

FIRE SERVICES EXAMINATIONS BOARD

STUDY NOTE

EXAMINATION	LEADING FIREFIGHTERS EXAMINATION
PAPER	HUMAN RESOURCE MANAGEMENT
SUBJECT	HEALTH, SAFETY AND WELFARE
ITEM	RISK ASSESSMENT AND CONTROL MEASURES
STUDY NOTE No.	1312

INTRODUCTION TO THE STUDY NOTE

This study note has been prepared as the basis of study in connection with the qualifying examinations for promotion.

Candidates will be expected to demonstrate knowledge of the information contained in the study note and understand how it should be applied:

The 'References' made at the end of the Study Note are included for information only and candidates will not be expected to study these as part of the bibliography.

RISK ASSESSMENT

1. Introduction

Risk assessment is nothing more than a careful examination of what could cause harm to people while at work. Carrying out a risk assessment enables judgements to be made as to whether enough precautions have been made, or if more of them are required to be done to prevent harm.

This study note describes the types of risk assessment that are required within the Fire Service with which a Crew Commander needs to be familiar.

It is useful to determine the definitions associated with health and safety.

- 'A hazard' is a condition with potential to cause harm or loss.
- 'A risk' is the chance of a particular harm/loss arising from exposure to the hazard.
- Magnitude of risk may be quantified by estimating the likelihood of the hazard causing harm/loss and the severity if the hazard does cause harm/loss.

2. Risk Management

This is the title given to the overall process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, monitoring and reviewing.

Health and safety management is a system for defining policy for health and safety, organising and planning to achieve policy, implement plans, measure performance, review and audit the management system.

In order to provide an acceptable level of protection at operational incidents, health and safety management and risk management must operate at three levels – strategic, systematic and dynamic.

Strategic risk management is carried out at Brigade Management level and is not covered by this Study Note.

3. Carrying out Risk Assessments

When carrying out a risk assessment at the systematic or dynamic level, the important thing that has to be decided is whether a hazard is significant and whether it has been covered by satisfactory precautions, so that the risk is small. Dynamic risk assessment is completed on the incident ground.

Systematic risk assessment follows similar considerations, eg on a fire station, but is recorded on a proforma.

Therefore, a particular task that is given a severity rating of 1, and likelihood rating of 2, has a risk rating of 2.

Different matrices can be used, eg 1-10, 1-5, with a definition given to each number for severity, likelihood and the risk rating.

The above is a simple example of risk assessment methodology as an introduction into the subject for examination purposes. It is important to understand that the assignment of a number to the likelihood and severity of 'risk' is only to assist the decision making process. The numbers themselves indicate very little.

6. Control Measures

Various options for the control of risks have evolved over the years. These can be remembered using the mnemonic 'ERIC PD':

Elimination, Reduce, Isolate, Control, PPE & Discipline

These principles are elaborated on below:

E	-	Elimination and Substitution
R	-	Reduction in exposure duration
I	-	Isolation
C	-	Ventilation, Suppression and Improved methods and systems
P	-	Personal hygiene and Personal Protective Equipment
D	-	Discipline

7. Selection of Control Measures

The selection and application of the appropriate control measures for each situation may be straight forward, or may involve considerable skill. Personal protective equipment should be worn as well as using primary control measures.

(a) Elimination

Elimination or removal of the hazard is a control measure because it prevents exposure to the hazard and the risk from it being realised. An example of elimination would be the removal/demolition of a drill tower if it is considered too dangerous for personnel to work in or beneath it due to its state of repair or construction characteristics.

(b) Substitution

This involves replacing the hazardous practice/procedure with another, less hazardous, practice/procedure.

Many examples can be found for substitution, from using different types of foam in training or at incidents to the use of synthetic smoke in generators rather than real fires/smoke in training venues.

(c) **Isolation**

This can be accomplished by the installation of a physical barrier between a hazardous operation and the employee, or in some cases by the appropriate use of distance and time. Isolation techniques are used at many operational incidents, for example at road traffic accidents, where a barrier may be put between the cutting operations and the casualty.

(d) **Ventilation**

The two main types of ventilation system are dilution, ventilation and local exhaust ventilation (LEV).

Dilution may take the form of natural ventilation through open windows for instance, or it may be induced by mechanical extraction from the room. It is used where the contaminant presents low risk and is generated at low velocity into the work place.

LEV is used for capturing pollutants close to their point of origin, and transporting them through filters or to fresh air. Careful consideration must be given to the design of the system which will be affected by the size and shape of the capture inlet, the size and construction of the ducting and the fan used.

Both these systems may be found on fire stations to alleviate the problem of exhaust fumes in appliance bays.

(e) **Reduce**

At radiation incidents, dosimeters, survey meters and contamination meters should be utilized to monitor and reduce/limit exposure to radiation sources. Brigade policy on the maximum exposure dose per incident/annum must be adhered to and the accumulated dose recorded on personal file with details sent to the Occupational Health Department.

(f) **Improved Work Methods and Systems**

This may include features mentioned elsewhere as substitution, hygiene, and personal protection.

Other features would be the provision of adequate supervision, training, instruction and information. An example of an improved system of work on the incident ground would be the Incident Command procedure.

(g) **Personal Hygiene**

This element of control depends mainly upon the co-operation of the employee and as a control method is unreliable. Sufficient facilities must be made available and frequent reminders may be required. In particular at operational incidents where personnel may come into contact with numerous hazardous substances with the risk of HIV, Hepatitis, Leptosirosis.

(h) **Personal Protective Equipment**

This should be regarded as the last line of defence because it does not make the workplace safe. As with hygiene, it relies heavily upon the co-operation of the employee.

Fire kit may prove a vital last line of defence in a fire situation and is the reason why it must be properly checked and maintained.

(i) **Discipline**

This covers both discipline in the sense of applying self discipline (eg using supervision to encourage personnel to adhere to safe systems of work) as well as applying Brigade discipline regulations when control measures are ignored.

References

5 Steps to Risk Assessment (HSE)