

## 218 MAINTENANCE - MISCELLANEOUS PROCURED ITEMS AND EQUIPMENT

### 218 10 CONTAINER REPAIR AND TEST BUILDING (SF)

A container repair and test facility services only empty containers. The size of the facility is predicated upon processing approximately 1 percent of the containers and chassis involved in the handling and shipping operations. The facility provides for structural testing, minor repairs, and cosmetic services for damaged or structurally marginal containers.

Assuming a 750 container throughput capability per 24-hour day, the number of bays in the repair facility can be estimated as follows:

$1\% \times 750 = \text{containers per day}$   
Assume 4 hours work per container -  $4 \times 7.5 = 30 \text{ hours}$   
Assume 8 hours working day -  $30 / 8 = 3.75$ , say 4 bays

A typical 4-bay facility with supporting tool room, administrative space, and personnel support area is shown in Figure 218-10. The bays are serviced by a bridge crane with a lifting capacity of 5 tons. Storage space of 2,130 square yards for 16 empty containers should be provided adjacent to the facility. The 4 bays testing and repair area is 1,920 square feet. The administrative space is 800 square feet for a total gross area of 2,720 square feet.

### 218 20 CONSTRUCTION/WEIGHT HANDLING EQUIPMENT SHOP (SF)

Special shop structures for the maintenance and repair of construction/weight-handling equipment are planned only for areas where combined automotive, weight-handling, railroad and/or construction equipment maintenance facilities are not feasible. Construction/weight-handling equipment shop requirements are based on the space factors contained in Code 214 20, Automotive Vehicle Maintenance Shop.

Included in this category are special construction and utility shops for Marine Corps units. These shops are normally part of the Headquarters Battalion, Force Service Regiment, and the Fleet Marine Force (FMF) Engineer Battalions. For space allocation, see Definitive Designs, NAVFAC P-272, Part 4.

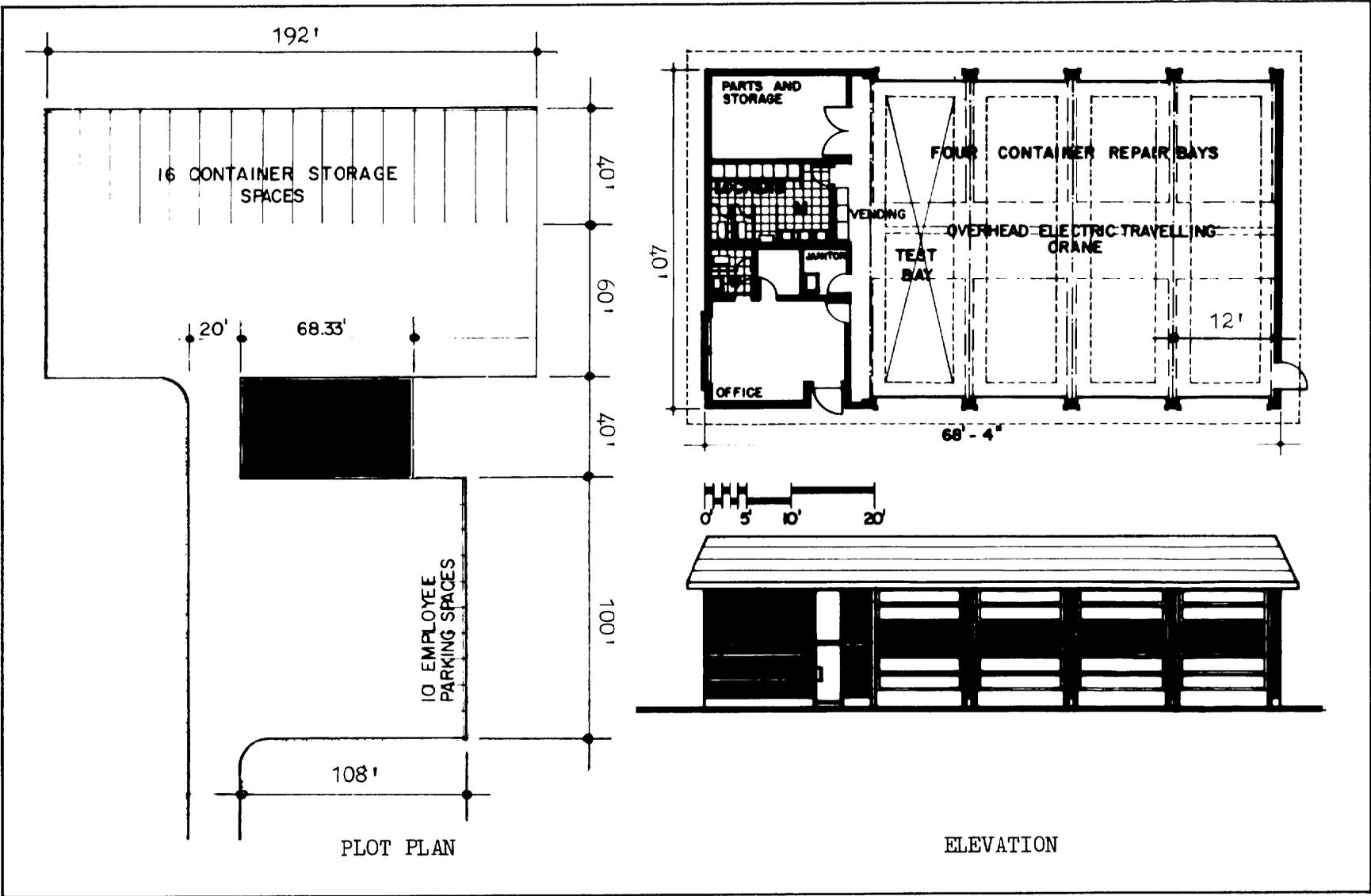
### 218 25 MARINE AIR-BASE SQUADRON (MABS) FACILITY (SF)

This category code is used for inventory purposes only.

### 218 30 DRUM RECONDITIONING PLANT (SF)

The drum reconditioning plant is planned for those fuel facilities where fuel drums are returned for refilling or storage before reissue. Normal drums that require reconditioning at frequent intervals are the 55-gallon steel type. The drum reconditioning facility requires a minimum of two

FIGURE 218-10  
Container Repair and Test Building



buildings; one for the boiler plant and the other housing the reconditioning facilities. The boiler house will be approximately 800 square feet, and the reconditioning building housing the internal washing, dedenting, internal chaining, external wire brushing, chime rolling, testing, welding, internal preservation, and painting will be approximately 3,600 square feet. This plant has a capacity of approximately 3,000 55-gallon drums per month.

### **218 35 CABLE REPAIR HOUSE (SF)**

No criteria are currently available for this code.

### **218 40 RAILROAD EQUIPMENT SHOP (SF)**

The railroad equipment maintenance facility is a special shop structure to house material and equipment for the service and maintenance of railroad locomotives and locomotive cranes. The facility is required where installations operate and maintain railroad equipment for the handling of supplies. In areas where it is practicable, the railroad equipment maintenance shop will be combined with the Automotive Vehicle Maintenance Shop and/or the Construction/Weight-Handling Equipment Shop and the number of repair bays (with pits) may be determined as follows:

<u>Locomotives Supported</u>	<u>Repair Bays</u>	<u>Area SF</u>
1-5	1	960
6-12	2	1,980
13 and over	3	2,880

If a separate repair facility is required, see Definitive Designs, NAVFAC P-272 for a basic 1-bay maintenance shop. The numbers of additional bays are similarly determined from the above table.

### **218 45 INSTRUMENT CALIBRATION SHOP (SF)**

This shop performs calibration, repair, and certification of all measurement instruments assigned to an activity. Space requirements are governed primarily by the number of pieces of equipment requiring calibration. The facility should be dust-free, temperature and humidity controlled and protected from electromagnetic interference. It is essential that the site selected for the location of this facility be free of ambient vibration to avoid interference with calibration operations. Normally the following spaces are included:

1. Calibration Laboratory
2. Cleaning Room is used for cleaning and drying equipment to be calibrated.
3. Utilities Room is required so that utilities components can be isolated from the laboratory working area.

4. Storage Areas for incoming and outgoing items, spare parts and equipment.

5. Administration Area provides office space, technical library, and file storage. Space allowances are planned in accordance with Category Code 610-10.

For specific guidance, see Joint Systems Commands publication Calibration Facility Requirements (NAVAIR 17-35 FR-02 NAVSEA OD 45842 and NAVELEX 0967-LP-465-8010) and Naval Shore Electronics Criteria (NAVELEX 0101,114) calibration program.

## **218 50 BATTERY SHOP (SF)**

A battery shop is required to service and charge batteries. As an example, typical batteries serviced at an air installation are lead-acid batteries used for ground support equipment (GSE) and nickel-cadmium and silver-zinc batteries for aircraft at the intermediate maintenance level. A shop is normally required at each Navy and Marine Corps air installation having approximately 75 or more aircraft. The gross area of the battery shop is 1,110 square feet. This shop size can accommodate a maximum workload of eight nickel-cadmium and 40 lead acid batteries per work shift. The shop size should be modified for other work loads, with the major change being in the amount of space needed for charging benches.

## **218 51 BATTERY RECHARGING SHOP (SF)**

This category code is for use at activities which have a requirement to recharge battery powered equipment such as forklift trucks used at supply centers. The requirement is a function of the number and size of the equipment being serviced and must be determined on an individual basis or in the case of forklift trucks, the following criteria may be used: 100 square feet per forklift which includes 40 square feet for the average vehicle itself and 60 square feet for aisle and workspace, based on a 1.5:1.0 ratio. In all instances, compliance must be maintained to OSHA regulations regarding the venting of hydrogen gas, floor drains, flush facilities, explosion proof wiring and lighting, etc.

## **218 60 GROUND SUPPORT EQUIPMENT SHOP (SF)**

The intermediate level maintenance of aircraft ground support equipment (GSE) is performed in this shop. Ground support equipment, often referred to as yellow gear, includes such items as tow tractors, trucks, fork lifts, trailers, compressors, power generators, maintenance stands, jacks and other ground equipment which support aircraft operations.

The GSE shop requirement is based on the average number of on-board aircraft and is sized in accordance with Table 218 60 with the following modifications:

(1) The areas shown in the table were developed for base loadings

comprised mainly of VF, VA, VP, VS and VEW aircraft. Activities supporting primarily helicopter or basic propeller training operations normally would not require a shop size greater than 12,500 square feet regardless if the station loading exceeds 100 aircraft.

(2) Stations which have a Fixed Point Utility System (FPUS) installed in the aircraft parking apron shall reduce the shop requirement by 640 square feet for each full increment of 75 aircraft spaces equipped with FPUS. See the example at the end of this category code.

(3) Stations having less than 40 aircraft shall individually justify a requirement for a GSE shop. Consideration shall be given to maintaining the GSE gear in the Automotive Vehicle Maintenance Shop (Category Code 214 20) prior to requesting a separate GSE shop.

TABLE 218 60 GROUND SUPPORT EQUIPMENT SHOP	
NO. OF AIRCRAFT	SHOP AREA (SF)
40-50	6,250
51-75	9,400
76-100	12,500
101-125	13,950
126-150	15,400
151-175	16,850
176-200	18,300
201-250	21,200
251-300	24,100

The above shop allowance includes work space for: battery shop, engine shop, paint shop, tire and wheel repair, jack repair, and vehicle frame work. Supporting space for ready issue of parts, tool storage, classrooms, locker room, offices, and a mechanical equipment room are also included. A covered storage area for GSE gear is planned in conjunction with the GSE shop (see Category Code 218-61, Ground Support Equipment Holding Shed). See NAVFAC P-272, Part 4 for definitive designs. A sample computation for a GSE shop is given below:

EXAMPLE-GSE SHOP

GIVEN - Average on board aircraft - 179  
 - Fixed point utility system (FPUS) provided to 90 apron parking spaces.

From Table 218 60, shop area to support 179 aircraft equals 18,300 SF.

REDUCTION FOR FPUS

- 90 apron spaces with FPUS divided by 75 = 1.2, use 1.0
- Reduce area by 1.0 x 640 SF
- Requirement equals (18,300-640) 17,660 SF

**218 61 GROUND SUPPORT EQUIPMENT HOLDING SHED (SF)**

The ground support equipment (GSE) holding shed is planned in conjunction with the Category Code 218-60, GSE shop. The shed provides protective cover for GSE year awaiting and undergoing intermediate level maintenance and is an integral part of the GSE shop compound. See NAVFAC P-272, Part IV for a typical site plan showing the location of the shed with respect to the GSE shop.

The GSE shed requirement is based on the average number of on board aircraft and is sized in accordance with Table 218 61 with the following modifications:

(1) The areas shown in the table were developed for base loadings comprised mainly of VF, VA, VP, VS and VEW aircraft. Activities supporting primarily helicopter or basic propeller training operations normally would not require a shop size greater than 19,500 square feet regardless if the station loading exceeds 100 aircraft.

(2) Stations which have a Fixed Point Utility System (FPUS) installed in the aircraft parking apron shall reduce the shop requirement by 640 square feet for each full increment of 75 aircraft parking spaces provided with the FPUS. See 218 60 for example of application of similar reduction to GSE shop.

TABLE 218 61 GSE HOLDING SHED	
NO. OF AIRCRAFT	SHED AREA (SF)
40-50	9,750
51-75	14,625
76-100	19,500
101-125	19,967
126-150	20,435
151-175	20,902
176-200	21,370
201-250	22,300
251-300	23,230

**218 62 SHIPBOARD AIRCRAFT SUPPORT EQUIPMENT FACILITY (SF)**

No criteria are currently available for this code.

**218 65 EQUIPMENT HOLDING SHED (For Code 218 20) (SF)**

This facility is required in conjunction with Construction/Weight-Handling Equipment Shop, Code 218 20 for the purpose of protection of equipment awaiting repairs. The number and size of holding bays has to be determined on an individual basis and is dependent upon the type of equipment to be supported.

**218 68 PRODUCTION EQUIPMENT MAINTENANCE SHOP (SF)**

No criteria are currently available for this code.

**218 70 OFFICE EQUIPMENT/APPLIANCE REPAIR SHOP (SF)**

Appropriate facilities may be provided to perform maintenance and repair of office equipment and small appliances. The space requirement for this facility is governed by the number of machines supported by the activity. See Table 218-70.

TABLE 218-70  
Space Allowance - Office Equipment/Appliance Repair Shop

Number of Machines Supported	Gross SF Area	Number of Machines Supported	Gross SF Area
500	400	2,500	1,200
1,000	600	3,000	1,400
1,500	800	5,000	1,600
2,000	1,000		

**218 71 DENTAL EQUIPMENT MAINTENANCE BUILDING (SF)**

No criteria are currently available for this code.

**218 77 REPAIR SHOP STORAGE (SF)**

No criteria are currently available for this code.

## **218 80 FIELD MAINTENANCE SHOP (GENERAL SUPPLY) (SF)**

This field maintenance shop provides specialized work areas for Fleet Marine Force (FMT) units performing 3rd and 4th echelon maintenance on all items of general supply equipment. This function is performed primarily by the General Supply Maintenance Company, Maintenance Battalion, of the Force Service Regiment. The shop space includes administrative and storage space for tools, parts, and maintenance float equipment.

For other field maintenance functions see Category Codes 214 53, 215 60, and 217 30.

See Definitive Designs, NAVFAC P-272, Part 4, for appropriate space allocation.