATED STACKING METHODS ARE TYPICAL, THEY CAN ALSO BE APPLIED FOR STACKING NUMEROUS ITEMS OF VARIOUS QUANTITIES AND CONSISTING OF ONE OR MORE LOTS EACH. SEE SPECIAL NOTES ABOVE.



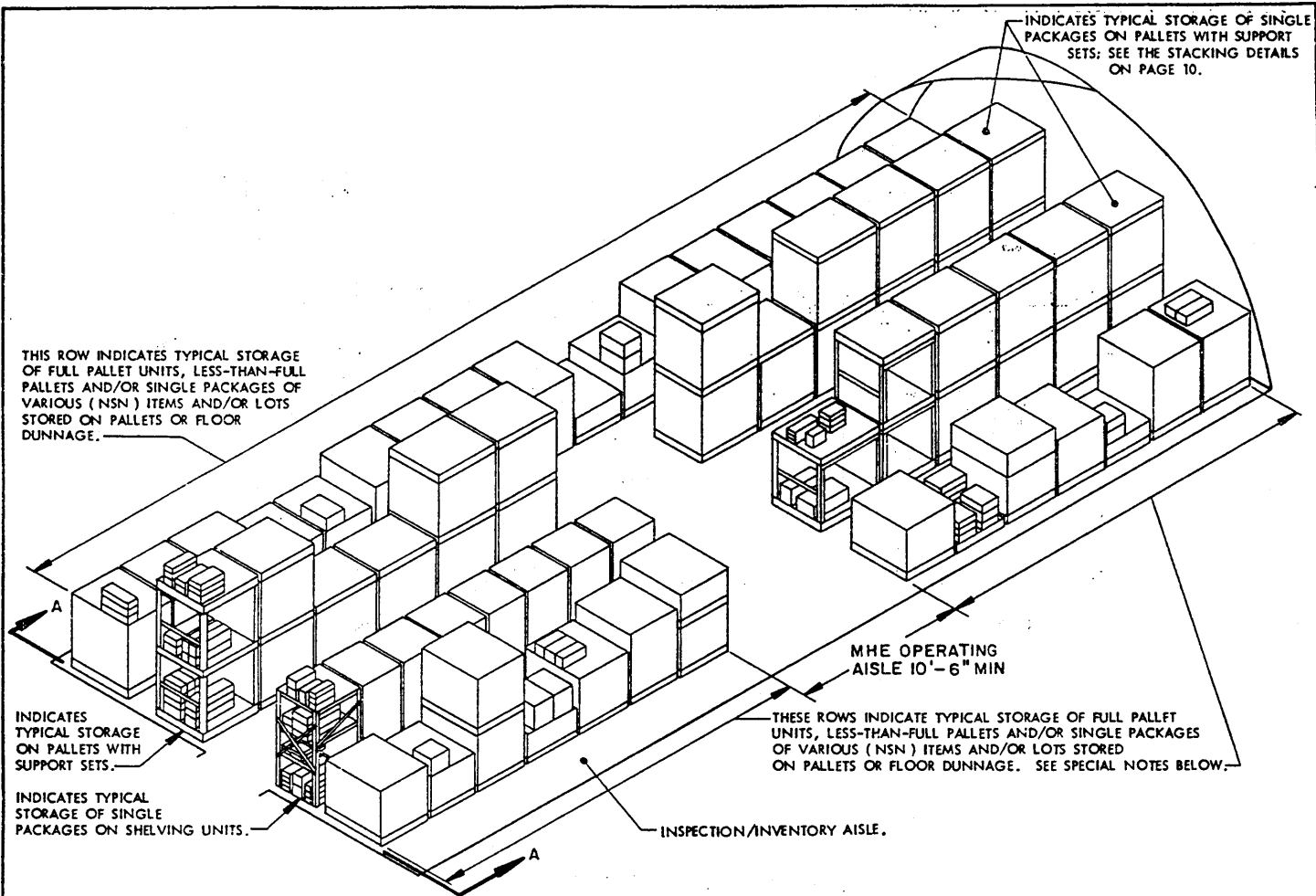
**PLAN VIEW**

SEE APPROVED STACKING METHODS ON PAGE 5 AND SPECIAL NOTES ON PAGES 5 AND 7.



**SECTION A-A**

SEE APPROVED STACKING METHODS ON PAGE 5 AND THE SPECIAL NOTES ON PAGES 5 AND 7.



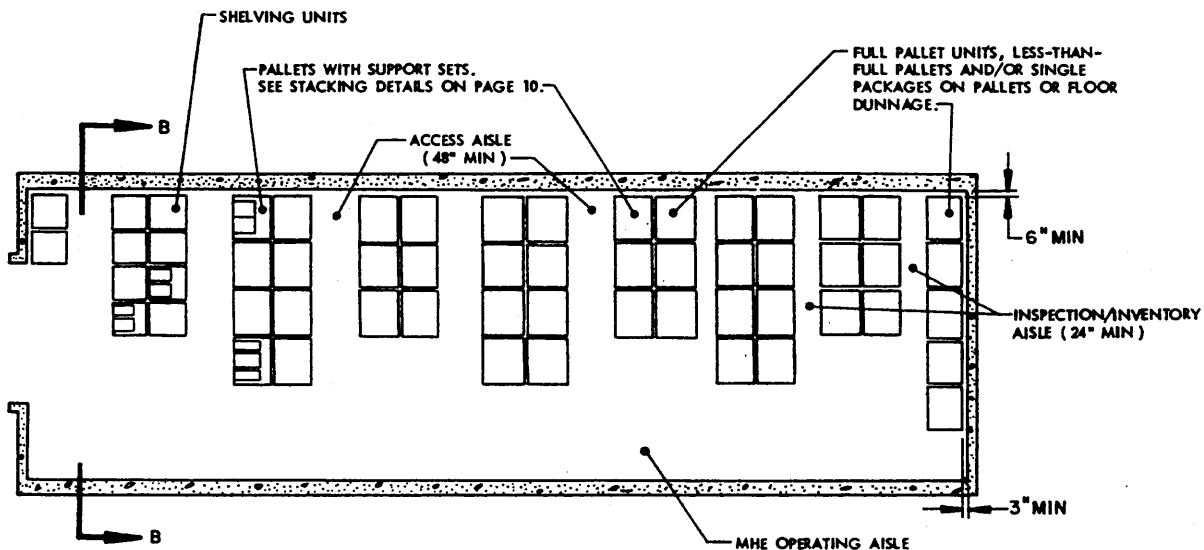
**ISOMETRIC VIEW**

SEE SPECIAL NOTES BELOW AND APPROVED STACKING METHODS AND SPECIAL NOTES ON PAGE 5.

**SPECIAL NOTES:**

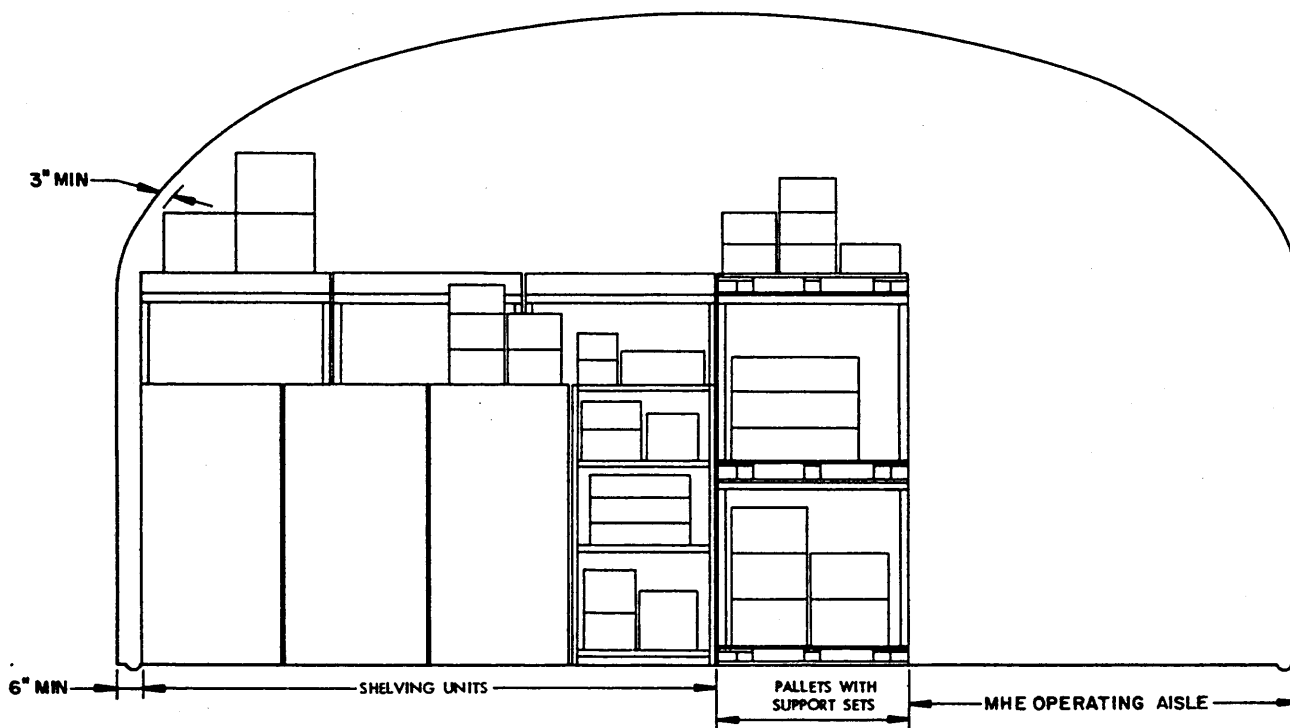
1. ALL ITEMS STORED USING THE PROCEDURES SPECIFIED HEREIN MUST BE VISIBLE FOR INSPECTION/INVENTORY FROM AT LEAST ONE INSPECTION/ACCESS AISLE. SEE GENERAL NOTE "C" ON PAGE 2.
2. EACH NSN ITEM AND EACH LOT OF AN ITEM STORED ON PALLETS, WHETHER FULL PALLET UNITS, LESS-THAN-FULL PALLETS, PALLETS WITH SUPPORT SETS OR PALLETS CONTAINING VARIOUS ITEMS OR LOTS IN SINGLE PACKAGE CONFIGURATION, MUST BE ACCESSIBLE FOR MOVEMENT BY MATERIALS HANDLING EQUIPMENT. STORED PALLETS ARE CONSIDERED ACCESSIBLE IF NO MORE THAN TWELVE (12) "LIFTS" OF OTHER PALLETS, IN ANY CONFIGURATION, HAVE TO BE MADE WITH MHE TO GAIN ACCESS TO THE PALLET REQUIRED TO BE MOVED. IF THE CAPACITY OF THE MHE PERMITS, AND SAFE HANDLING IS NOT JEOPARDIZED, A TWO-HIGH STACK OF PALLETS MAY BE HANDLED AS ONE "LIFT". HOWEVER, PALLETS WITH SUPPORT SETS WILL BE HANDLED INDIVIDUALLY.
3. FLOOR DUNNAGE MAY BE USED FOR STORING SINGLE PACKAGES, HOWEVER, TO FACILITATE ACCESS TO AND REMOVAL OF ANY ITEM(S) BY PALLET JACKS OR FORKLIFT TRUCKS, THE USE OF 4-WAY ENTRY PALLETS IS RECOMMENDED. ALSO, SEE THE SPECIAL NOTES ON PAGE 5.
4. FULL PALLET UNITS CONTAINING MIXED LOTS NEED NOT BE BROKEN DOWN FOR STORAGE AND MAY BE STACKED ON EACH OTHER PROVIDING ALL ITEMS IN THE STACK HAVE THE SAME NATIONAL STOCK NUMBER AND THE SAME CONDITION CODE. SEE GENERAL NOTE "B" ON PAGE 2.
5. A FORKLIFT TRUCK EQUIPPED WITH A PERSONNEL SAFETY PLATFORM MAY BE USED AS AN ELEVATOR FOR PLACEMENT OR REMOVAL OF SINGLE PACKAGE ITEMS AT UPPER LEVELS OF SHELVING UNITS AND/OR PALLETS WITH SUPPORT SETS.

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



**PLAN VIEW**

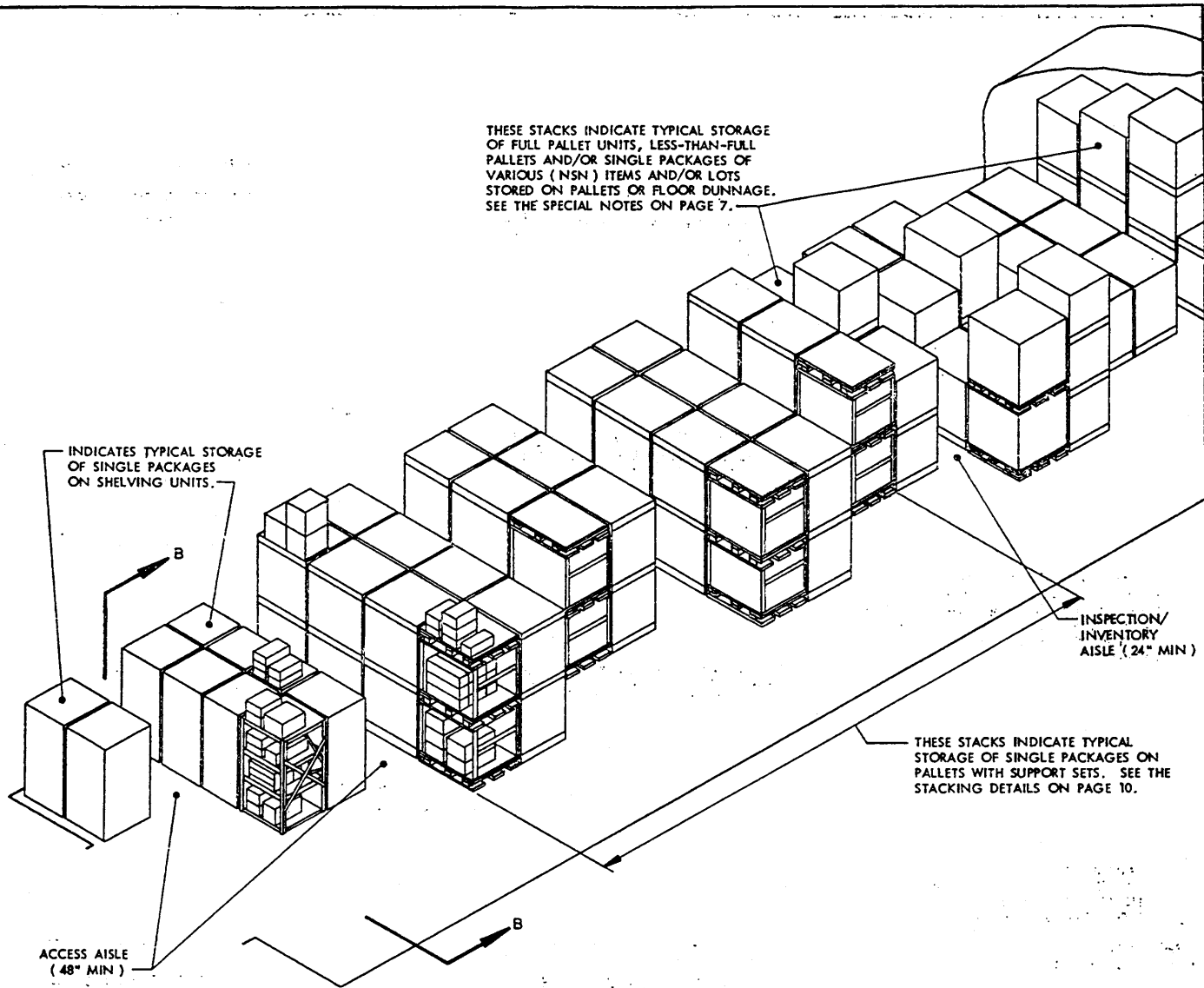
SEE APPROVED STACKING METHODS ON PAGE 5 AND THE SPECIAL NOTES ON PAGES 5 AND 7.



**SECTION B-B**

SEE APPROVED STACKING METHODS ON PAGE 5 AND THE SPECIAL NOTES ON PAGES 5 AND 7.





THESE STACKS INDICATE TYPICAL STORAGE OF FULL PALLET UNITS, LESS-THAN-FULL PALLETS AND/OR SINGLE PACKAGES OF VARIOUS (NSN) ITEMS AND/OR LOTS STORED ON PALLETS OR FLOOR DUNNAGE. SEE THE SPECIAL NOTES ON PAGE 7.

INDICATES TYPICAL STORAGE OF SINGLE PACKAGES ON SHELVING UNITS.

INSPECTION/INVENTORY AISLE (24" MIN)

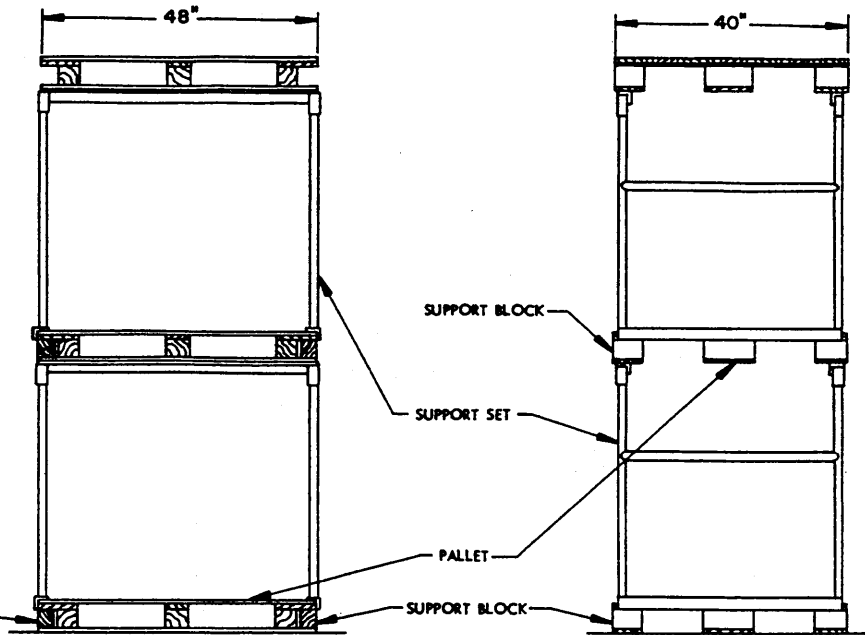
THESE STACKS INDICATE TYPICAL STORAGE OF SINGLE PACKAGES ON PALLETS WITH SUPPORT SETS. SEE THE STACKING DETAILS ON PAGE 10.

ACCESS AISLE (48" MIN)

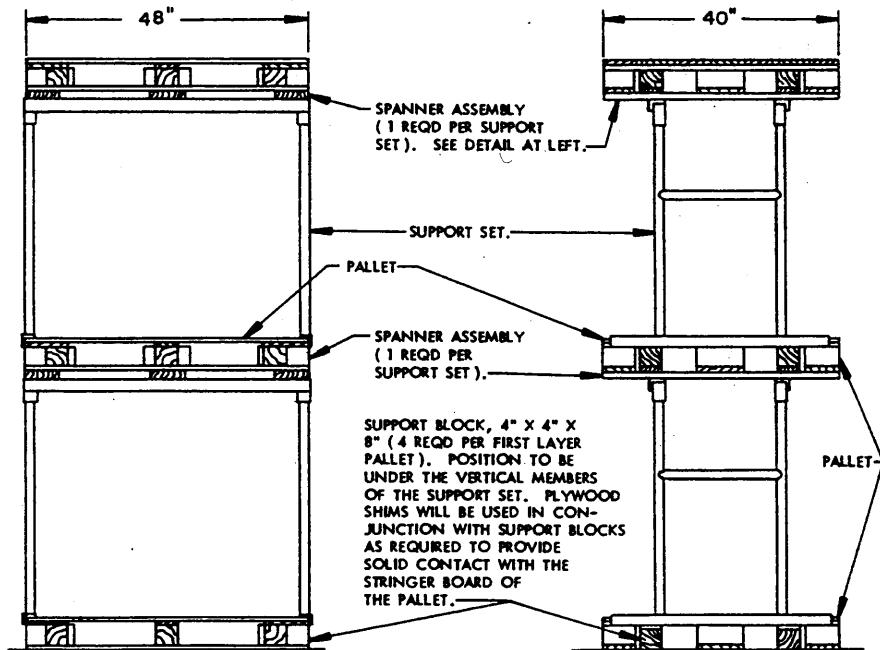
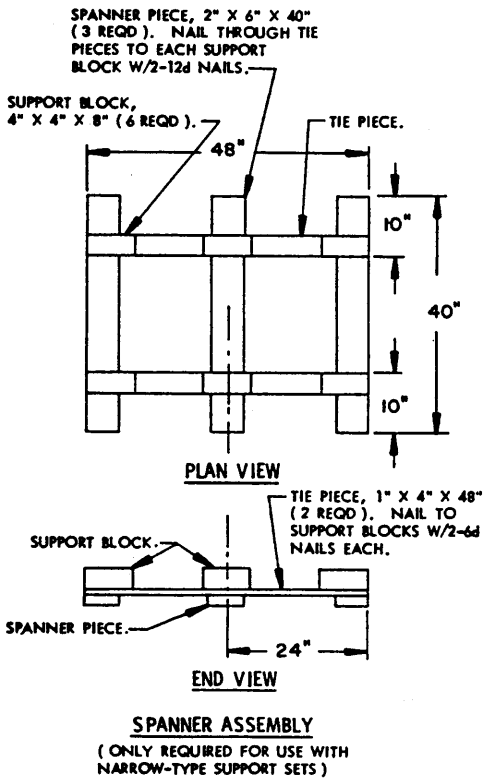
**ISOMETRIC VIEW**  
 SEE APPROVED STACKING METHODS ON PAGE 5, AND THE SPECIAL NOTES ON PAGES 5 AND 7.

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

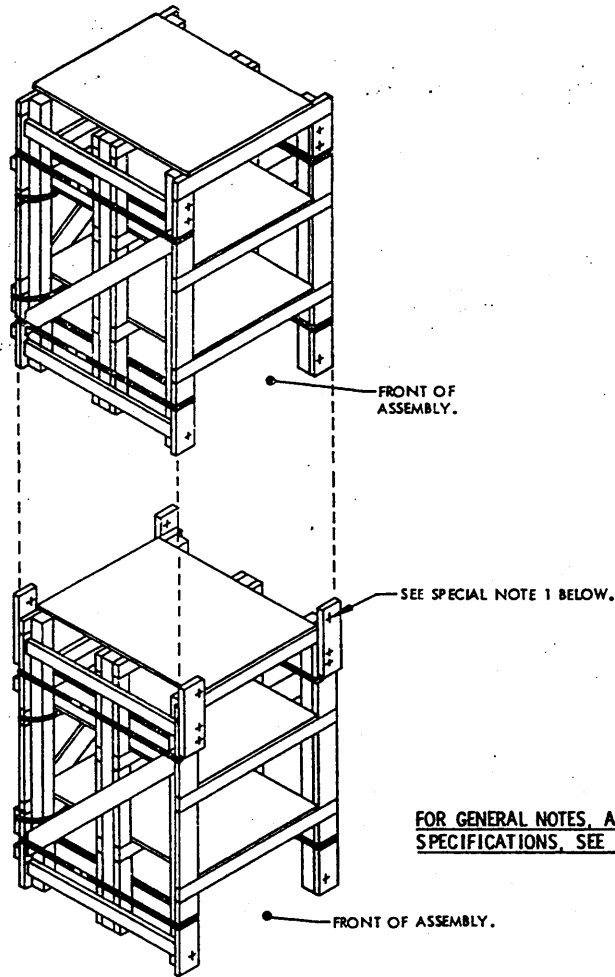
SUPPORT BLOCK, 5-1/2" LONG X 3" WIDE BY CUT-TO-FIT IN HEIGHT TO PROVIDE SOLID CONTACT WITH THE STRINGER BOARD OF THE PALLET (4 REQD PER SUPPORT SET). POSITION TO BE UNDER VERTICAL MEMBERS OF SUPPORT SET.



**WIDE-TYPE SUPPORT SETS**  
**ON 40' X 48' WING TYPE, 4-WAY ENTRY PALLETS**  
 (SEE GENERAL NOTE "H" ON PAGE 2)



**NARROW-TYPE SUPPORT SETS**  
**ON 40' X 48' WING-TYPE, 4-WAY ENTRY PALLETS**  
 (SEE GENERAL NOTE "H" ON PAGE 2)



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

SHELVING ASSEMBLY

SEE PAGES 12 AND 13 FOR DETAILS

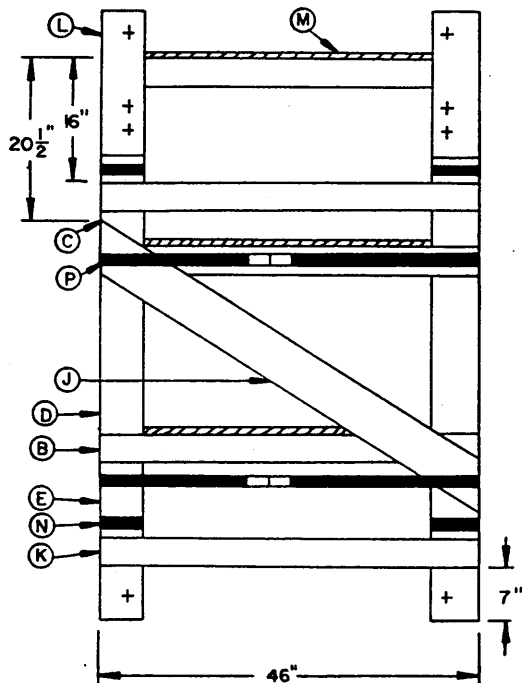
(SPECIAL NOTES CONTINUED)

SPECIAL NOTES:

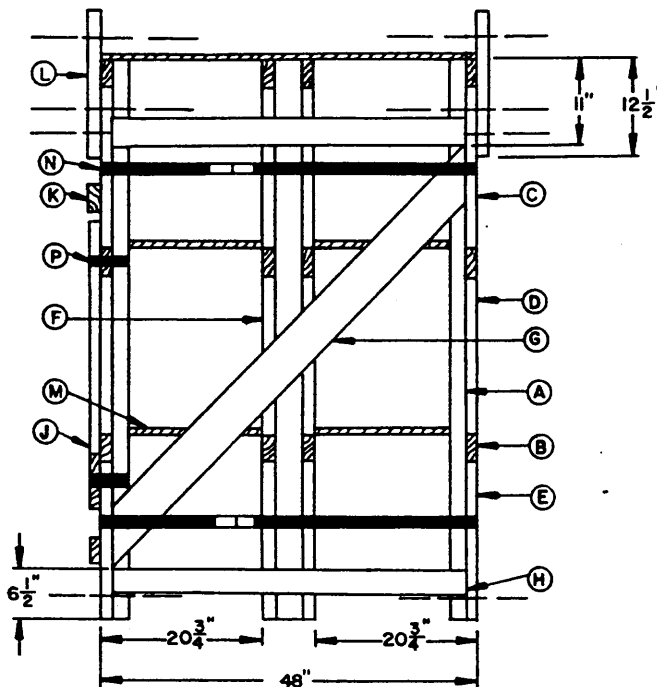
1. SHELVING UNITS, IF ASSEMBLED, WILL BE ASSEMBLED AS SHOWN IN THE "SHELVING ASSEMBLY" DETAIL ABOVE. THE CONNECTION WILL BE MADE BY THREE 1/2" X 8" LONG HEX HEAD BOLTS W/HEX NUTS AT EACH CORNER. WASHERS WILL BE USED ON BOTH ENDS OF EACH BOLT. BOLTS WILL BE TIGHTENED UNTIL SLIGHT COMPRESSION OF WOOD UNDER WASHERS IS OBSERVED.
2. SHELVING UNITS MAY BE USED SEPARATELY. ALSO, CHANGES IN HEIGHT OF UNIT AND IN SHELF SPACING IS ALLOWED AS LONG AS ADEQUATE BRACING IS PROVIDED AND UNIT IS STABLE.
3. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS. ALSO NAILING PATTERNS WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FROM AN UPPER PIECE AT A JOINT IS NOT DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
4. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT.
5. EXCEPT FOR PLYWOOD, LUMBER SPECIFIED IN THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 6" MATERIAL IS ACTUALLY 3/4" THICK BY 5-1/2" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.

(CONTINUED AT RIGHT)

NOTE: SEE THE SPECIAL NOTES ON PAGE 11.



REAR VIEW

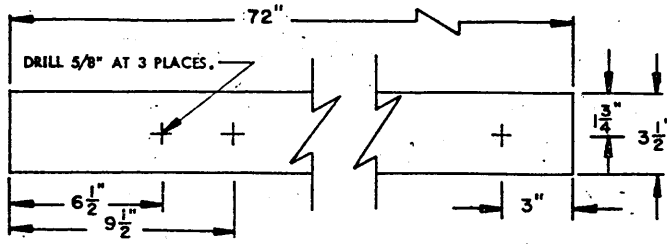


SIDE VIEW

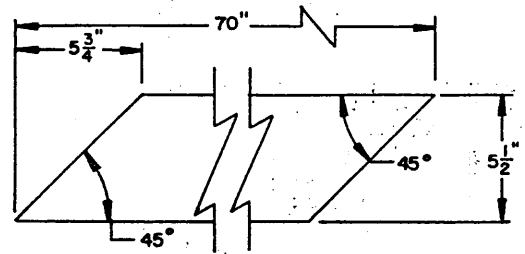
KEY LETTERS

- (A) SUPPORT COLUMN, 4" X 4" X 72" (6 REQD PER UNIT). SEE THE DETAIL ON PAGE 13.
- (B) SUPPORT BEAM, 2" X 4" X 46" (12 REQD PER UNIT). NAIL TO SUPPORT COLUMN W/2-16d NAILS AT EACH END.
- (C) SUPPORT LEDGER, 2" X 6" X 20-1/2" (4 REQD PER UNIT). NAIL TO SUPPORT COLUMNS W/1-16d NAIL EVERY 6". SEE THE DETAIL ON PAGE 13.
- (D) SUPPORT LEDGER, 2" X 6" X 20-1/2" (4 REQD PER UNIT). NAIL TO SUPPORT COLUMNS W/1-16d NAIL EVERY 6".
- (E) SUPPORT LEDGER, 2" X 6" X 20-1/2" (4 REQD PER UNIT). NAIL TO SUPPORT COLUMNS W/1-16d NAIL EVERY 6". SEE THE DETAIL ON PAGE 13.
- (F) SUPPORT LEDGER, 2" X 4" X 20-1/2" (12 REQD PER UNIT). NAIL TO SUPPORT COLUMNS W/1-16d NAIL EVERY 6".
- (G) SIDE BRACE, 2" X 6" BY CUT TO FIT (REF: 70") (2 REQD PER UNIT). NAIL TO SUPPORT COLUMNS W/3-12d NAILS AT EACH JOINT. SEE THE DETAIL ON PAGE 13.
- (H) SIDE STRUT, 2" X 4" X 45" (4 REQD PER UNIT). NAIL TO SUPPORT COLUMN W/2-12d NAILS AT EACH END.
- (J) REAR BRACE, 2" X 6" BY CUT TO FIT (REF: 57-3/4") (1 REQD PER UNIT). NAIL TO SUPPORT LEDGERS W/3-8d NAILS AT EACH END. SEE THE DETAIL ON PAGE 13.
- (K) REAR STRUT, 2" X 4" X 46" (2 REQD PER UNIT). NAIL TO SUPPORT LEDGERS W/2-8d NAILS AT EACH END.
- (L) CONNECTION PIECE, 2" X 6" X 18-1/2" (4 REQD PER SET OF 2 UNITS). SEE THE DETAIL ON PAGE 13.
- (M) SHELF, 3/4" X 35" X 48" PLYWOOD (3 REQD PER UNIT). NAIL TO SUPPORT BEAMS W/1-8d NAIL EVERY 6".
- (N) STEEL STRAPPING, 1-1/4" X .035" X 11'-0" (4 REQD PER UNIT). INSTALL TO ENCIRCLE SUPPORT COLUMNS, SUPPORT LEDGERS AND END OF SIDE BRACE. SEAL WITH TWO 1-1/4" SEALS, EACH DOUBLE CRIMPED.
- (P) STEEL STRAPPING, 1-1/4" X .035" X 11'-0" (2 REQD PER UNIT). INSTALL TO ENCIRCLE SUPPORT COLUMNS, SUPPORT LEDGERS OR SUPPORT BEAMS AND END OF REAR BRACE. SEAL WITH TWO 1-1/4" SEALS, EACH DOUBLE CRIMPED.
- (Q) BOLT, 1/2" X 8" LONG HEX HEAD BOLT W/HEX NUT AND 2 PLAIN WASHERS (12 REQD PER SET OF 2 UNITS). NOT SHOWN.

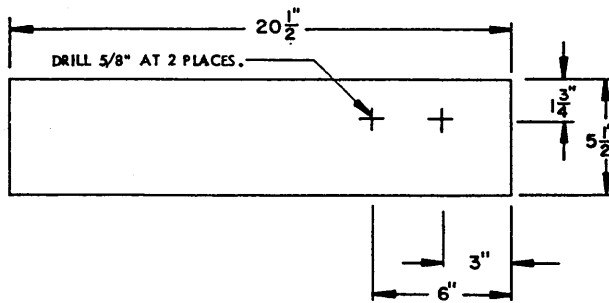
SEE PAGE 11 FOR FRONT VIEW OF UNIT



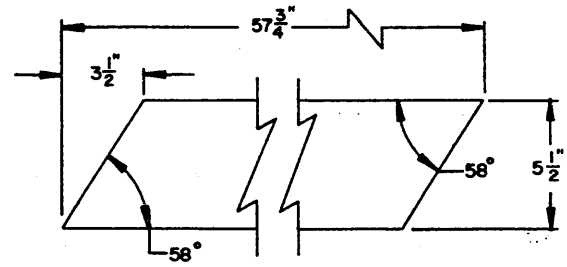
DETAIL: PIECE A  
4" X 4" MATERIAL.



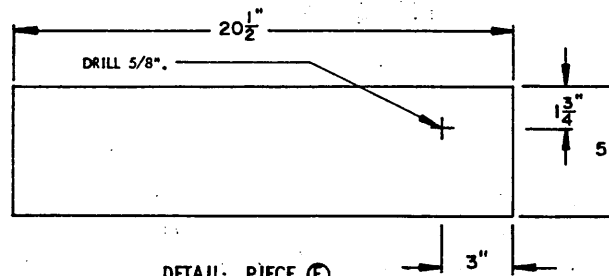
DETAIL: PIECE B  
2" X 6" MATERIAL.



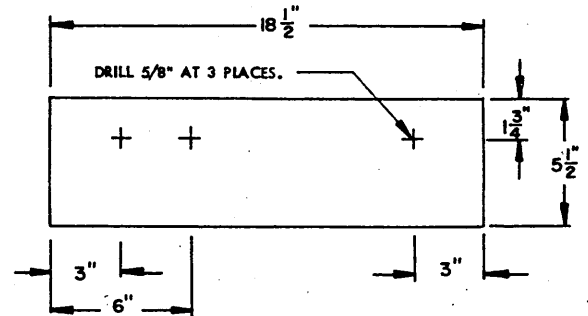
DETAIL: PIECE C  
2" X 6" MATERIAL.



DETAIL: PIECE D  
2" X 6" MATERIAL.



DETAIL: PIECE E  
2" X 6" MATERIAL.



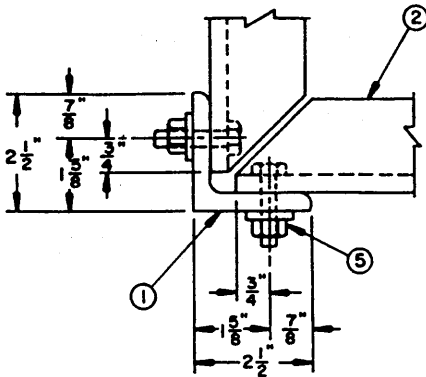
DETAIL: PIECE F  
2" X 6" MATERIAL.

BILL OF MATERIAL  
(FOR 1 UNIT)

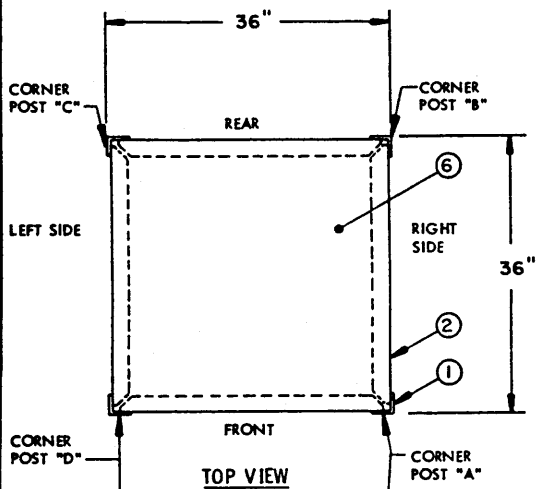
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	89.17	59.44
2" X 6"	43.31	43.31
4" X 4"	36.00	48.00
NAILS	NO. REQD	POUNDS
8d (2-1/2")	98	1.03
12d (3-1/4")	34	0.56
16d (3-1/2")	120	2.60
PLYWOOD, 3/4"	36 SQ FT REQD	74 LBS
STEEL STRAPPING, 1-1/4" X .035"	66.0' REQD	9.43 LBS
SPECIAL FOR 1-1/4" STRAPPING	12 REQD	NIL

**KEY NUMBERS**

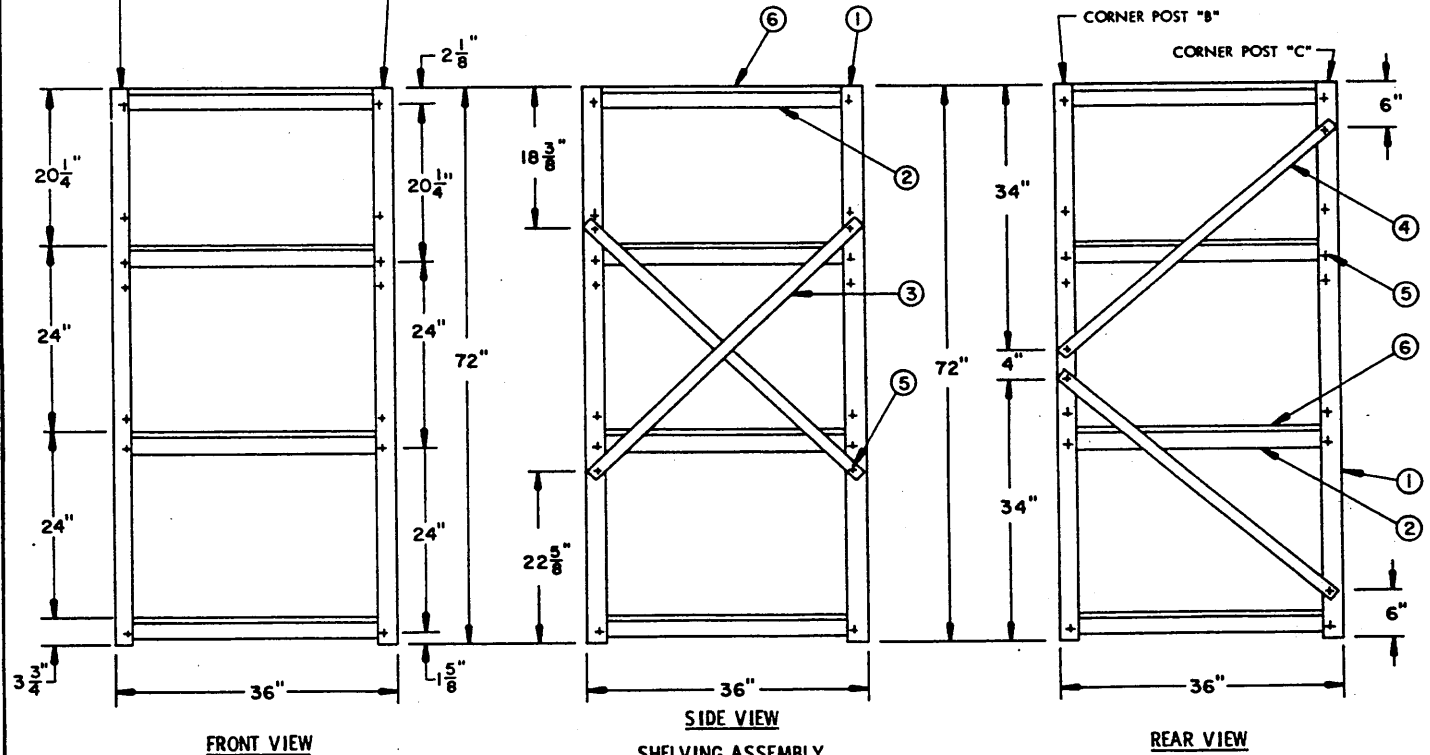
- ① CORNER POST, 2-1/2" X 2-1/2" X 3/8" STEEL ANGLE BY 72" LONG ( 4 REQD ). DRILL 7/16" DIA HOLES IN EACH LEG AT LOCATIONS SHOWN IN THE DETAILS ON PAGE 15.
- ② SHELF SUPPORT, 2" X 2" X 3/8" STEEL ANGLE BY 34-1/4" LONG ( 16 REQD ). BEVEL EACH END OF ONE LEG AND DRILL 7/16" DIA HOLE AT EACH END OF OTHER LEG. SEE DETAIL ON PAGE 15. BOLT TO CORNER POSTS. SEE DETAIL AT LEFT.
- ③ SIDE BRACE, 1-1/2" X 1/8" FLAT STEEL BAR BY 48" LONG ( 4 REQD ). DRILL 7/16" DIA HOLE AT EACH END. SEE DETAIL ON PAGE 15. BOLT TO CORNER POSTS.
- ④ REAR BRACE, 1-1/2" X 1/8" FLAT STEEL BAR BY 46" LONG ( 2 REQD ). DRILL 7/16" DIA HOLE AT EACH END. SEE DETAIL ON PAGE 15. BOLT TO CORNER POSTS.
- ⑤ BOLT, 3/8" DIA BY 1-1/2" LONG HEX-HEAD BOLT W/HEX-NUT AND LOCK WASHER ( 44 REQD ).
- ⑥ SHELF, 35" X 35" X 3/4" THICK PLYWOOD ( 4 REQD ). POSITION ON TOP OF SHELF SUPPORT PIECES MARKED ②.



TOP VIEW  
CORNER BOLTING DETAILS

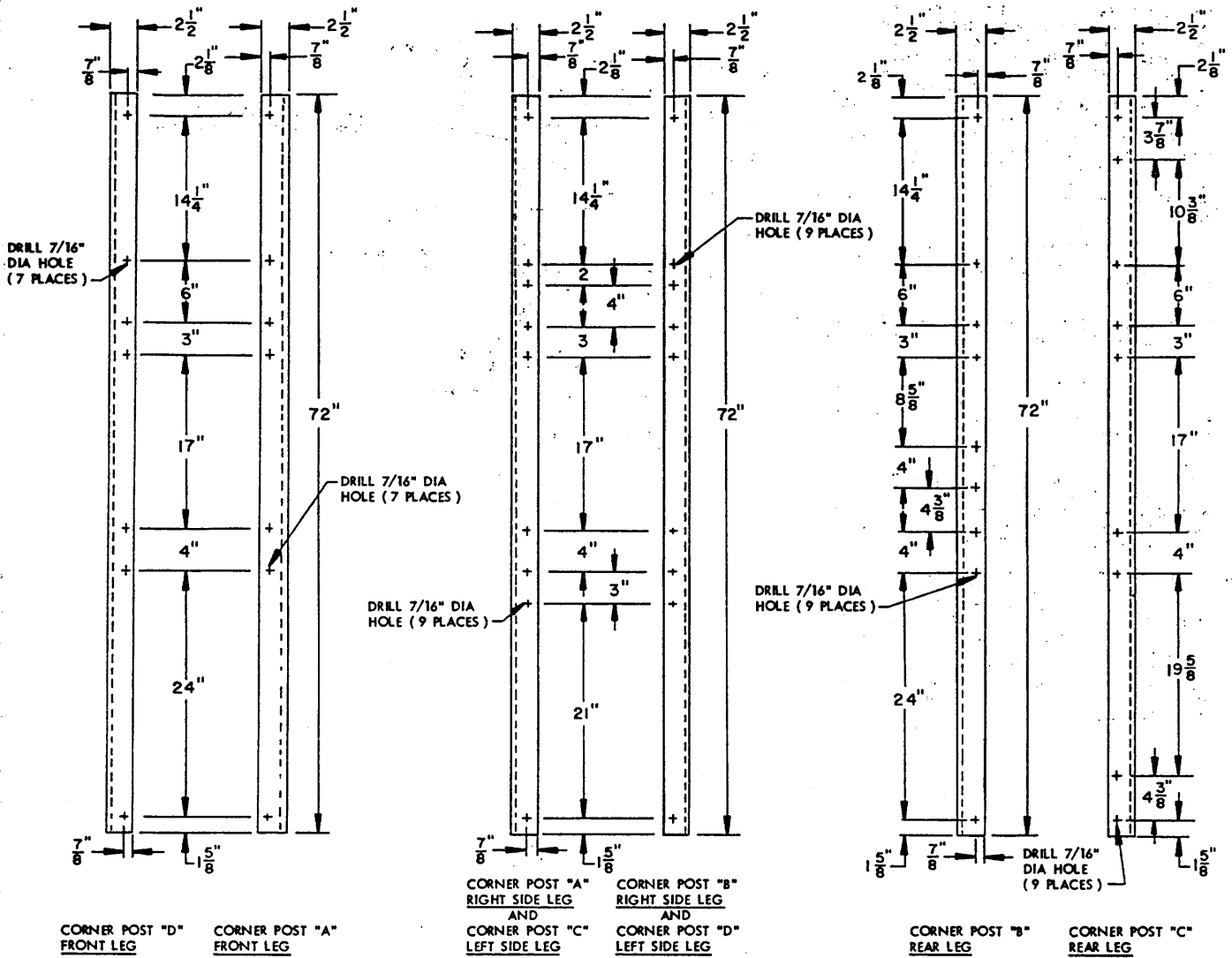


FOR GENERAL NOTES, AND MATERIAL SPECIFICATIONS, SEE PAGE 2.

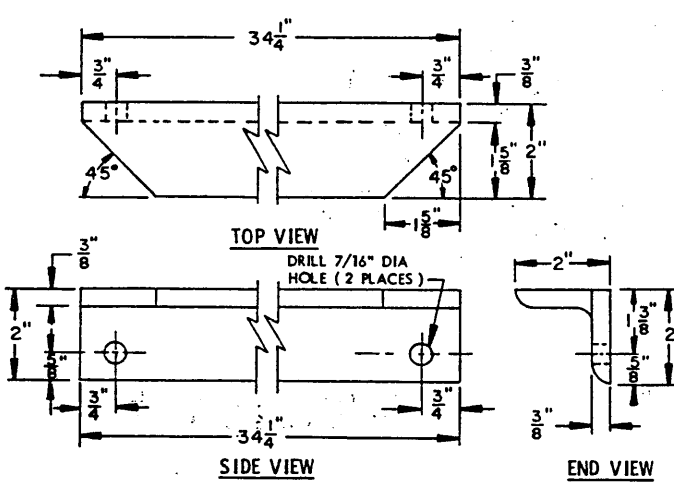


SHELVING ASSEMBLY  
( ADDITIONAL HOLES PERMIT HEIGHT ADJUSTMENT OF SHELVES )

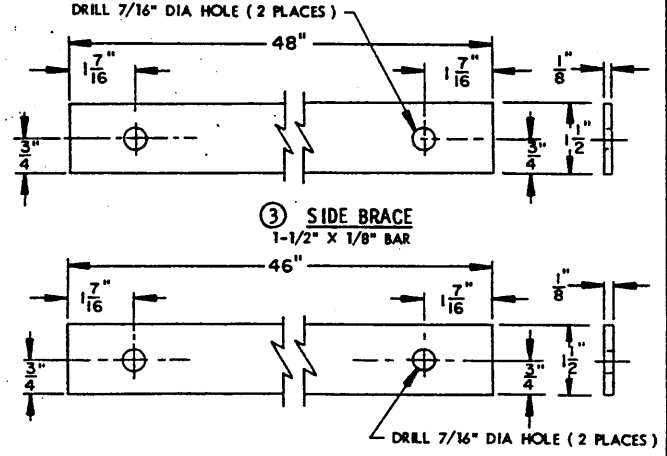
STEEL SHELVING UNIT DETAILS



① CORNER POSTS  
 2-1/2" X 2-1/2" X 3/8" ANGLE  
 (SEE "SHELVING ASSEMBLY" VIEWS ON PAGE 14)



② SHELF SUPPORT  
 2" X 2" X 3/8" ANGLE

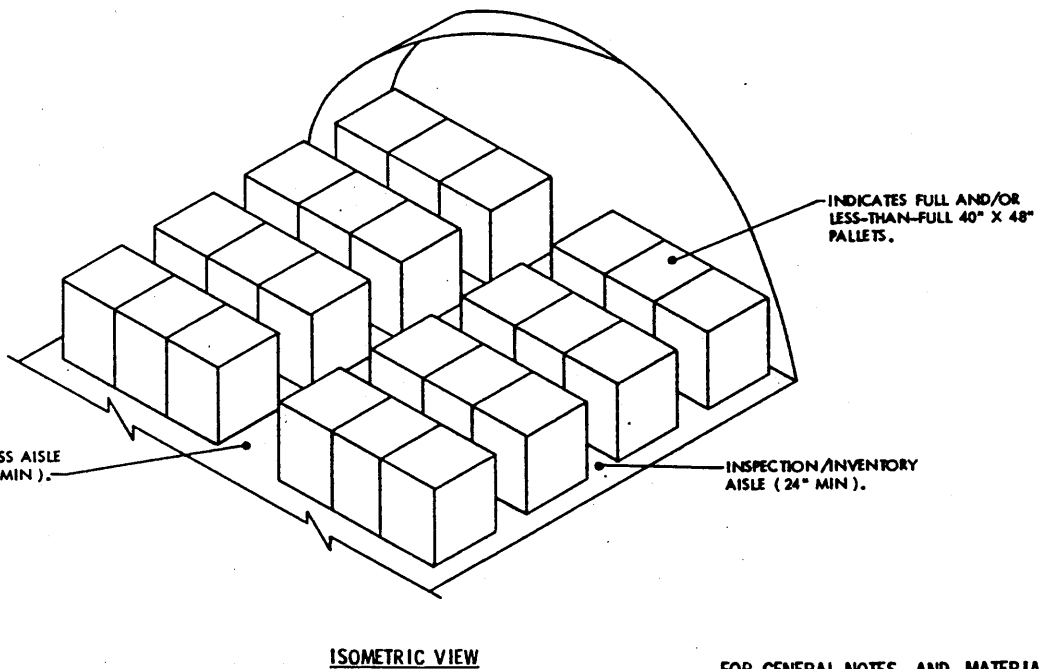
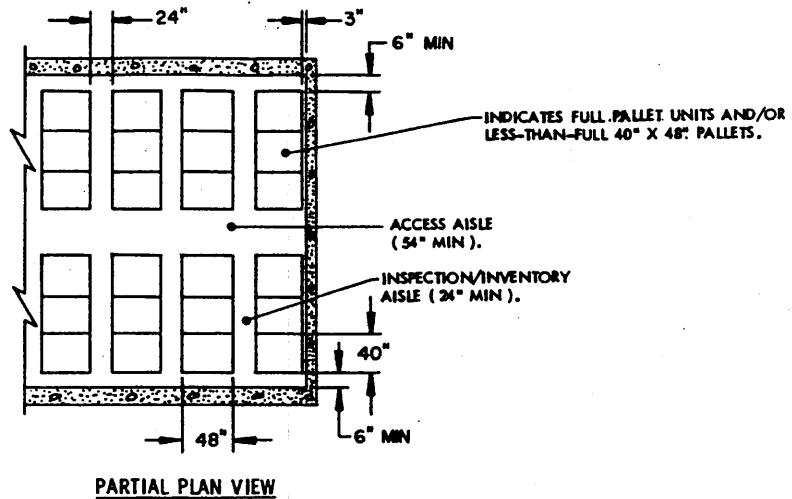


③ SIDE BRACE  
 1-1/2" X 1/8" BAR

④ REAR BRACE  
 1-1/2" X 1/8" BAR

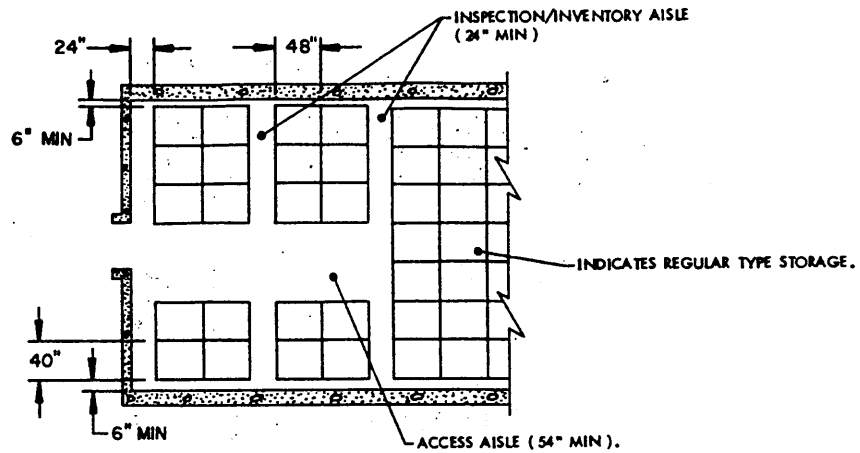
**SPECIAL NOTES:**

1. THE VIEWS AS SHOWN ON THIS PAGE DEPICT A 1-HIGH PALLET STORAGE ARRANGEMENT ACHIEVED BY USE OF A HAND PALLET TRUCK (PALLET JACK). ALTHOUGH ONLY A PARTIAL-MAGAZINE STORAGE ARRANGEMENT IS DEPICTED, THIS ARRANGEMENT CAN BE USED TO FILL AN ENTIRE MAGAZINE, OR THE STORAGE ARRANGEMENT AS SHOWN CAN BE PLACED IN ANY AREA WITHIN A MAGAZINE (ARRANGED TO EXTEND ACROSS A MAGAZINE AS SHOWN OR SO AS TO ONLY OCCUPY A STORAGE AREA ON ONE SIDE OF A MAGAZINE). STACKING METHODS FOR ARRANGING PACKAGES ON PALLETS WILL COMPLY WITH REQUIREMENTS SPECIFIED ON PAGE 5. IN NO CASE ARE PALLETS TO BE STACKED, EVEN IF THEY ARE FULL PALLET UNITS.
2. TO PERMIT REMOVAL OR PLACEMENT OF PALLETS WITH A PALLET JACK, ACCESS AISLES MUST BE AT LEAST 54" WIDE. INSPECTION/INVENTORY AISLES MUST BE AT LEAST 24" WIDE.
3. THE SPECIAL NOTES ON PAGES 5 AND 7 WILL ALSO APPLY AS APPLICABLE FOR A 1-HIGH PALLET STORAGE ARRANGEMENT.
4. STORAGE OF PALLETS WITH CONTENTS MAY BE MADE UP OF PALLETS OF ANY SIZE OR COMBINATION OF SIZES, PROVIDED MINIMUM SIZE AISLES AND WALL CLEARANCES ARE MAINTAINED.
5. ALTHOUGH AN IGLOO TYPE MAGAZINE IS SHOWN FOR THE DELINEATED STORAGE ARRANGEMENT, OTHER TYPES OF MAGAZINES MAY BE USED. HOWEVER, PALLET ARRANGEMENTS MUST PROVIDE THE MINIMUM SIZE ACCESS AISLE, INSPECTION/INVENTORY AISLES AND WALL CLEARANCES SPECIFIED ON THIS PAGE.
6. IF THE 1-HIGH PALLET STORAGE DEPICTED ON THIS PAGE DOES NOT OCCUPY THE FULL LENGTH OF A MAGAZINE, OTHER STORAGE METHODS MAY BE USED IN CONJUNCTION WITH THAT SHOWN TO PROVIDE FOR FULL UTILIZATION OF THE STRUCTURE. THE ADDITIONAL STORAGE MAY INCLUDE USE OF OTHER TYPES OF STORAGE AIDS OR CONSIST OF REGULAR TYPE STORAGE. HOWEVER, THE ADDITIONAL STORAGE MUST BE ARRANGED TO PROVIDE FOR ACCESS TO ALL STORAGE ARRANGEMENTS IN THE MAGAZINE.

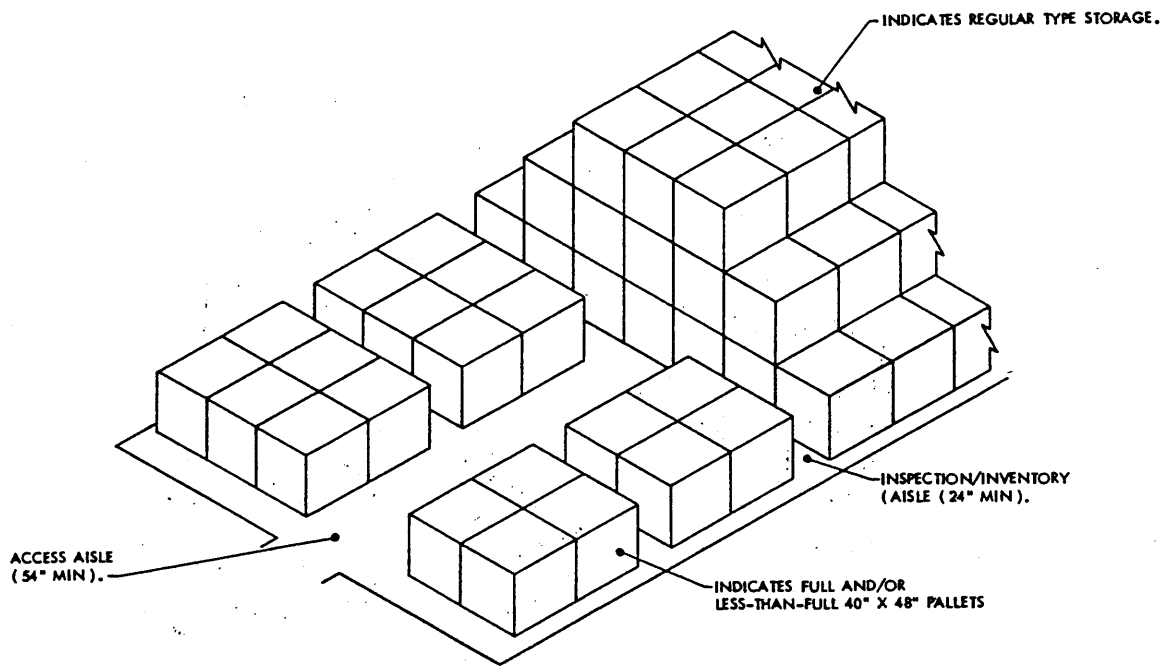


FOR GENERAL NOTES, AND MATERIAL SPECIFICATIONS, SEE PAGE 2.





**PARTIAL PLAN VIEW**



**ISOMETRIC VIEW**

( SPECIAL NOTES CONTINUED )

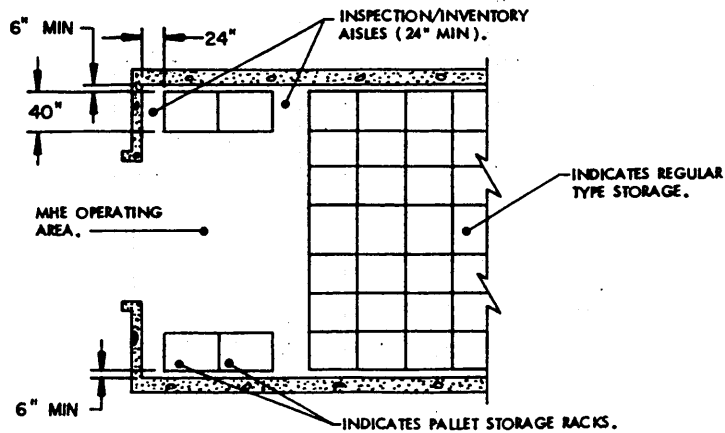
**SPECIAL NOTES:**

1. THE VIEWS AS SHOWN ON THIS PAGE DEPICT AN IGLOO MAGAZINE PARTIALLY FILLED BY USE OF REGULAR TYPE STORAGE METHODS (BLOCK STORAGE INDICATED) AS DELINEATED IN OTHER APPROVED 19-48 SERIES STORAGE DRAWINGS. THE SPACE IN THE FRONTAL AREA OF THE MAGAZINE MAY BE USED FOR STORING ITEMS IN SMALL QUANTITIES AND/OR NUMEROUS LOTS ON PALLETS USING A HAND PALLET TRUCK (PALLET JACK) IN A 1-HIGH PALLET STORAGE ARRANGEMENT.
2. SPECIAL NOTES 1 THROUGH 5 ON PAGE 16 WILL ALSO APPLY TO THE PROCEDURES SHOWN ON THIS PAGE.
3. IT MAY BE NECESSARY TO REMOVE SOME 1-HIGH PALLETS FROM THE FRONTAL AREA OF THE MAGAZINE BY USE OF A PALLET JACK TO PROVIDE ADEQUATE OPERATING SPACE FOR A FORKLIFT TRUCK TO HAVE ACCESS FOR REMOVAL OF PALLETS FROM THE REGULAR TYPE STORAGE AREA. SEE SPECIAL NOTE 2 ON PAGE 7 AS IT PERTAINS TO SPECIFIC ACCESSIBILITY REQUIREMENTS:

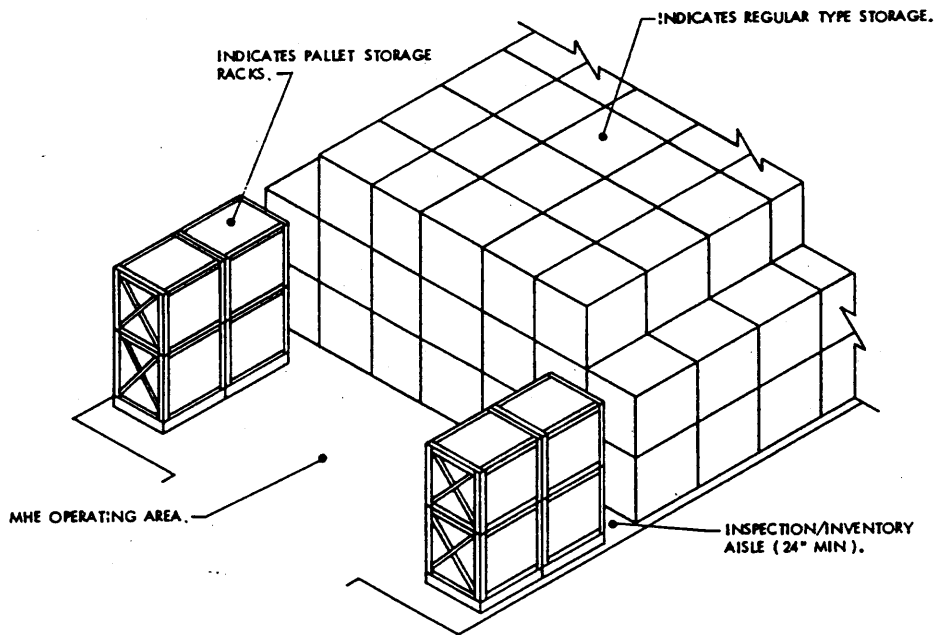
4. ALSO, STORAGE ON FLOOR DUNNAGE AND/OR SHELVING UNITS CAN BE USED IN LIEU OF STORAGE ON PALLETS AS SHOWN; HOWEVER, IF EITHER OF THESE METHODS ARE USED STORAGE PROBABLY WILL HAVE TO BE RESTRICTED TO ONE SIDE OF THE MAGAZINE IN THE FRONTAL AREA TO ACHIEVE MAXIMUM STORAGE EFFICIENCY.

( CONTINUED AT RIGHT )

FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS, SEE PAGE 2.



**PARTIAL PLAN VIEW**



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. THE VIEWS AS SHOWN ON THIS PAGE DEPICT A STRADLEY MAGAZINE PARTIALLY FILLED BY USE OF REGULAR TYPE STORAGE METHODS (BLOCK STORAGE INDICATED) AS DELINEATED IN OTHER APPROVED 19-48 SERIES STORAGE DRAWINGS. THE UNOCCUPIED SPACE IN THE FRONTAL AREA OF THE MAGAZINE MAY BE USED FOR STORAGE OF ITEMS IN SMALL QUANTITIES AND/OR NUMEROUS LOTS PLACED ON PALLET RACKS. STACKING METHODS FOR ARRANGING PACKAGES ON PALLETS FOR PLACEMENT BY FORKLIFT TRUCK ON A PALLET RACK WILL COMPLY WITH REQUIREMENTS SPECIFIED ON PAGE 5, AS PERTAINS TO STACKING ON PALLETS WITH SUPPORT SETS.
2. THE SPECIAL NOTES ON PAGE 5 ALSO APPLY TO STORAGE AS SHOWN ON THIS PAGE.

(CONTINUED AT RIGHT)

**(SPECIAL NOTES CONTINUED)**

3. ALTHOUGH A STRADLEY TYPE MAGAZINE IS SHOWN, OTHER TYPES OF MAGAZINES MAY BE USED FOR STORING ITEMS ON PALLET RACKS. USE OF PALLET RACKS AS STORAGE AIDS IN ARCH TYPE MAGAZINES WOULD BE VERY LIMITED DUE TO THE HEIGHT AND CURVATURE OF THE ARCH.
4. ALSO, STORAGE ON PALLET SUPPORT SETS AND/OR SHELVING UNITS CAN BE USED IN LIEU OF STORAGE ON PALLET STORAGE RACKS AS SHOWN.

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