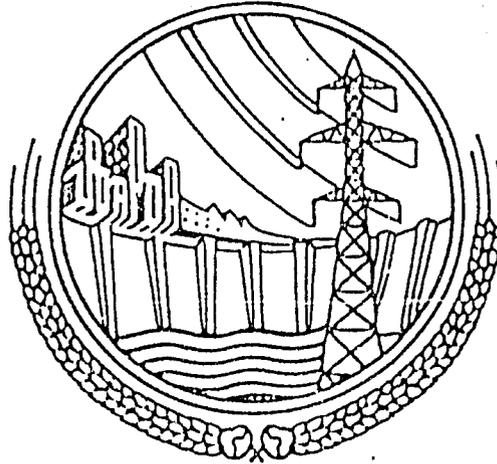


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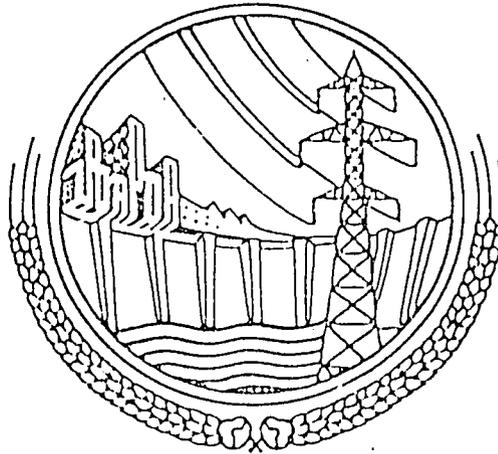


PAKISTAN

# **WATER AND POWER DEVELOPMENT AUTHORITY**

WAPDA DISTRIBUTION  
WAREHOUSE PRACTICES PROCEDURES

SEPTEMBER 1990



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WAPDA DISTRIBUTION WAREHOUSE PRACTICES PROCEDURES

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## CHAPTER 1 - INTRODUCTION

### 1.1 General

Warehouse practices are intended to be used as a guideline for the operation of Regional, Field and Remote Stores and to assign responsibility for those operations.

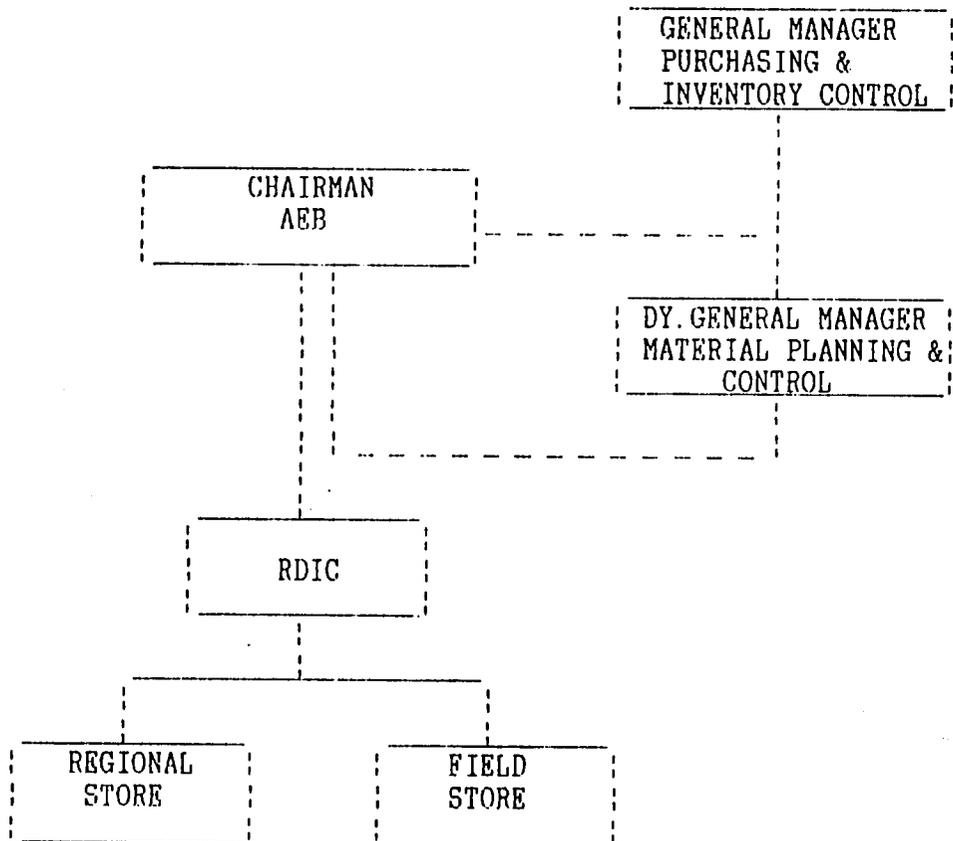
The object of warehouse practices is to adequately store and protect the materials required to support the Distribution Operations.

### 1.2 Amendments

The General Manager Purchasing and Inventory Control has the authority to amend/revise the WAPDA Warehouse Practices Procedure from time to time.

### 1.3 Organization

The Deputy General Manager Material Planning & Control will report to the General Manager Purchasing and Inventory Control and will be responsible for the procedural supervision of the Distribution Stores operation. The Distribution Stores Operation Organization will be as follows:

CHAPTER 1 - INTRODUCTION1.3 Organization (Cont'd)1.4 Responsibility

The Deputy General Manager Material Planning & Control of the Headquarters with the approval of the General Manager Purchasing & Inventory Control has the responsibility for developing, issuing and implementing warehouse policies, practices and procedures for all Distribution Stores located at all the Area Electricity Boards.

CHAPTER 1 - INTRODUCTION1.4 Responsibility (Cont'd)

The total responsibility for all Distribution Stores will be with the Headquarters Purchasing and Inventory Control Organization, as follows:

- A. Regional Director Inventory Control will report functionally/technically to the General Manager Purchasing and Inventory Control and administratively to the Chairman Area Electricity Board.
- B. Regional Director Inventory Control will supervise all stores personnel in the Area Electricity Board.
- C. The Deputy General Manager - Material Planning & Control will have functional and procedural responsibility for all Distribution Stores in all Area Electricity Boards.
- D. Regional Director Inventory Control will report functionally to the Deputy General Manager - Material Planning & Control for the purpose of this procedure.
- E. Regional Director Inventory Control will be responsible for implementing all properly approved policies, practices and procedures in all stores in his area.

CHAPTER 2 - WAREHOUSE OPERATIONS2.1 General

This chapter establishes guidelines for warehouse operations and assigns responsibility for those operations.

The purpose of effective warehouse operations is to arrange and store materials in a manner that will expedite issue to the user organizations.

The Regional and Field Store Managers and S.D.O. in charge of Remote Stores are responsible for the efficient operation of their stores.

2.2 Storage Plan

A scale drawing should be prepared and maintained in the offices of the RDIC and relevant Store Manager for both the warehouse and yard storage areas. This will:

- A. Allocate storage space for each item in either the warehouse or yard area.
  1. Total floor layout of Warehouse divided into storage bins, pallet racks, bulk storage bays and non storage areas.
  2. Yard layout demarcating storage bays, roads, passages, and raised platforms.
- B. Make sure the item is always stored in its assigned location.

CHAPTER 2 - WAREHOUSE OPERATIONS2.2 Storage Plan (Cont'd)

- C. Arrange storage locations for items with highest use nearest the point of receipt and issue to reduce travel time and lost motion for both equipment and personnel.
- D. Provide adequate space for aisles, roadways, gates and doors for the movement of equipment and personnel.
- E. Identify each storage location, in both yard and warehouse, with a unique storage location code. The coding structure should be as follows:
1. Warehouse storage locations will be identified by a five (5) position code such as (XXAXX).
    - a. The first two positions (XX) will be numeric in the range 01-49 and will be assigned to bin or pallet rack aisle.
    - b. The third position (A) will be an alphabetic character assigned to each shelf starting with A at the floor and progressing upward.
    - c. The last two positions (XX) will be numeric in the range of 01-99 and will be assigned to each storage position along each shelf.
- Yard storage locations will be identified by a five (5) position code such as (XX-XX).

## CHAPTER 2 - WAREHOUSE OPERATIONS

### 2.2 Storage Plan (Cont'd)

- a. The first two positions (XX) will be numeric in the range 51-99 and will be assigned to each yard section.
- b. The third position (X) is not assigned any function and is always (-).
- c. The last two positions (XX) will be numeric in the range 01-99 and will be assigned to each yard section.

#### 2.2.1 Plaque

A black painted wooden board of size 18"x12" should be placed in the rack where item is stored. Stock code painted in white letters and the floor balance of the item should be written with chalk for quick reference.

### 2.3 Housekeeping

Warehouse and yard storage areas must be maintained in a clean and orderly manner so that storage locations can be readily identified, materials are easily accessible for issue and storage activity and stored materials will not deteriorate from the effects of dust, dirt or moisture. Key points of good housekeeping are:

- A. Daily sweeping and/or cleaning of warehouse and yard storage areas.

CHAPTER 2 - WAREHOUSE OPERATIONS2.3 Housekeeping (Cont'd)

- B. Keep all aisles, stairways, roadways, gates and doors clear of all obstructions.
- C. Promptly dispose of all packing materials, waste and rubbish.
- D. Provide suitable and convenient containers for all waste and scrap materials.
- E. Promptly clean-up any oil or water spilled on floors.
- F. All flammable materials should be stored in closed containers and in properly approved storage areas.
- G. Yard storage area to be kept free of grass, leaves, damaged materials and empty containers or packing crates.
- H. All window glass and screens and wire guards on ventilators should be kept in good repair to prevent entry of birds into buildings.

2.4 Security

Effective security arrangements will be established to protect and safeguard materials against pilferage and theft. Effective arrangements are:

- A. Trained security guards on duty 24 hours per day.

CHAPTER 2 - WAREHOUSE OPERATIONS2.4 Security (Cont'd)

- B. A perimeter wall or wire fence at least eight (8) feet high with three strands of barbed wire on top.
- C. Minimum number of entrances with properly secured gates.
- D. Proper system of gate passes to control entrance and exit of personnel, vehicles and materials.
- E. Proper system of perimeter security lights for night security.
- F. Secured doors and windows in all buildings.
- G. Removal of trees and bush from all wall or fence areas.

2.5 Fire Protection

An effective fire prevention program and fire fighting arrangements will be established to protect buildings and materials at all stores:

- A. Employees will be trained to recognize and report potential fire hazards through use of posters and displays.
- B. A fire fighting plan will be developed, adequate fire fighting equipment will be provided and all employees will be trained in the proper use of each type of fire fighting equipment.

CHAPTER 2 - WAREHOUSE OPERATIONS2.5 Fire Protection (Cont'd)

- C. Restricted areas will be posted as NO SMOKING areas and proper signs will be displayed.
- D. Smoking areas will be designated in all buildings and proper signs will be displayed.
- E. Emergency fire exits, in all buildings, will be strategically located, clearly marked, easily accessible and kept clear of materials and rubbish.
- F. Flammable materials will be stored in properly marked containers and in approved storage areas.
- G. All stores buildings will be inspected on a bi-weekly schedule and all inspections will be properly documented. Each inspection will determine the following:
  - 1. Restricted areas are properly marked.
  - 2. Electrical cables and fittings are not defective or overloaded.
  - 3. Materials are stored with proper clearance from roof, lights, electrical apparatus, walls and floor.
  - 4. Fire fighting equipment is adequate and in proper working condition.
  - 5. Aisles, stairways, emergency exits, roadways and doors are clear of stored materials and rubbish.

### CHAPTER 3 - MATERIAL STORAGE

#### 3.1 General

This chapter establishes guidelines for the proper storage and protection of materials and assigns responsibility for accomplishing these activities.

The Store Manager will be responsible for developing storage plan for both covered and yard areas to effectively store materials. The plan should include provisions to:

- A. Utilize space effectively by storing the maximum number and quantity of items in the minimum amount of space.
- B. Provide special care for item of limited life and to issue the oldest items first.
- C. Store materials in an orderly manner to avoid re-handling and re-warehousing and store the faster moving items nearest to the pint of issue.

#### 3.2 Covered Storage Area

Covered storage areas will be utilized for storing materials that are subject to deterioration from rain, sun or other weather or atmospheric conditions.

- A. Materials will stored according to the covered area storage plan.
- B. Smaller items will be stored in racks or bins.

### CHAPTER 3 - MATERIAL STORAGE

#### 3.2 Covered Storage Area (Cont'd)

- C. Large, bulky and/or heavy items will be stored on pallets in bulk storage bays.
- D. Materials should be grouped by manufacturer and type of equipment, where possible, and stored in the same general storage area.

#### 3.3 Pallet Storage

Pallets are wooden or metal platforms used to store large, bulky, heavy and reserve stocks. A few types of wooden pallets are shown at page 07. Pallets should be used where forklift is available. Pallet racks will be built in the warehouse for pallet storage. Pallets may be used to store materials inside or outside:

- A. Palletized storage has following advantages:
  - 1. Ease of handling.
  - 2. Improves efficiency.
  - 3. Keeps the material from coming in contact with the ground surface in outside storage and saves from water, dirt and mud.
  - 4. Improves housekeeping.

CHAPTER 3 - MATERIAL STORAGE3.3 Pallet Storage (Cont'd)

B. While loading pallets following points should be kept in mind:

1. Cartons/boxes should not extend over edge of pallet.
2. Material should be evenly balanced and tied if required.
3. Pallet should not be overloaded or top heavy.
4. Marking of cartons should be visible.

3.4 Yard Storage

Large, bulky and heavier items not requiring covered storage are stored in the open yard storage area, inside the perimeter wall/fence. The yard will be divided into storage areas earmarked for storage of various types of items:

- A. Storage areas should have hard standing of bricks or concrete, or stone compacted with the ground.
- B. The roads in the yard should be metalled and passages between the bays should be of concrete or brick paved.
- C. The passages between stacks should be wide enough to operate a forklift/truck.

### CHAPTER 3 - MATERIAL STORAGE

#### 3.4 Yard Storage (Cont'd)

D. Open yard should have a sizeable raised platform for loading and off-loading of heavy material:

1. Height of the platform should match with the height of a normal truck bed.
2. The platform should have a slope on a side for forklift operation.

E. All stacks should have proper drainage to save material from water, mud and dirt. Pallets, used reel sides and unserviceable cross arms should be used for this purpose.

#### 3.5 Materials Requiring Special Care

It is possible to render items of stock useless simply through poor practices in storage. Inactivity in turnover will render many items either useless or less effective due to deterioration in storage. Some items require special storage conditions while others need protection from dampness and extreme changes in temperature. Many items such as paints, chemicals, tyres, tubes etc., have got limited storage life and may be carefully handled if received otherwise those are non stock items.

Care and storage requirements of some general categories of stores are given in the following paragraphs:

CHAPTER 3 - MATERIAL STORAGE3.5 Materials Requiring Special Care (Cont'd)A. Flammable Materials

1. All flammable materials such as paints, oils, etc., should be stored only in designated areas away from all sources of ignition.
2. Paints and glue cans should be turned upside down periodically to avoid settling.
3. Dividers should be used on top of each layer when stacking same size cans to prevent falling from shelf.
4. Leaking cans should be issued and consumed immediately.
5. Shelf life of each lot should be marked and all stocks must be consumed before expiring date.
6. Stores having toxic contents and explosive features must be dealt with special storage conditions required for these particular items.

B. Moisture Absorbent Materials

1. Moisture absorbent materials like, stationary, paper products, cement etc. must be stored inside and should not come in direct contact with masonry walls, shelves or floors.

CHAPTER 3 - MATERIAL STORAGE3.5 Materials Requiring Special Care (Cont'd)

2. They should be stacked on wooden pallets to allow air circulation.
3. Stationery should be stored in wooden racks and covered to protect from dust and dirt.
4. Cement and other heavy materials should only be stored in buildings which are designed to take load.

C. Insulators

1. Insulators are top heavy and should be blocked or fastened to prevent their rolling off skids, shelf or into each other.
2. When stored outside they should have their skirts placed downward to prevent accumulation of water, dirt and debris.

D. Cable Reels

1. Cable reels should be stored on hard standing in straight rows with quantity and code number clearly visible.
2. Adequate distance should be kept after each two rows to enable access to the rear of each row.
3. Defective and wornout reels should be repaired and not allowed to collapse.

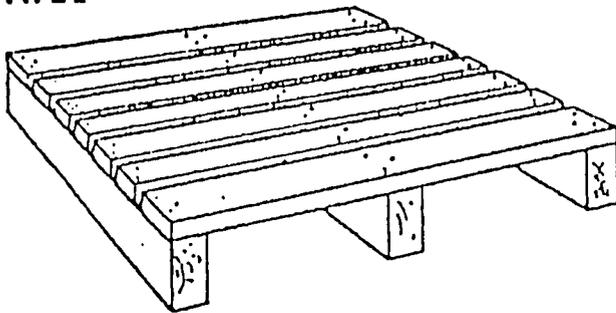
CHAPTER 3 - MATERIAL STORAGE3.5 Materials Requiring Special Care (Cont'd)E. Transformers

1. Transformers should be stored on hard standing in straight rows in lots of the same capacity and type.
2. Adequate space should be kept after every two rows for movement of forklift.

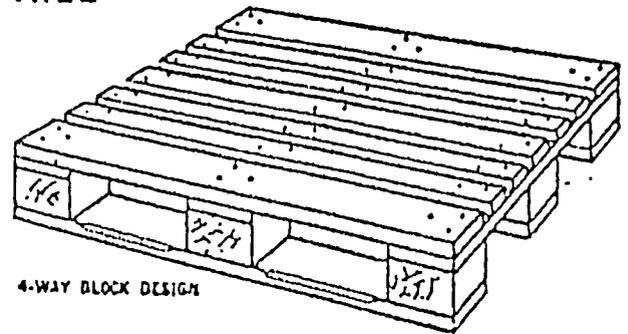
Types of Pallets

Types of pallets

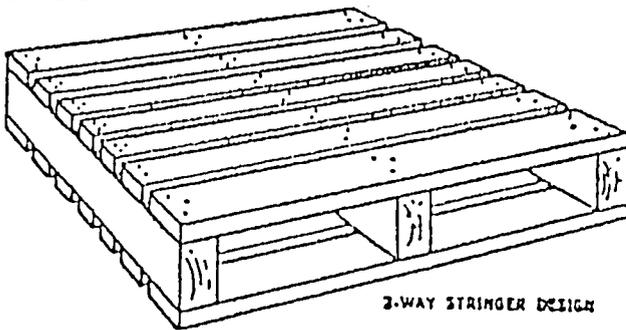
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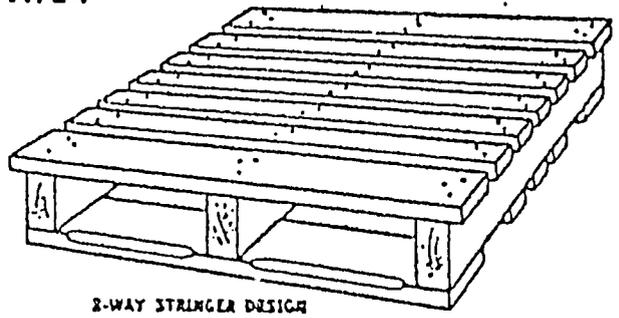
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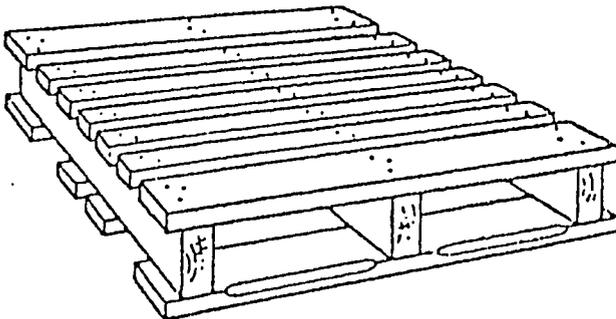
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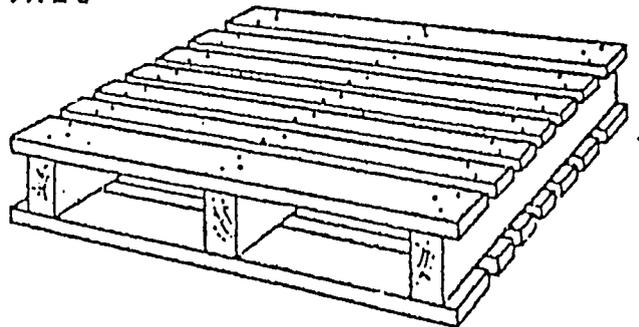
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## CHAPTER 4 - MATERIAL HANDLING EQUIPMENT

### 4.1 General

All stores operations involve material handling in some form. The material handling methods for a warehouse depend primarily upon the form of material stored, the material handling equipment available and the handling necessary to carry these materials through the process steps. The selection of handling method is important for safe and efficient operation. Adequate Material Handling Equipment should be made available for all stores operations.

### 4.2 Types of Material Handling Equipment

The material handling equipment can be divided into two major categories, i.e. powered and non-powered. Following are some of the commonly used material handling equipments:

- Freight trucks and pickups
- Forklift trucks
- Road cranes, overhead cranes and hoists
- Two and four wheeled hand trucks
- Chain pullies
- Conveyors
- Ladders
- Lever dollies/Crow bars

### 4.3 Non-Powered Material Handling Equipment

Safety problems associated with non-powered floor equipment, principally hand propelled trucks, are less serious than those encountered with more highly mechanized equipment.

## CHAPTER 4 - MATERIAL HANDLING EQUIPMENT

### 4.3 Non-Powered Material Handling Equipment (Cont'd)

Most often, non-powered floor equipment can provide excellent service with minimum maintenance. Regular maintenance should include lubrication of castors and wheels, tightening of bolts and nuts, and checking for broken welds or dockboard. All material handling equipment should be stored in designated areas when not in use.

### 4.4 Powered Material Handling Equipment

Forklift trucks have become common in stores operations. They are very useful specially if pallets are used for storage. All powered material handling equipment must be operated carefully to avoid accidents.

#### A. Precautions Required To Avoid Material Handling Accidents:

1. Only trained and authorized persons should operate a powered truck.
2. Daily inspection of vehicles should be carried out before beginning of work:
  - a) Brakes, steering, control forks, hoist, warning devices, lights, etc. should be checked.
  - b) Fuel, oil and water should be checked every morning.

CHAPTER 4 - MATERIAL HANDLING EQUIPMENT4.4 Powered Material Handling Equipment (Cont'd)

3. Safe speed should be maintained.
  4. Equipment should not be loaded beyond its limits.
  5. The operator should face towards the direction of travel.
  6. While operating fork lift:
    - a) The forks should be kept as low as possible.
    - b) It should not travel with load elevated.
    - c) Load should not be picked up with one fork, unless it is with a special sling arrangement.
    - d) Riders should not be permitted on forks or trucks.
    - e) Forks must be on the floor when lift truck is parked.
  7. Fork lift trucks and vehicles should be parked in designated areas.
- B. Loading and Unloading Freight Trucks:
1. While loading and unloading of trucks:
    - a) The parking brakes must be applied and chock blocks positioned.

CHAPTER 4 - MATERIAL HANDLING EQUIPMENT4.4 Powered Material Handling Equipment (Cont'd)

- b) Heavy material should be placed towards the front of the truck.
  - c) Large, heavy reels of cable or transformers must be placed in front and center of the bed, and chocked and chained to bed of the truck.
  - d) Weight should be evenly distributed across the bed, so that excess weight is not on one side.
2. In open trucks material should not be stacked higher than the side board unless secured by ropes and chains, also light weight items loaded on top must be secured so that they do not blow off onto highway or street.
  3. All material should be placed so that it will not shift in the event of a sudden stop.
  4. Material well stacked and loaded will arrive in good condition.