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Building the Automobile Operations–Maintenance Workstation Structure

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Abstract - *There is a huge scarcity of knowledge available to build a business commercial operational structure like automobile/vehicle Maintenance Workstation Structure. This research Article provides the basic criteria to evaluate, plan, program, and design the proper ventilation for vehicle operations and vehicle maintenance facilities. It is intended to make officers and their staffs aware of important design considerations and to aid in project development. Which is an efficient system i.e. Air conditioning, air cooling.*

Planning and programming for vehicle operations and vehicle maintenance facilities should consider all aspects of the operation, as well as maintenance and repair of various vehicle types. Additionally, a quality design will maximize effective use of available space and provide efficient vehicle operations and vehicle maintenance facilities.

Key Words: Automobile Workstation building, vehicle operation structure etc.

1. INTRODUCTION

This research article applies to the design of all new construction and renovation projects for vehicle operations and vehicle maintenance facilities. It provides the overall criteria for determining requirements, site evaluation and planning, and design of exterior and interior areas. Policies and instructions to identify individual construction project requirements.
The construction planning and work management is taken into consideration for better and enhanced system.

a) Project Initiation

Information required for preparation of the project initiation, which initiates project development, is found in various programs. This includes considerations of the space criteria to determine overall building size and site evaluation, and special factors to be used in the cost estimates. Following are the IS codes taken into consideration.

IS 15682:2006 Fire fighting vehicle and equipment - Symbols for operator
IS 456: steel structure
IS 2849:1983 Specification for non-load bearing gypsum partition blocks
IS 2114:1984 Code of practice for laying in-situ terrazzo floor finish

b) Site Selection

This is generally part of the master planning process. It is completed prior to preparing for an individual project. However, project programming requirements developed in the first phase may require a re-evaluation of site selection decisions. Guidance is required in evaluating sites for a project.
The site free from following
1 water logging
2 submergence
3 termites free

c) Design

a. The design of a project is typically developed in progressive phases, i.e., planning and programming, concept and preliminary drawings, and final working drawings. Design guidance for all of these design phases is required.

b. Designing provides basic planning and programming criteria, along with tables for determining square footage requirements.

c. It also presents concept and preliminary design considerations, such as the location of a facility on a sit, the design of the facility and supporting utilities, as well as specific technical guidance.

d. The specific design issues concerning individual functional areas, which are important for preliminary and working drawings, illustrative designs and photographs help, clarify the design.

d) Interior Finishes and Furnishings

Furnishings and interior finishing requires recommendations for the selection of interior materials,

finishes, and colors. Carefully selected interior finishes and furnishings are essential for a quality design.

2. OVERVIEW

The transportation organization encompasses command and control, combat readiness and resources, vehicle operations, vehicle maintenance and, at some locations, the vehicle operation.

The squadron officer and first sergeant, with associated administrative support, provide command and control to the organization. Combat readiness and resources provide expertise for the officer to prepare and execute the unit's wartime mission. Vehicles operations manages the assigned vehicle fleet and ensures compliance with public laws related to the administration and management of military vehicles. Vehicle maintenance maintains the vehicles in a safe and serviceable condition.

At locations without an aerial port squadron, the vehicle operation is a function of base transportation and manages personal property, passenger, and cargo shipments. At locations with an aerial port squadron, vehicle operation is a function of that aerial port squadron.

It is highly desirable to house as many administrative functions as possible within one facility. For example, command and control and combat readiness and resources could share an area within the vehicle operations administrative facility, as this guide illustrates. However, local mission needs should be the primary consideration for determining shared facilities.

i. Planning and Programming Considerations

a. Planning, programming, and designing a vehicle operations or vehicle maintenance facility normally require extensive coordination. This coordination is important because of the different organizations involved in developing facility requirements.

b. Personnel likely to have facility planning and design inputs are as follows:

- Wing Offices
- Wing safety officer
- Operations officer
- Transportation officer
- Vehicle operations officer
- Vehicle maintenance manager
- Civil engineer
- Security station

Figure 1 New facility as per standards.

ii. Vehicle Operations and Vehicle Maintenance Complex

Programming functional requirements for vehicle operations and vehicle maintenance facilities can be broken into the following categories:

a. Vehicle Operations Facilities

- Administrative
- Heated parking
- Vehicle washing/cleaning

b. Vehicle Maintenance Facilities

- Multipurpose vehicle maintenance
- Special purpose vehicle maintenance
- Allied trades
- Dynamometer (Facility for verifying and certifying vehicle emissions.)
- Refueling maintenance (Because of the potential fire hazard, locate this facility remotely. The ideal location for this facility would be adjacent to the POL and fuels operations facility.)
- Hazardous waste accumulation point

3. FUNCTIONAL AREA

This chapter presents criteria for designing each area of vehicle operations and vehicle maintenance facilities.
Design considerations are presented, indicating the use and performance, space organization and character, and relationships between component spaces of a given facility. For each area, specific criteria are provided for each space. These recommendations may be modified to reflect mission requirements.

A. Vehicle Operations Administrative Facility

- Design Considerations

See Fig 2 for an illustrative floor plan.

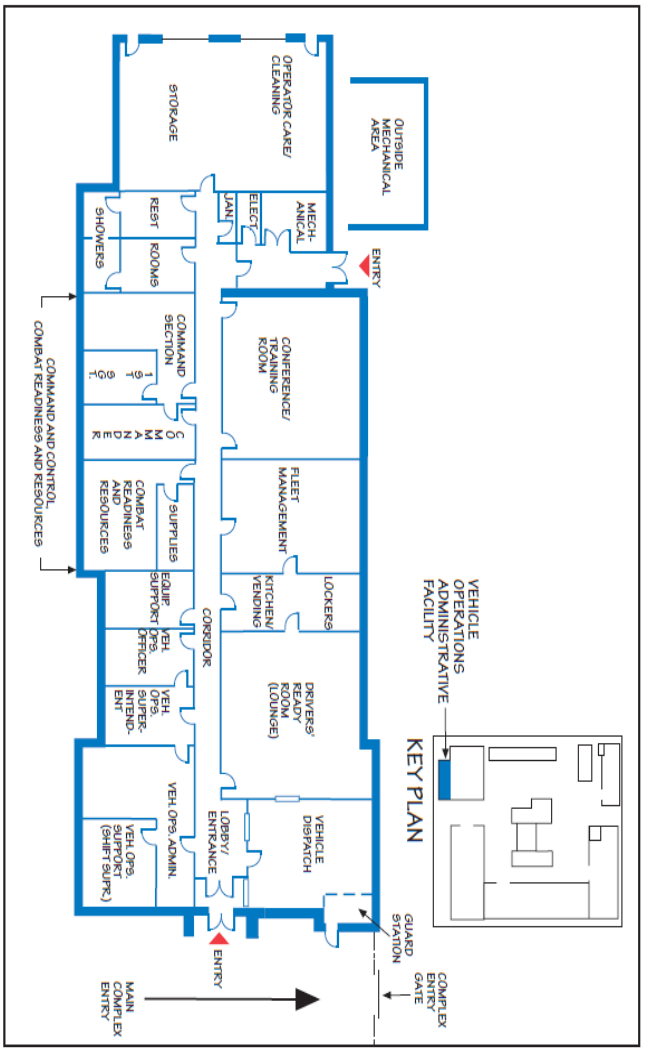

Figure 2: Illustrative Floor Plan of the Vehicle Operations Administrative Facility

B. Vehicle Operations Parking Facility

This facility provides heated spaces for specific assigned vehicles.

- Specific vehicles may be identified as mission essential and maintained in a "ready-to-operate" status.
- Ambulance servicing, emergency vehicles, fire brigade vehicle, command and control, and support vehicles for daily operational and other activities.
- Commercial and private vehicles that supplement the base vehicle inventory.

4. SPACE CRITERIA

1. Planning Considerations

a. Define the size, type, number, and functional area relationships required to support a vehicle operations or maintenance facility.
b. Development of space requirements should take into consideration the existing facilities relative to current and future needs.

2. Standard Facility Requirements

a. The air ventilation standard for a vehicle operations facility is 5,672 square feet. Table 1 is an example of how the space should be apportioned.
b. Tables 1 provide space requirements for the vehicle maintenance facilities, which are based on the number and types of vehicles assigned to the base.
Table 1 Space Requirements for a Typical Vehicle Operations Administrative Facility - This is an example of the areas required to support the overall administrative functions of a vehicle operations facility.

Example – Space Requirements for Vehicle Operations Administrative Facility

Component	Net SF	Net SM*
Lobby/Entrance	122	11
Vehicle Dispatch	400	37
Guard Station	90	8
Drivers' Ready Room (Lounge)	550	51
Kitchen/Vending	100	9
Lockers	200	19
Men's Rest Room/Lockers/Shower	130	12
Women's Rest Room/Lockers/Shower	130	12
Fleet Management	450	42
Conference/Training Room	225	21
Veh. Operations Officer	150	14
Veh. Operations Superintendent	90	8
Veh. Operations Admin.	180	17
Veh. Operations Support (Shift Supr.)	90	8
Equipment Support	180	17
Operator Care/Cleaning	670	62
Storage	670	62
Mechanical/Electrical Room	300	28
Subtotal	4,727	438
Walls and Circulation (20%) [1]	945	88
Gross Total	5,672	526
Command and Control	1,500	139

Table 1: Space Requirements for Typical Vehicle Operations Administrative Facility.

5. CONCLUSION

Construction Industry as an excessively unique sector is suffering from high range of risks associated with it. These risks must be managed efficiently in order to achieve a successful project. The success of a project defines as "completing the project within the scheduled time, cost and quality and during a safe construction process". One of the significant risk factors in construction industry is the risk of change which is highly appearing in all construction projects. Now this is a proverb between construction professionals that "Change is inevitable in construction project". The reasons of excessive changes in construction projects refer to the following characteristic factors of the industry including: uniqueness, dimension, varying environment, traditional methods, higher dependency to manpower, fragmented production phase, etc.

The majority of construction projects are suffering from cost and time overruns as the results of change in projects which are the main causes of claims and litigations. The negative effects of changes are significantly destructive factors in projects so dealing with changes and managing them is inevitable. Changes must be identified, evaluated and controlled during a project lifecycle in a way that positively affect the project. Changes can be converted into beneficial changes as well as the negative effects of change can be minimized by proper decisions and efficient managing.

The effective management of changes and the accuracy of reactions against the change events strongly depends on the quality of knowledge about change and its' relative causes and impacts. Poor change investigation and improper change identification process frequently result in wrong decision on changes and consequently affect the project negatively. Conversely, exact and authentic results of change identification process generally leads to efficient decisions and positive results in change management process.

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BIOGRAPHIES

Ajit Kumar Jain is an M. Tech Scholar & currently researching on Building the Automobile Operations–Maintenance Workstation Structure A part from this he is studious & have sound knowledge of the subject.