

**STANDARD**

**FOR**

**TRAINING FACILITIES**

**AND**

**FIRE FIGHTERS QUALIFICATIONS**

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## **0. INTRODUCTION**

The major concern of Company's safety and fire protection organization is the protection of employees from threat of fire and industrial accident in their work place.

The fire service personnel must deal and handle fire and emergency cases that may occur and take rescue measures and protect facilities against fires. It is the responsibility of fire authorities to provide relevant services required to all emergencies and ensure that fire fighters have the required skill and knowledge of :

- a)** Nature of manufacturing, processing, handling and storage of products;
- b)** hazards involved;
- c)** provision and use of fire equipment suitable for extinction of flammable and combustible materials.

The safety and fire authorities should also provide means for prevention of accidents and safeguard employees against the risk of mishaps.

## 1. SCOPE

This Standard specifies the minimum requirements for training facilities, organizing, operating an effective fire service and qualifications required for fire fighters and fire officers.

The Standard is compiled in two parts as follows:

- Part 1:** Training Facilities
- Part 2:** Fire Fighters Qualifications

**Note:**

**IPS-C-SF-545 "Training Facilities" is compiled with this Standard.**

## 2. REFERENCES

In preparation of this Standard the following Codes and Standards have been referred to or considered. The latest edition of these Standards and Codes to the extent specified herein shall form a part of this Standard.

Fire Service Drill Book (Home Office-Fire Dept., England 1980)

Manual and Practical Firemanship (Home Office-Fire Dept., England 1988/1990)

### **NFC (NATIONAL FIRE CODES) NFPA**

NFC 1001 - (1992)

## 3. DEFINITIONS AND TERMINOLOGY

### **3.1 Recruit or Probational Training**

Basic training.

### **3.2 Ranking**

An official grade of position (in military).

### **3.3 Crew Leader**

Head of a crew assigned to a fire truck.

### **3.4 District Firemaster**

Heads of a fire services in an area or district.

## 4. UNITS

This Standard is based on International System of Units (SI), except where otherwise specified.

## PART I

### 5. TRAINING AND TRAINING FACILITIES

#### 5.1 General

**5.1.1** The fire service training shall be carried out under strict discipline and at no time should be allowed to degenerate into anything but the serious undertaking.

**5.1.2** A training program shall be prepared in advance covering the topics and period applicable to the requirement of individual and groups responsibilities. It shall consist of instructions and practical exercises and drills and laboratory work. The schedule of instructions should mainly consist of talks or lectures and practices. Training techniques include explanation, demonstration and participation (see Appendix A).

#### 5.2 Training Facilities

**5.2.1** The Engineering Standard for training center is given in IPS-E-SF-540 and Appendix A include:

- a) Lay-out of training ground;
- b) equipment details;
- c) installations.

**5.2.2** The training facilities given here are for safety and fire service training center and are separate from a training and drill work done at each fire stations. There is an element of convenience, if the training center and fire station can be in the same general neighborhood.

**5.2.3** Training facilities should include adequate class rooms, lecture hall and audio-visual for the need of safety and fire department. These space requirements may be used as joint facilities for conference, and assembly areas for other training and development or gathering, but a classroom of sufficient size or similar lecture facility intended for continuing educational training shall be available for safety and fire purposes.

**5.2.4** Adequate audio-visual, special apparatus and reference materials shall be available to support the departments training activities and cover all subjects later discussed in this Standard. In addition the department shall have access to training facilities for live fire training to demonstrate flammable liquid fires pumping and drafting operations and driver training.

**5.2.5** Training building shall be supplemented by sufficient yard space to provide room for fuel pits, oil tanks and facilities of fire and emergency that can be created to make training realistic. The site should be sufficiently isolated from other properties to eliminate inconvenience to the public from training activities. The site shall have proper drainage, adequate water supplies for hydrants, appropriate pollution abatement equipment and a pond or reservoir for pumping operation. Suitable lighting and loud hailer systems should be provided. Also adequate facilities to monitor operation and safeguard trainees must be provided. Finally extra site for parking of vehicles shall be provided (see Clause 10 and Appendices in IPS-E-SF-540).

**5.2.6** The training facilities shall be secured, the site should be fenced and lighted in accordance with IPS-M-EL-290/7.

**5.2.7** Training center should include an appropriate selection of built-in fire protection equipment including, smoke detectors, automatic sprinklers, stand-pipe systems, fire pumps, storage tanks, and other equipment with which the employees shall become familiar.

### 5.3 Training Program for Plant Personnel

**5.3.1** Safety and fire authorities are responsible to develop training program for all departments and shall designate a qualified training officer to act in administrating the program. He should foresee that the budget required for training facilities, expandable supplies, training aids and training staff including in-house and guest instructors are considered.

**5.3.2** All heads of line organization shall fully support training activities initiated by fire authorities and make sure that the program is performed as prescribed.

**5.3.3** Department heads should consider hazards involved at their work site and recommend special training needed for their personnel assigned to implement their jobs. Fire authorities should include this special training requirements in the program for action.

### 5.4 Training Officer

**5.4.1** As a member of fire authority, training officer should segregate all topics recommended by the Department Heads and should make an appropriate program suitable for each Department Personnel and should ensure that necessary facilities are in hand before the training course begins.

**5.4.2** Training officer should select syllabus of training course for inclusion in the program and develop schedules to assure that the respective Department personnel have received instructions accordingly. Instructions can be given either at the Department's own facilities or at safety and fire training center.

**5.4.3** The effectiveness of training shall be continuously evaluated using critiques as an aid to such evaluation.

**5.4.4** At least annually the program shall be reviewed for up-dating to include new techniques and equipment in the schedule of the course.

**5.4.5** If the course is conducted by instructors the training officer should supervise and witness the course of lectures, etc., and the outdoor practical exercises to see that the training procedures are followed as directed.

**5.4.6** Records shall be kept of all personnel attending the course. Reports of instructors should be reviewed by Training Officer to evaluate performance of personnel of the facts demonstrated during the operation of the facilities. He should supervise the work of instructors and other personnel assigned in conducting the course and should see that each training session can be measured against a planned program.

**5.4.7** Training officer should inspect and find that the operation of training equipment, first aid and other facilities are in good working order.

### 5.5 Fire Fighters Training Requirements

**5.5.1** Success in fighting fires will be achieved if the following points are fully considered and adhered to:

- a) Discipline shall be enforced when the crew members attend the scene of fire.
- b) Fire Fighters shall obey the instructions given by the Firemaster.
- c) Every one of the crew of fire fighters shall carry out the special duty assigned to him as specified in the fire service Drill Book. This book is published by Home Office Fire Department (England) and can be referred to when required.
- d) Fire fighting is a team work. The crew members must always help each other during the operation as this is a recognized activities resulting in the extinction of fire.

**5.5.2** Fire authorities shall develop a program to include all essential drills and exercises for fire fighters to practice.

**5.5.3** Fire authorities should appoint the Training Officer or his assistant to supervise the daily drill practices and other activities in accordance with schedule of program made.

**5.5.4** Performance of fire fighters shall be evaluated periodically to determine the effectiveness of drills and exercises and provide a base for improvement and up-grading the program.

**5.5.5** Refresher course shall be programmed to refresh the memory of fire fighters to help smooth running of the operation when called to attend fires.

New techniques shall be considered for inclusion in the program in order to promote the knowledge of fire fighters. Any changes in design and operation of fire equipment must be discussed and demonstrated.

## **5.6 Training for New Recruits for Fire Brigade**

**5.6.1** New recruits shall be given comprehensive training at least for the period of 6 months as probationers. This period should be considered as a basic training course for subsequent in service training.

**5.6.2** The course of probational training should be consistent with the performance objective as outlined below:

- a) Appropriate fire fighting drills as outlined in fire service drill book printed by Home Office Fire Department (England).
- b) Fire fighters professional qualification (see NFPA 1001 1992).

**5.6.3** Some of the following subjects are extracted from practical firemanship:

- 1) elements of combustion and extinction;
- 2) fire service equipment;
- 3) fire extinguishers and foam equipment;
- 4) incidents involving air craft and shipping;
- 5) special emergency and rescue appliances;
- 6) breathing apparatus and resuscitation;
- 7) pumps and pump operation;
- 8) structural fire protection;
- 9) fire protection in buildings;
- 10) communications;
- 11) practical fire fighting;
- 12) emergency plans;
- 13) topography of the area;
- 14) some informations about fire and emergencies at oil wells;
- 15) toxic gases and fumes and detection instruments;
- 16) safety in Oil, Petrochemical and Gas industries including fire prevention;
- 17) fire detectors;
- 18) first aid and rescue operations.

**5.6.4** The course duration for new recruits training shall be at least the minimum number of hours necessary to complete the topics given in the schedule of the program.

### **5.6.5 Regular training**

At least 2 hours of each shift on duty should be devoted to training activity. This activity shall be in form of classroom instruction during the night. Fitness practice drill, familiarization inspection during day time.

## PART II

### 6. FIRE FIGHTERS QUALIFICATIONS

#### 6.1 General

**6.1.1** A firefighter must be physically fit, for work at a fire and emergency that will involve considerable physical exertion. He must be courageous and yet be calm, as his manner and conduct will depend on his reactions in an emergency. He must be patient when executing his duties. He must have initiative and must possess the will to keep going for long periods under adverse conditions. He must cultivate his power of observation to the utmost and must also possess an inquiring mind. He must have a keen sense of discipline for unless he himself is able to obey orders without question. His duty may be summed up as, firstly, to save life, secondly, to prevent the destruction of property and thirdly to render humanitarian service. He should endeavour to learn as much as possible of plant and processes, so that if he is called to a fire and emergency in the units and premises he will be aware of the conditions he will meet and of any precautions he must take.

#### 6.2 Selection of Fire Fighter

**6.2.1** The selection, training, direction and employment of fire department personnel is the major phase of fire department administration and operation. If these personnel functions are properly conducted, fire prevention and fire fighting procedures can be channeled and handled smoothly, but without properly selected and trained personnel, fire protection efforts are likely to be spasmodic and inefficient with too many important details left to chances. Care shall be taken to get the right type of men, character habit reliability must be unquestioned. His intelligence should be keen. Emergencies require quick decision and good judgment.

It is an accepted practice to require at least satisfactory completion of the basic fireman training course and a reasonable degree of health and physical fitness. Each fire fighter must not only be physically capable of withstanding the hard work of fire fighting over a period of years but must be an outstanding member of fire fighting force.

It is the fire department responsibility for selecting and nominating high standard level of personnel from physical fitness point of view as well as mental ability of the applicants.

#### 6.3 Fire Fighter Requirements

##### 6.3.1 Medical requirement

Prior to being accepted for fire service membership, new recruits shall be examined and certified by physician as being medically and physically fit. The medical and physical fitness requirements shall take account the risks and tasks associated with the assigned duties.

**6.3.2** Fire fighters shall be re-examined annually by industrial medical doctor as being medically and physically fit.

**6.3.3** Temperament of the applicants is equally important because fire fighting is primarily a team function in which every member plays a vital assigned role.

**6.3.4** Fire fighters shall be encouraged to maintain good medical and physical condition and shall be required to report any changes in their physical and medical fitness that could impair their performance as a fire fighter.

**6.3.5** A thorough background investigation of each applicant from security point of view will be required.

**6.3.6** The applicants shall have educational background of not less than technical diploma.

**6.3.7** The applicants shall be selected after passing the physical examinations. When they have been selected, they shall be engaged on probationary bases for a period of not less than 6 months.

**6.3.8** The probationary period shall not be merely a perfunctory period for basic or recruit training, but rather a period permitting a close supervision of each applicant to see that he is sincerely interested in becoming a professional fire fighter.

**6.3.9** During six months probation the individual recruit shall be examined closely to ensure his willingness and capability and after the fire authorities have confirmed their satisfaction the applicant can be assigned to a fire fighter's duty.

## **6.4 Personal Record and Promotion**

**6.4.1** After fire fighters have completed basic training at the training center and have finished their probationary period, the department shall keep a constant interest in each individual fire fighter, with a record of all assignments, accomplishments, and performance. In some cases these records should be taken into consideration in giving credit towards promotion.

**6.4.2** Credit shall be given for certain amount of longevity and activity under theory that experience gained in years of actual fire fighting, emergency services and rescue operations have a value that cannot be measured in written examination alone. In general promotional examinations for each rank should be held at two years intervals or when vacancies arise. Examinations should be based upon the type of work to be performed in the rank in question following a careful analysis of the duties of the rank involved.

## **6.5 Operation of Fire Services Apparatus**

**6.5.1** The fire service apparatus shall be operated only by members who have been qualified in its proper operation by formal training using performance based standards.

**6.5.2** Driver of fire trucks shall have valid driver's license for the type of vehicle as specified in Traffic Regulations. Vehicles shall be driven in compliance with all applicable traffic signs and regulations.

**6.5.3** Drivers of fire service vehicles shall be directly responsible for safe and prudent operation under all conditions.

**6.5.4** Driver of fire truck is generally operator of fire truck fixed equipment such as pump, foam proportioner, Chemical Dry Powder and fire fighting booms etc.

## **6.6 Ranking**

Emergency activities and fire fighting operation shall be carried out under-strict discipline and orders shall not be de-generated into anything but the serious undertaking. Therefore, the uniform and ranking is an important factors and should be officially selected and recognized.

### **6.6.1 Fire fighter ranks:**

- a) Fire fighter grade 2.
- b) Fire fighter grade 1.
- c) Fire truck driver and operator.
- d) Crew leader controller, communication.
- e) Section leader-maintenance mechanic.

### **6.6.2 Fire officer ranks:**

- a) Station fire officer.

- b) Firemaster.
- c) Fire protection engineer.
- d) Training fire officer.
- e) Deputy chief fire officer.
- f) Chief fire officer.

## **6.7 Responsibilities**

A brief responsibilities of above ranking and job descriptions are as follows:

### **6.7.1 Fire fighter grade 2**

The fire fighter grade 2 (The lowest ranking) has completed recruit training course and passed satisfactory performance of probationary period of 6 months and assigned to fire fighting duties.

### **6.7.2 Fire fighter grade 1**

A fire fighter of 4 years experience with good record of background service, physically strong and passed an official examination with ability to be assigned as a leader of 2-3 fire fighters grade 2.

### **6.7.3 Crew leader**

Fire fighter with minimum of 6 years experience with excellent background record with good discipline, physical fitness and having ability to be a leader of 5 to 6 men crew assigned to a fire truck and working as a team leader in assigned fire fighting and emergency duties.

### **6.7.4 Section leader**

Fire fighter with minimum of 10 years experience with excellent record and good discipline. Knowledgeable to direct fire fighting team, all emergency conditions and rescue operations. Acting as shift fire station leader with ability of team work and decision making.

### **6.7.5 Senior fire control operator (section leader rank)**

With minimum of 10 years experience on fire fighting and crew leader. Knowledgeable of communication system and emergency call procedures. Responsible for all call out and communication of messages during emergency conditions. He is assigned in a central main control room.

### **6.7.6 Maintenance mechanic (section leader rank)**

Mechanical foreman with 2 years experience with all aspects of fire fighting equipment and appliances. Responsible for testing, inspections and repair work of fire fighting and emergency equipment.

**6.7.7** Section leader and a helper to be assigned for service and maintenance of all types of fire extinguishers.

### **6.7.8 Station fire officer (officers ranking)**

He is an officer incharge of the station. A comprehensive knowledge of station ground, detailed information of any manufacturing processes and risks involved. On arrival at the fire and emergency ground he takes command before arrival of district fire master or chief fire officer.

**6.7.9 Fire master**

He is responsible for all fire protection system of an area or district reporting to chief officer. He inspects all plants and fire risk areas and advises fire prevention methods and requirement with close cooperation of plants managers organizes fire fighting team and makes sure that they are regularly trained for fire fighting and emergencies conditions.

**6.7.10 Fire prevention engineer (divisional fire officer)**

Being as a qualified engineer he is responsible for advising the requirement of fire protection system. He is responsible for the testing and servicing of all fire appliances. He advises fire prevention methods and makes sure that fire service standards are met. He has a broad knowledge of all types of fire protection equipment.

**6.7.11 Training fire officer (divisional fire officer)**

Being as a qualified engineer, he is responsible for the following training courses:

- 1) Fire service recruit training.
- 2) Plants fire team training.
- 3) Fire officers advance training.
- 4) Supervisors fire prevention courses.

## APPENDICES

### APPENDIX A

The instructors who teach the subjects, should be familiar with lesson plans. The following is a good example of arrangement for a lesson plan:

#### 1) Title

Must indicate clearly and concisely subject matter to be taught.

#### 2) Objective

- a) Should state what the trainee should know or be able to do at the end of training period;
- b) should limit the subject matter;
- c) should be specific;
- d) may be divided into a major and several minor objective for each session.

#### 3) Training aids

Should include such items as actual equipment or tools to be used and charts, slides, films, etc.

#### 4) Presentation

- a) Should give the plan of action;
- b) should indicate the method of teaching to be used (lecture, demonstration, class discussion or combination of these);
- c) should contain suggested directions for instructor activity (show chart, write keywords on blackboard).

#### 5) Application

Should indicate by example, how trainees will apply this material immediately (problems may be worked a job may be performed, trainee may be questioned on understanding and procedures).

#### 6) Summary

- a) Should restate main points;
- b) should tie up loose ends;
- c) should strengthen weak spot in instruction.

#### 7) Test

Tests help to determine if objectives have been reached they should be announced to the class at the beginning of the session.

- 8) Assignment should give references to be checked or indicate materials to be prepared for future lessons.