



**FUNCTIONAL DIAGRAM**  
SMALL TISA

**FUNCTIONAL DIAGRAM**  
MEDIUM & LARGE TISA

**AISLE WIDTHS**

THE SMALL MEDIUM AND LARGE FACILITIES REFLECT AISLE WIDTHS WHICH ARE CAPABLE OF HANDLING CUSTOMER SHOPPING (MINI/MAXI MART ACTIVITY) ALONG WITH NORMAL STOCKING BY EXPERIENCED WAREHOUSE PERSONNEL SIMULTANEOUSLY. A TEN FOOT AISLE WIDTH IS REQUIRED FOR BOTH. TYPICAL AISLE WIDTH IN THE MEDIUM AND LARGE FACILITIES IS TEN FEET OTHER THAN THE MAXI MART AISLE (FOURTEEN FEET) AND AISLES SERVING DRIVE-IN RACKS AND THE SECONDARY SERVICE TO COOLERS AT TWELVE FEET. THE SMALL FACILITY IS TWELVE FEET THROUGHOUT OTHER THAN THE MAXI-MART AISLE AT FOURTEEN FEET.

IT IS MANDATORY THAT THE MINIMUM WORKING AISLE NOT BE LESS THAN 10'-0". AISLE WIDTH SHALL ACCOMMODATE HANDLING OF A GROCERY MANUFACTURER ASSOCIATION (GMA) PALLET WITH A 53" LOAD LENGTH.

**FUNCTIONAL AND OPERATIONAL REQUIREMENTS**

THIS STANDARD HAS BEEN DESIGNED TO MEET THE FUNCTIONAL AND OPERATIONAL REQUIREMENTS FOR "TISA" COLD/DRY STORAGE FACILITIES. THE SUPPORT CAPACITIES FOR VARIOUS TROOP STRENGTHS, PERSONNEL (BOTH ADMINISTRATIVE AND WAREHOUSE) ALONG WITH THE ASSOCIATED STORAGE CAPACITIES OF KEY WAREHOUSE AREAS ARE SPECIFICALLY DEFINED ON THE FLOOR PLAN SHEETS. THE PLAN IS ORGANIZED INTO FOUR FUNCTIONAL AREAS: STORAGE, ADMINISTRATIVE, WAREHOUSE OFFICE AND SUPPORT SPACES. THESE AREAS ARE ORGANIZED BY A LINEAR SPINE CONTAINING THE SUPPORT FUNCTIONS WHICH SERVE AND ORGANIZE ACCESS TO THE INDIVIDUAL STORAGE AREAS. THE WAREHOUSE OFFICE AREA IS CENTRALLY LOCATED (IN THE MEDIUM & LARGE SIZES) FOR ACCESS TO AND CONTROL OF THE DOCK FUNCTIONS. THE ADMINISTRATIVE OFFICE AREA IS LOCATED SO AS NOT TO INTERFERE WITH WAREHOUSE RELATED FUNCTIONS AND MAINTAINS ITS PRIMARY RELATIONSHIPS TO POV PARKING WHILE ALLOWING SPECIFIC INTERNAL SPACES SUCH AS BREAK-TRAINING AND TOILETS EASY ACCESS FROM ALL AREAS WITHIN. THE FUNCTIONAL RELATIONSHIPS DESCRIBED AND SHOWN ARE A MANDATORY ELEMENT OF THE DESIGN. THE FOUR FUNCTIONAL AREAS ARE FURTHER DEFINED AS FOLLOWS:

**STORAGE AREAS** SIX SPECIFIC AREAS ARE INCLUDED IN THIS FACILITY TO ACCOMMODATE THE VARIOUS PRODUCTS STORED; DRY STORAGE, FRUIT & VEGETABLE COOLERS (TWO TEMPERATURES), PERISHABLE COOLER, ONION & POTATO COOLER AND THE FREEZER. THESE AREAS ARE FURTHER ORGANIZED ALONG THE SPINE IN ZONES OF DRY, FOUR TYPES OF COOLER AND THE FREEZER. THE COOLERS AND THE FREEZER ARE SEPARATED BY A MAXI-MART AISLE BY WHICH MAXI-MART CUSTOMERS GAIN ACCESS TO PRODUCT STORED IN CASE FLOW RACKS. THE "REACH THROUGH" ABILITY WITHIN THE AISLE IS AN OPTIONAL ELEMENT OF THE DESIGN. A SECONDARY SERVICE AISLE IS INCORPORATED BETWEEN THE DRY STORAGE AND COOLERS TO ALLOW REPLENISHMENT OF STOCK WITHIN THE COOLERS BY WAREHOUSE PERSONNEL. THIS SERVICE AISLE MAY BE RELOCATED TO REPLACE THE MAXI-MART AISLE IN THOSE FACILITIES WHICH DO NOT IMPLEMENT THE MAXI-MART OPTION.

**SUPPORT** THIS ZONE OF THE FACILITY IS 40' WIDE (SMALL TISA) AND 50' WIDE (MEDIUM & LARGE TISA) AND RUNS THE ENTIRE LENGTH OF THE STORAGE AREAS. A CIRCULATION ZONE 12' WIDE IS LOCATED DIRECTLY ADJACENT TO STORAGE AREAS AND SHALL BE DEDICATED TO CART AND MATERIAL HANDLING EQUIPMENT CIRCULATION. MATERIAL HANDLING EQUIPMENT STORAGE AND BATTERY CHARGING IS LOCATED IN THE DRY DOCK AREA ADJACENT TO AN EXTERIOR WALL IN THE SMALL TISA AND WITHIN AN ENCLOSED AREA IN THE CHILLED DOCK IN THE MEDIUM AND LARGE TISA'S. FOUR WHEEL CART STORAGE IS LOCATED ON THE DRY DOCK AND IS PLACED IMMEDIATELY ADJACENT

TO CUSTOMER PICK-UP AND DELIVERY PARKING. THE REMAINDER OF THE SUPPORT AREA IS DIVIDED BETWEEN THE DRY AND CHILLED DOCKS. THESE DOCKS SERVE AS MULTIPLE FUNCTION AREAS WHICH INCLUDE: RECEIVING/ISSUING, STAGING AND HOLDING, UNIT PILES, VETERINARY INSPECTION AND A SALVAGE AREA ADJACENT TO A WALL WITH A FLOOR DRAIN, SMALL 3-COMPARTMENT SINK WITH DRAINBOARD AND SPACE FOR A TABLE AND STAND UP STORAGE SHELF. THIS AREA SHALL BE KEPT COLUMN FREE AND OPEN TO ALLOW THE FLEXIBILITY REQUIRED IN A MULTI-FUNCTION SPACE. DELINEATION OF THE VARIOUS FUNCTIONS VIA PAINTED FLOOR TREATMENTS WILL AID IN ORGANIZATION OF THE SPACE.

**WAREHOUSE OFFICE** THE LENGTH OF THE SUPPORT SPACE IN THE MEDIUM AND LARGE FACILITIES ALLOW FOR CENTRAL LOCATION BETWEEN THE DRY AND THE CHILLED DOCKS. THIS AREA HAS BEEN COMBINED WITH ADMINISTRATION IN THE SMALL SIZE DUE TO THE LENGTH OF DOCK REQUIRED. THE WAREHOUSE OFFICE INCLUDES SPACE FOR WAREHOUSE OFFICE PERSONNEL, DRIVER WAITING, JANITOR CLOSET AND VETERINARY OFFICE AND INSPECTION ROOM. THE VETERINARY OFFICE/INSPECTION ROOM IS LOCATED TO HAVE DIRECT VISUAL ACCESS TO THE DOCK AREA AS WELL AS INCOMING TRUCKS. A SECONDARY MEANS OF EGRESS IS ALSO REQUIRED FROM THE VETERINARY OFFICE. EXISTING MILITARY CRITERIA FOR THE VETERINARY OFFICE/LAB WITH RESPECT TO SIZE AND EQUIPMENT SHALL BE FOLLOWED. THE WAREHOUSE OFFICE IS THE CENTRAL CONTROL POINT FOR ALL WAREHOUSE AND DOCK FUNCTIONS. CAREFUL CONSIDERATION SHOULD BE GIVEN TO GLAZING THIS AREA IN ORDER TO MAINTAIN VISUAL ACCESS. DRIVER WAITING IS LOCATED WITHIN THE WAREHOUSE OFFICE IN ORDER TO LIMIT ACCESS OF UNAUTHORIZED PERSONNEL TO THE FACILITY.

**ADMINISTRATION** THE ADMINISTRATIVE AREA PROVIDES BOTH DIRECT AND INDIRECT SUPPORT TO THE WAREHOUSE FUNCTIONS. VENDING, BREAK-TRAINING AND TOILET AREAS ARE DIRECTLY ACCESSIBLE FROM THE SUPPORT SPINE WHILE THE TISO, GENERAL ADMINISTRATION AND CONFERENCE ARE ORIENTED TO THE POV PARKING AND DIFFERENTIATED BY APPROPRIATE MATERIALS AND CONSIDERATIONS. AN ENCLOSED OFFICE IS PROVIDED FOR THE TISO WITH VIEW TO GENERAL ADMINISTRATION WHILE THE REMAINDER OF SPACE IS OPEN OFFICE TO MAINTAIN FLEXIBILITY WITHIN.

FLEXIBILITY AND EXPANSION ARE ACCOMPLISHED IN THE ORGANIZATION OF ADMINISTRATIVE/WAREHOUSE OFFICES AND STORAGE AREAS ON OPPOSITE SIDES OF THE LINEAR SUPPORT SPINE. A MAXIMUM TOTAL OF 25% EXPANSION TO THE INDIVIDUAL STORAGE AREAS IS REQUIRED AS INDICATED ON THE SITE PLAN. EXPANSION MAY VARY BY RATION TYPE AND STORAGE AID REQUIRED, HOWEVER, IT IS GENERALLY

LIMITED TO PARALLEL WITH AND OPPOSITE TO THE SUPPORT SPINE. A COLUMN AND BEAM STRUCTURE ELIMINATES THE NEED FOR BEARING WALLS IN THE STORAGE AREAS AND FURTHER ENABLES EASE OF EXPANSION. CAREFUL CONSIDERATION SHOULD BE GIVEN TO THE ROOF SLOPE IN ORDER TO AVOID LIMITATION OF EXPANSION OR AVAILABLE STORAGE HEIGHT IN THE DESIGNATED DIRECTIONS.

IN GENERAL, ALL WALLS SEPARATING THE INDIVIDUAL STORAGE AREAS SHALL BE CONSIDERED FIXED DUE TO THEIR REQUIREMENT TO PROVIDE THERMAL SEPARATION. WALLS SEPARATING THE ADMINISTRATION & WAREHOUSE OFFICES FROM STORAGE SHALL BE FIRE RATED, FIXED PARTITIONS WITH NO PROVISION FOR EXPANDING INWARD (TOWARD STORAGE). CONSIDERATION SHOULD BE GIVEN TO SOUND TRANSMISSION CONTROL BETWEEN THE OFFICE AND STORAGE AREAS. A MINIMUM STC OF 40-45 SHALL BE PROVIDED.

THIS FACILITY IS DESIGNED TO OPERATE THE SAME FOR CONTRACTOR OR GOVERNMENT PERSONNEL. THE PICKING FUNCTION IS DESIGNED TO ACCOMMODATE EITHER WAREHOUSE OR CUSTOMER ACTIVITY VIA VERTICAL ZONING OF THE STORED PRODUCT AT THE APPROPRIATE HEIGHTS. PICK LEVEL POSITIONS AND OVERALL ZONING ARE FURTHER DETAILED ON THE FLOOR PLAN SHEETS AND THE STORAGE AID ELEVATION ON SHEET 8.

GENERAL FLOW THROUGH THE FACILITY STARTS AT CUSTOMER PARKING WHICH ENTERS ADJACENT TO THE FOUR WHEEL CART STORAGE. FROM THAT POINT, UTILIZING THE CIRCULATION SPINE, THE DRY STORAGE AREA IS ACCESSED. CIRCULATION CONTINUES ALONG THE SPINE INTO THE CHILLED DOCK. A SECONDARY CIRCULATION, PERPENDICULAR TO THE CHILLED DOCK CONTAINS THE REACH-THROUGH OPTION OF ACCESS TO THE COOLERS AND FREEZER. THIS MAXI MART AISLE ALSO CONTAINS DOORS FOR ACCESS BY PERSONNEL AND FOUR WHEEL CARTS ONLY. MATERIAL HANDLING EQUIPMENT USED TO REPLENISH THE COOLERS IS CONFINED TO THE SECONDARY SERVICE AISLE. PRODUCT IS THEN BROUGHT BACK TO THE UNIT PILE AREAS FOR INSPECTION BY WAREHOUSE PERSONNEL AND EVENTUAL STAGING FOR FINAL ISSUE.

THIS DESIGN IS CAPABLE OF HANDLING CUSTOMER SHOPPING WHICH IS REFERRED TO AS MINI, MAXI OR MINI/MAXI MART THROUGHOUT THIS PACKAGE. THE FOLLOWING ARE DEFINITIONS OF EACH:

- MINI MART - CUSTOMER SHOPPING IN DRY STORAGE ONLY.
- MAXI MART - CUSTOMER SHOPPING IN COOLERS AND FREEZER ONLY.
- MINI/MAXI MART - CUSTOMER SHOPPING THROUGHOUT ALL STORAGE AREAS.

DESIGNED BY	W/A & A	DEPARTMENT OF THE ARMY FACILITIES STANDARDIZATION PROGRAM DEFINITIVE DESIGN
DRAWN BY	CADD	
CHECKED BY	PM	
SUBMITTED BY	MK	
SCALE:	AS SHOWN	PROJECT NO. DEF 432-11-01
DATE:	OCTOBER 1988	SHEET NO. 2