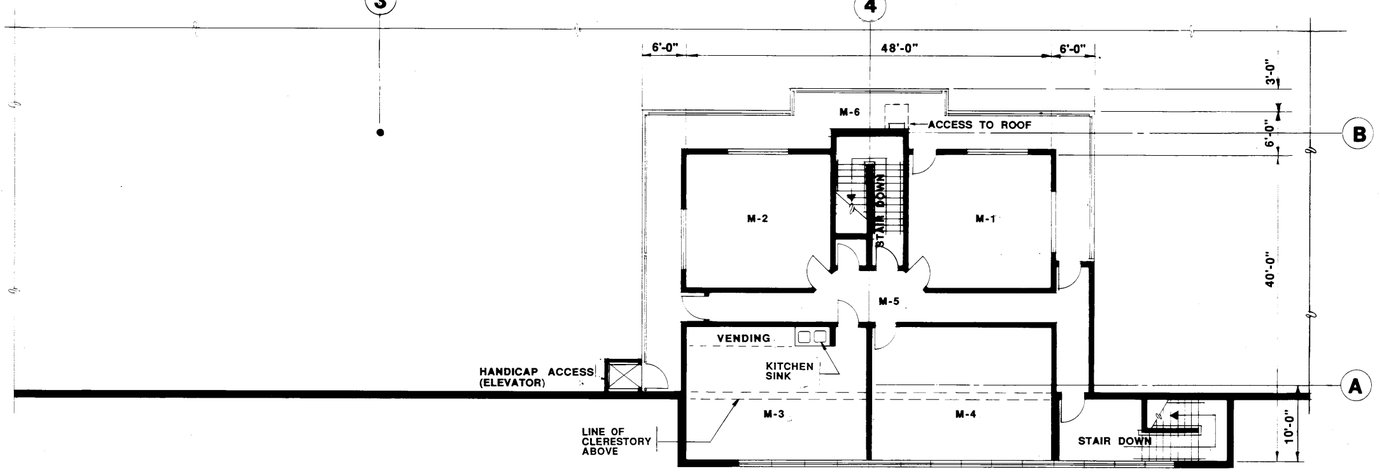
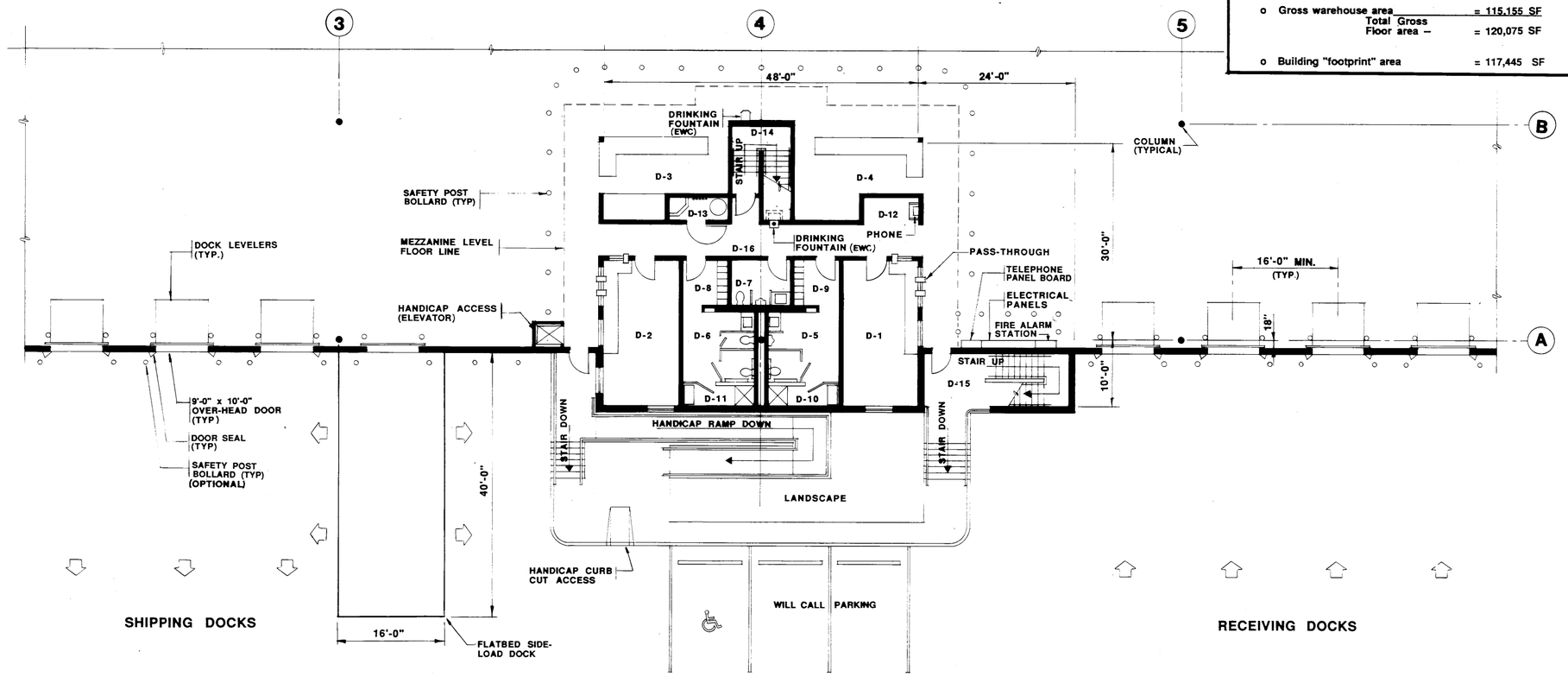


MEZZANINE LEVEL FLOOR PLAN

0 1 2 4 8 16



DOCK LEVEL FLOOR PLAN

0 1 2 4 8 16

ROOM NUMBER AND AREA TABULATION

Room Number:	Room Name:	Area:
I. DOCK LEVEL:		
	OFFICES:	
D-1	•RECEIVING OFFICE	310 SF
D-2	•SHIPPING OFFICE WORKSTATIONS:	310 SF
D-3	•PARCEL POST SHIPPING ORDER ASSEMBLY	210 SF
D-4	•ACCEPTANCE INSPECTION QUALITY CONTROL (QC)	210 SF
	RESTROOMS:	
D-5	•MEN	135 SF
D-6	•WOMEN	135 SF
D-7	•TRUCKER	80 SF
	LOCKER ROOMS:	
D-8	•WOMEN	65 SF
D-9	•MEN	65 SF
	SHOWER ROOMS:	
D-10	•MEN	45 SF
D-11	•WOMEN	45 SF
D-12	TRUCKER LOBBY	50 SF
D-13	JANITOR / WATER HEATER CIRCULATION:	50 SF
	STAIRS TO MEZZANINE:	
D-14	•MAIN STAIR	130 SF
D-15	•SECONDARY FIRE EXIT	210 SF
D-16	•CORRIDOR	235 SF
II. MEZZANINE:		
	OFFICES:	
M-1	•WAREHOUSE SUPERVISOR	360 SF
M-2	•GENERAL OFFICE	380 SF
M-3	•LUNCH / BREAK ROOM	460 SF
M-4	•MANAGEMENT INFORMATION CENTER (MIC)	460 SF
	CIRCULATION:	
M-5	•CORRIDOR	435 SF
M-6	•OBSERVATION	540 SF
III. WAREHOUSE AREA:		115,155 SF
	Gross Building Area	120,075 SF

GROSS BUILDING AREA:

- Logistics / Administration support area:
  - –Mezzanine level area = 2,635 SF
  - –Dock level area = 2,285 SF
- Gross warehouse area = 115,155 SF
- Total Gross Floor area – = 120,075 SF
- Building "footprint" area = 117,445 SF

Architectural Design Objectives (Continued)

Development of the roof system will be accomplished during final design and care shall be taken to insure a system compatible with the geographic area of this facility. Use of multiple or split-level roof heights requires that the designer pay particular attention to resolving potential deflection and leakage problems. All roofs shall be provided with positive roof drainage. The roof membrane shall be selected for longevity, low maintenance, and watertight qualities. External roof drainage has been developed for this building, however, internal roof drains may be substituted where local conditions are favorable. Collection and retention systems may also be a requirement for rain water run-off. Minimum roof slope recommended is 1/2" per foot.

Safety provisions are considered a high priority in warehouses. The Occupational Safety and Health Act (OSHA) requirements shall be followed throughout the design process, as well as the Life Safety Code.

Access by physically handicapped persons shall be provided in accordance with the Uniform Federal Accessibility Standards. Provisions shall include a suitable elevator to the mezzanine level as well as access from exterior to main dock level.

The building shall be fully sprinklered for fire protection and appropriate detection and alarm systems provided. Normally, the sprinkler system will be a "wet-pipe system," however, there will be instances where a "dry-pipe system" will be appropriate. These decisions shall be made at final design based upon the functions of the Warehouse or other site specific requirements. In all cases, fire protection shall fully comply with provisions of NFPA and local codes/regulations if more restrictive.

Structural Design Objectives

The primary design objective for this facility has been to develop a structural system that is both economically feasible and compatible with current and forseeable warehousing material handling techniques. There are a number of structural system types available worldwide; therefore, the final selection is left to the USACE design agency or the A-E firm that will design the final product. However, the basic structural steel framing system utilized as the basis for this study is considered to be the most universally acceptable and appropriate for this project.

The snow, ice, wind and earthquake design loads for the superstructure will depend on the geographical location of the facility. The design floor loads will be governed by the vehicle and/or storage loads anticipated. The building structure shall be designed to resist loading conditions described in TM 5-809-1 and TM5-809-10 (in seismic regions). Slab on grade design shall comply with either TM5-809-2 or TM5-809-12, depending upon size and weight of imposed loads.

Selection of a foundation system will depend on the geological conditions at the site. The site selection process should avoid areas requiring special designs for foundations and slabs-on-grade.

The thickness of slab-on-grade will depend on the size and weight of material handling equipment to be utilized, the magnitude and distribution of storage loads, the aisle widths, slab joint layout, quality of the subgrade support and the strength of the concrete. The flatness of the slab is critical to the proper performance of the materials handling equipment and storage structure, especially in the high-rise type of warehouse. Quality control during construction is critical.

The basis for the structural system selected was dependent upon several factors, with functional layout requirements and related costs being the primary issues. The intent was to provide a structural bay column spacing that would accommodate the maximum varieties of layouts possible as determined by the types of materials handling equipment to be employed, and to provide a sound basis for increasing or decreasing the size of the basic 120,000 sq. ft. warehouse in some logical manner that would retain the integrity of a rectangular building. Numerous column locations were evaluated to determine the range of bay configurations that should be considered. These studies were developed around a range of bay configurations from 25' x 40' to 64' x 64' as it was felt that this range afforded the greatest flexibility of building configurations and for upsizing or downsizing in nominal modular increments.

The relative costs of the various column spacing and bay configurations were studied based upon a structural system of steel columns, truss girders, and long-span bar joists. Review was also made of a recent U.S. Navy study in which a conclusion was drawn that a 64' x 33' grid would accommodate the widest range of commonly utilized warehousing materials handling equipment and aisle spacings.

The building, as provided by this definitive design, would not prove suitable as a fallout protection facility due to its interior openness and the extent of wall and roof penetrations.

The structural system shown is most efficient in resisting lateral loads when the building configuration is relatively square, thus allowing the roof deck to function as a diaphragm. As the building configuration narrows, the roof deck diaphragm will be replaced by a horizontal bracing system. As the ratio of length to width approaches 3 to 1 the rigid frame structure may become the more viable solution for resisting lateral loads in the narrow direction. The effect of temperature on the building structure becomes more critical as the building size increases beyond the relatively square 120,000 sq. ft. configuration and should be considered during final design.

Revisions			
Symbol	Descriptions	Date	Approved

THE ORB ORGANIZATION

U. S. ARMY
ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

Designed by: LDC
Drawn by: KNY
Checked by: LDC/DHH
Reviewed by:
Submitted by:

DEPARTMENT OF THE ARMY
FACILITIES STANDARDIZATION PROGRAM
DEFINITIVE DESIGN

GENERAL PURPOSE WAREHOUSE

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