

CHAPTER 4

STORAGE SHEDS

4-1. General.

Sheds are covered storage buildings either of the portable or permanent type, having incomplete exterior walls. Portable or transitory sheds are a prefabricated metal type of shelter that can be dismantled and moved to a more convenient location for reassembly. Due to their transitory nature, these types of sheds seldom have any utilities. Permanent sheds can be either wood, metal, concrete or masonry block, but are permanently anchored to the foundation. These types are more likely to have utilities such as lighting and fire sprinkler systems.

4-2. Location.

Sheds should be constructed on high ground, remote from water areas, and on terrain that is well drained to carry runoff away from the base of the structure. The ground should be level beneath the structure so that material stored on grade in a shed with unimproved base will not become unstable under high stacking loads. The grounds around the shed should be cleared of brush and low growth since these conditions reduce ventilation and provide cover for pests. They can be built with grade even with the road, such as in figure 4-1, or raised such that the slab occurs at truck or rail dock height, as in figure 4-2. Material that is in storage for a significantly long time can be stored out of the mainstream of depot activity in sheds that have a more limited accessibility.

4-3. Structural requirements.

a. Slabs. The type of shed storage determines the required bearing capacity of the structure, and the floor can range from graded earth to a concrete slab. Typical slab types are concrete, asphalt, and wood planks. The slab should be designed for the climate and type of load that is expected. Slabs should be sloped to drain water, but not so much that they would present a problem in stacking stored goods. Graded earth floors can be upgraded by concreting or laying down military landing mat, as shown in figure 4-3. Upgrading earth floors holds down dust and allows the use of heavy material handling equipment. Pavement thicknesses should be designed for heavy-duty traffic use. Compliance with design criteria given in the following manuals should provide adequate guidance for pavement and slab designs:

TM 5-822-5/AFM 88-7, Chap. 3

TM 5-822-7/AFM 88-6, Chap. 8

TM 5-809-12/AFM 88-3, Chap. 15

Storage items such as structural steel, steel bar stock, helicopter blades, airplane wings, and other large items require special storage and handling consideration. In addition these type storage items impose heavy and sometimes unusual loads on the floor which must be taken into consideration and accounted for in design of flooring.

b. Columns. Sheds are usually designed to have exterior columns only. This allows maximum storage flexibility within the shed area. Wider sheds can usually be accommodated with one interior column midway between the exterior columns; however, this arrangement is not practical if a central aisle is desired.

c. Walls. Most sheds do not have exterior walls. They may have no walls at all, or partial walls extending down from the eaves to protect the joists or trusses from deterioration from direct exposure. In cases where ventilation is important, walls are not desirable; where it is necessary to protect material, however, several methods of upgrading shed storage are available. Pallets stacked from floor to roof at the exterior of the shed provide excellent protection from the weather while eliminating the waste of interior space that would be used to store them. Alternatively, pelletized drum storage, as shown in figure 4-4, provides interior protection while using the exterior space for useful storage. Sheds can also be upgraded by closing off the sides with metal or wood siding. Metal upgrading is shown in figure 4-5. Sheds with open sides can be stocked from the center working outward using the sides of the shed as working aisles to access the goods, whereas sided sheds must have aisles within the shed to allow access to the goods.

4-4. Container storage.

a. General. One method which has evolved for material transfer is containerization of cargo. Handling of goods is reduced when a large container can be removed rather than smaller quantities of goods in repetitive movements. The general types of containers, employed in the containerization of goods are 6 m (20 ft) containers, 12 m (40 ft) containers, 6 m (20 ft) refrigerated containers, and the 12 m (40 ft) FLATRACK. Operations involved container storage often require the use of heavy container handling equipment (CHE).

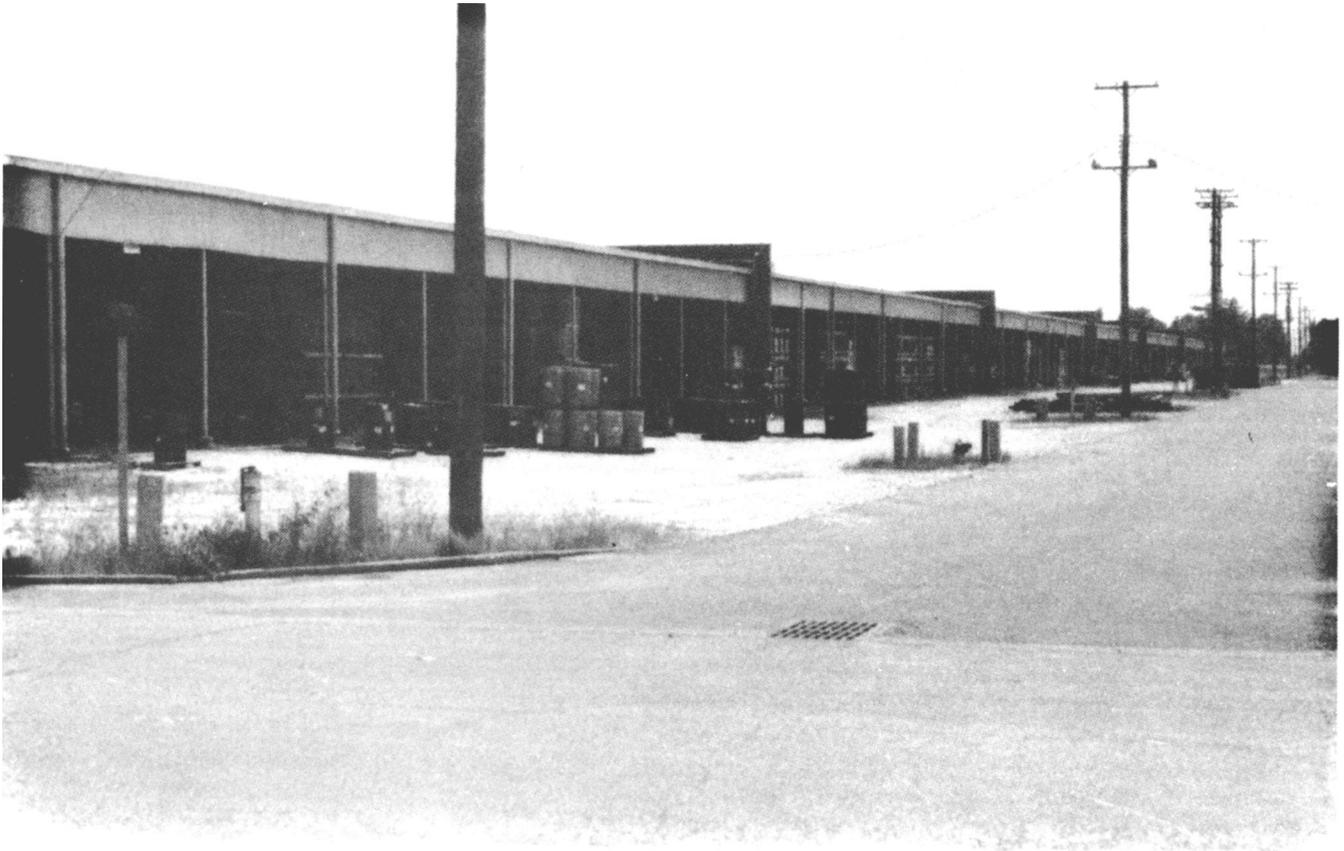


Figure 4-1. Storage shed with floor at road level.



Figure 4-2. Storage shed with raised floor.



Figure 4-3. Flooring in shed area upgraded by use of steel military landing mats.

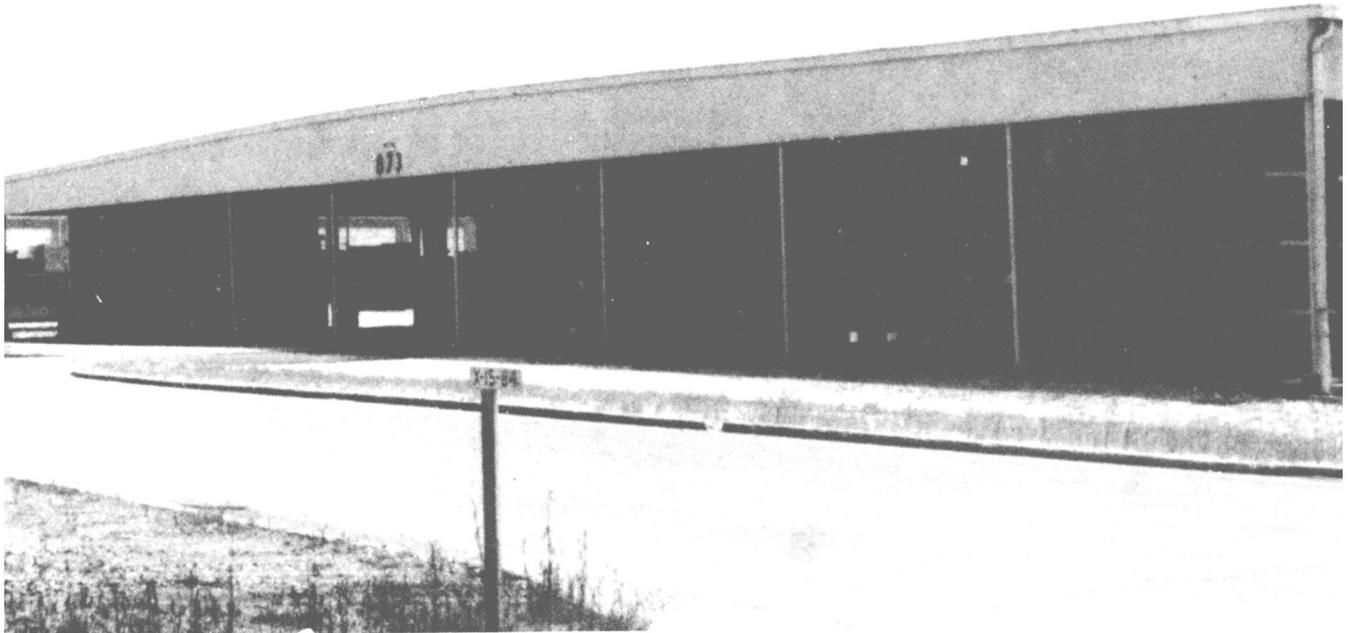


Figure 4-4. Palletized drum storage used as shed wall protection.



Figure 4-5. Open-sided storage shed upgraded with metal wall panels.



Figure 4-6. Containers stacked 3 high on concrete pavement.