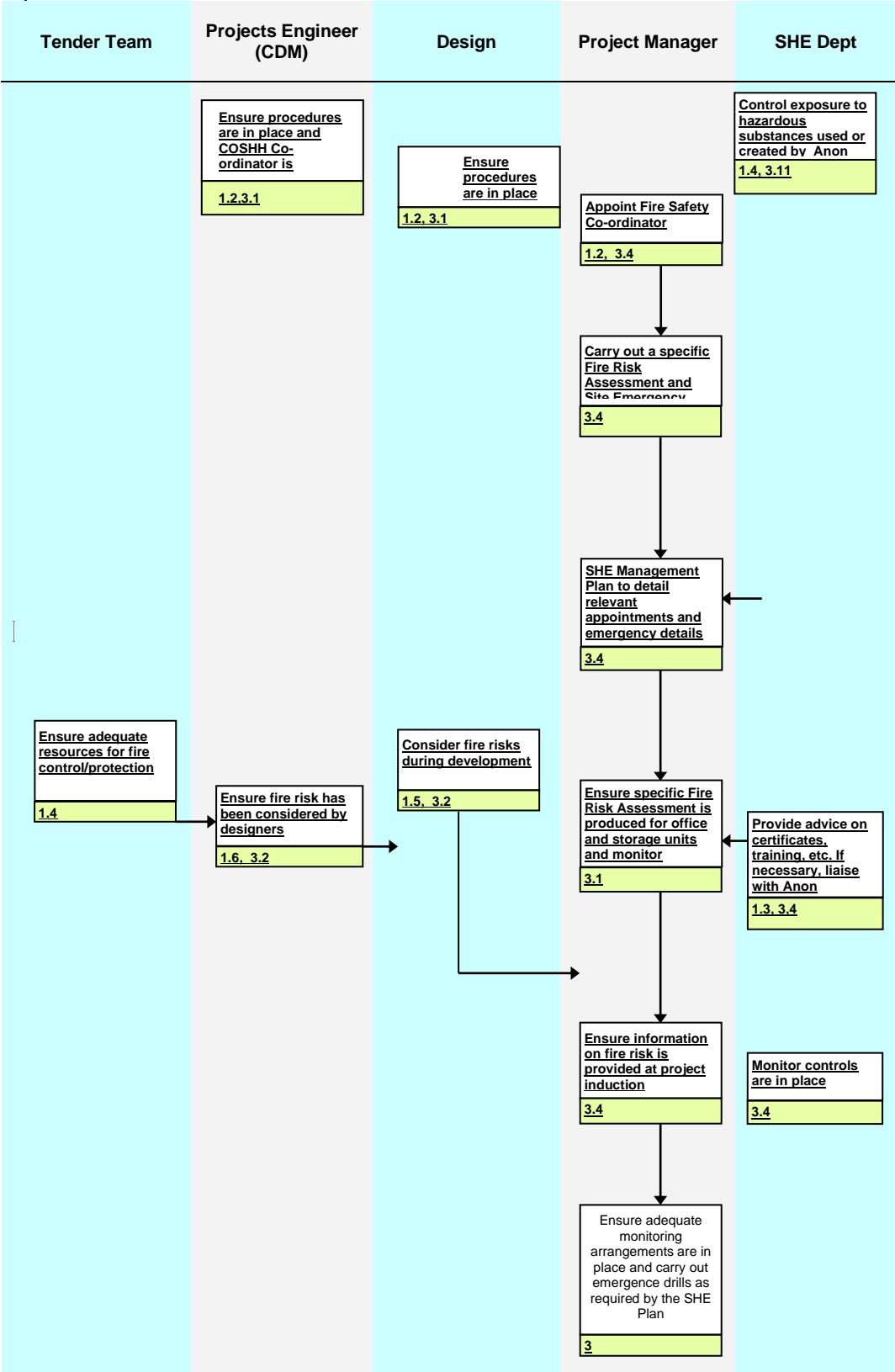


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Process Map



Key

Activity
Guidance

PURPOSE

- 1 The purpose of this procedure is to ensure adequate controls are in place from fire and the adequate provision of emergency procedures.

SCOPE

- 1 This procedure covers all COMPANY Projects and locations under the control of COMPANY. A COMPANY is defined as the organization with responsibility for management of safety at a construction site.

Reference Document

- 1 The following standards are referred to in this part of specification:
BS 5839..... Fire detection and fire alarm systems for buildings. Code of practice for Design, installation, commissioning and maintenance of systems in non-Domestic premises.
BS 5839-1:2013..... Fire detection and fire alarm systems for buildings. Code of practice for Design, installation, commissioning and maintenance of systems in non-Domestic premises.
BAFE SP203..... Accreditation to support fire detection and fire alarm systems.
LPS1014..... Fire Detection and Alarm Systems.
BS 5266..... Emergency lighting. Code of practice for the emergency lighting of Premises.

DOCUMENTS

- 1 Qatar Regulatory Document (Construction) RD1.7
- 2 SHE Management Plan
- 3 Safety, Health and Environmental Risk Management and Written Safe Systems of Work (SHE-PRO-001)
- 4 QCS Fire Prevention Standards and Guidance for Buildings under Construction.

FORMS

1. Fire Prevention Checklist (SHE-FRM-13-01)

Introduction

- 1 This Section provides guidance on Fire prevention and control on site which is a legal requirement under the Regulatory Document Section 1.7.
- 2 It is strongly advised that reference is made to BS 5839 BS 5839-1:2013- Fire detection and fire alarm systems for buildings Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
- 3 Fire extinguishers, emergency lighting, fire alarms and fire signs must comply with current local civil defense Standards and / or British Standards.
- 4 Every year there are a number of large fires on construction sites and in buildings undergoing alteration and refurbishment All have serious consequences: Injury and fatality to people, environment and property damages. Some irreplaceable buildings burn down.
- 5 The risk of fire is greater during the construction, refurbishment or demolition of buildings than at any other time, and the loss of equipment, working time and resultant financial implications can be severe.
- 6 Such fires have been started by the careless use of blowlamps, faulty electrical wiring etc.
- 7 The practical steps which can be taken to prevent fire are a cost-effective investment that may bring great benefits. The majority of fires can be prevented by taking simple precautions and by adopting safe working practices.
- 8 Every fire, no matter how large the end result, starts from a small beginning. But certain fundamentals are common to every fire, and knowledge of these will help to prevent or to control a fire.
- 9 Everyone who has been trained will know the different types of fire that can occur and the right extinguisher to use in each case. Using the wrong extinguisher can make a fire situation deteriorate rapidly. If you are not trained, do not attempt to use them.
- 10 Sources of fuels, such as bonfires, LPG cylinders, dangerous substances, and flammable materials, shall be identified as well as sources of ignition, such as smoking, cooking and heating appliances and operations involving hot works (e.g. welding and cutting)
- 11 Controls shall take into account site security with respect to trespassers and acts of vandalism.
- 12 Materials storage and all waste produced present a fire hazard and needs to be taken into account in the risk management process.
- 13 Fire alarms, emergency lighting, fire-fighting equipment, signage, fire safety procedures, emergency plans and staff training should keep in step with the progress of construction works so that all areas are adequately covered throughout all stages of development.
- 14 The simplest fire procedure is as easy as A B C =
 - a. Raise the **alarm**
 - b. Call the fire **brigade** (Civil Defense)
 - c. **Immediate** evacuation

REMEMBER!

- 1 The majority of fires on site can be prevented by taking simple precautions and by adopting safe working practices.

- 2 Fire legislation is designed to reduce the risk of a fire starting and ensures that, if it does occur, there are adequate means of escape and measures to control the fire.

2.3.13.1 Responsibilities

SHE DIRECTOR

- 1 Authorises this procedure.

PROJECT / SITE MANAGER

- 2 Ensures that works are carried out in accordance with this procedure.

SHE MANAGER / ADVISER

- 3 Provides advice and support in the application of this procedure and monitors others' effectiveness to manage the activities.

ESTIMATING / TENDER TEAM

- 4 Ensure necessary resources are available for fire precautions.

DESIGNERS

- 5 Designers and specifies shall consider their proposals in terms of the potential for reducing construction phase fire risks at source. The ability to do this will vary according to the circumstances.

PROJECT ENGINEER (CDM)

- 6 The Engineer shall ensure that the relevant information provided by clients or designers is included in the tender stage information pack.
- 7 They shall also monitor design proposals and if they note designs that appear to ignore significant fire matters, or introduce significant fire hazards for the construction phase, then they shall be referred back to the designer for resolution.

INCIDENT CONTROLLERS, FIRE MARSHALS, ETC.

- 8 Ensure duties are carried out in accordance with those detailed.

2.3.13.2 Definitions

CDM

- 1 Construction (Design and Management) and the definitions therein.

INTRODUCTION AND SUMMARY OF CONTRIBUTION TO FIRE SAFETY FROM KEY PARTIES

- 2 As with all health and safety issues, fire safety during construction work will best be achieved through adoption of the principles set out in the CDM i.e. design and planning to avoid or reduce the risks followed by thorough planning, organisation and control of the execution of the works.

- 3 The material contained in this document shall be used in the preparation of site fire plans that shall be included in the SHE Management Plan.

2.3.13.3 Actions Required to Implement This Procedure

TENDER STAGE

- 4 The person responsible for preparing the tender shall ensure that all necessary resources for fire precautions has been included and where necessary seek the advice of the SHE Department.

DESIGN PHASE

- 5 Where **COMPANY** is the designer, the design leader shall ensure that fire risks are considered in the process of developing the design. In practice designers shall consider the elimination or mitigation of construction phase fire risks as part of the design risk assessment.
- 6 Where **COMPANY** is the Engineer the in house co-ordinator shall ensure that fire risks have been considered by designers in their design.

PRE CONSTRUCTION PHASE

- 7 All sub and work package contractors shall be required as a condition of contract, to comply with the requirements of the Qatar Regulatory Document (Construction) and as such this requirement has been incorporated in the COMPANY standard rules for sub and work package contractors.
- 8 The location and fire precautions required for temporary site accommodation e.g. offices, canteens, cargo containers and caravans etc as well as parts of the existing buildings used for these purposes demand special consideration and the Project/Site Manager shall seek the advice of the SHE Department during the planning of such facilities.

CONSTRUCTION PHASE

- 9 The Project/Site Manager shall appoint a Incident Controller for the site whose name shall be recorded in the SHE Management Plan. In addition, and where appropriate, a sufficient number of fire marshals shall also be appointed.
- 10 The Project/Site Manager in association with the SHE Adviser for the site shall undertake a Fire Risk Assessment and prepare a site specific emergency plan which shall be integrated into the SHE Management Plan.
- 11 Safety induction of all personnel onto the project/site shall include fire related risks and arrangements.
- 12 The Project/Site Manager shall in consultation with the SHE Manager/Adviser, prepare, undertake and record a specific Fire Risk Assessment for all Site Offices/Temporary Accommodation units. Contact the SHE Department for advice.
- 13 The SHE adviser appointed for the site shall provide any necessary fire training requested and undertake fire audits, as circumstances dictate.
- 14 The Project Manager shall arrange and carry out emergency evacuation drill as required by the SHE Management Plan.
- 15 The Project/Site Manager must ensure that arrangements are in place to monitor the effectiveness of this procedure including the maintenance of any fire fighting equipment etc.

2.3.13.4 Managing fire risks

- 1 On every construction site, there will always be the risk of fire. By the very nature of the operations carried out (cutting, burning, grinding, welding, etc.), the use of flammable substances and the amount of wood and other combustible materials used or stored on site, the potential for fire is always present and must be properly guarded against.
- 2 As with all potential workplace problems, the situation can be effectively managed by:
 - a) taking steps to prevent a fire starting in the first place
 - b) Preparing for, and effectively reacting to, a fire situation if it occurs.
- 3 Contractors must make a suitable and sufficient assessment of the risks to health and safety of their employees whilst they are at work, and of the risks to any person not in their employ but who may be affected by their actions. The purpose of these risk assessments is to:
 - a) identify any hazards that may be inherent within any work process
 - b) establish the risks to health and safety arising from those hazards
 - c) Establish the control measures necessary to reduce the risks to an acceptable level.
- 4 In circumstances where fire is an on-site hazard, a 'fire risk assessment' must be carried out.
- 5 In many cases, fire risk assessments may be quite straightforward and completed relatively quickly. As outlined above, the principles of fire risk assessment are the same as for the risk assessment of any other construction work activity or process.
- 6 In more complicated situations, carrying out a fire risk assessment may need more consideration and may need to be reviewed as the construction project progresses or new situations arise. It almost goes without saying that anyone carrying out a fire risk assessment on site needs to have both knowledge and competence in the subject.

TEMPORARY BUILDINGS

- 7 The design for Fire prevention and control need to include temporary structures and works such as office accommodation, canteens and other temporary accommodation and their maintenance.

2.3.13.5 Personal responsibilities

BONFIRES

- 1 Where bonfires are allowed, no fire should be left unattended at any time.
- 2 A bonfire should only be lit after conducting a risk assessment:
- 3 Special attention is to be given to drifting smoke which could be a nuisance and represent danger to road.
- 4 They should be situated well away from any buildings, boundaries, roadways, fuel stores or other combustible materials or structures.
- 5 Consideration must be given to wind direction and strength.
- 6 Never light a bonfire by using a flammable liquid. There is a danger of the person lighting the fire being burnt by the 'flash' as the flammable liquid ignites and also a chance of secondary fires starting as heavier-than-air vapours spread.

SMOKING RESTRICTIONS

- 7 Where it is decided that smoking can be allowed in 'non-enclosed' areas, these areas must exclude any 'fire-risk' areas such as storage areas for combustible materials, flammable liquids and gas storage areas. The official **NO SMOKING** notice must be clearly displayed in any area where smoking is not allowed, including all entrances to all enclosed working places.
- 8 Areas where smoking is allowed should be equipped with adequate fire-fighting equipment.
- 9 Non-combustible containers should be provided to aid safe disposal of discarded smoking materials.
- 10 As work progresses and the site develops it will be necessary to monitor the changes in the 'fire risk areas' and review the areas where smoking is allowed accordingly.
- 11 Site rules should ensure that smoking is prohibited for an appropriate period at the end of each working day, for example the last hour. This will allow any developing fire to be discovered and dealt with before the site closes at the end of the day.

TRESPASSERS

- 12 Children and other trespassers may start fires on site. Sites should, as far as possible, be secured against intruders. In every case, combustible materials should be cleared on a regular basis (daily) and not left lying around. Storage areas for flammable liquids and gases should be secured during non-working hours.
- 13 Everyone should know the correct action to take if they discover a trespasser on site during working hours.

HOT WORK

- 14 Cutting, burning and welding operations, together with the use of blowlamps and other LPG-fuelled tools, are the cause of many fires on building and construction sites. It is essential that anyone engaged in hot works is aware of the fire risk, and is trained and competent to use the equipment that will produce the heat.
- 15 Precautions must be taken where heat from a work process could be transmitted to other combustible materials, for example where hot works are carried out on steelwork or pipes adjacent to or passing through flammable materials such as stud-work walls or timber floors.
- 16 Where this kind of operation is anticipated, it is essential that all combustible materials (and liquids) are protected before any work is allowed to start. Special care should be taken when working with cutting or welding equipment at raised levels. Any equipment or combustible items situated below cutting or welding operations where there is a danger of sparks or fragments of hot metal dropping, should, if possible, be removed or covered with fire-resisting material.
- 17 When working with blowlamps, welding, flame-cutting or grinding equipment, thorough checks should always be made to ensure that nothing is left smouldering after the work is finished.
- 18 As an added precaution, always check into cavities, around eaves, behind studding and into other voids after any hot work has been completed.
- 19 In many cases such work must be carried out in compliance with a Hot Work Permit. This will stipulate the safety conditions under which the work must be carried out and will usually require:
 - 20 that a suitable and serviceable fire extinguisher is available at the place of the work
 - 21 that hot work ceases at least one hour before the end of the working day
 - 22 That a check for the presence of fire or potential fire is carried out before the end of the working day.

HEATING APPLIANCES

- 23 The risk of fire arises from the use of heating appliances if they are sited and installed incorrectly, inadequately maintained or are not suitable for the intended use or location.
- 24 Fuel supplies for gas-fired appliances, especially propane or butane, should be kept secured outside the building and piped in through fixed pipework. Any flexible pipework should be kept as short as possible, and used only for the final connection to the cylinder. Any room in which a gas fire is used must be fitted with a permanently open vent or louvre to enable the fire to operate properly without producing excess carbon dioxide. (A window that could be closed in cold weather, for example, is not acceptable.)
- 25 Gas fires, plus the associate pipework and connections and so on must be regularly serviced.
- 26 The use of oil heaters is not recommended due to the inherent risk of fire if they are knocked over or otherwise misused.
- 27 Combustible material should be kept well away from heaters and stoves. The practice of drying wet clothing in front of fires should be prohibited. Care must be taken to see that newspapers, clothing or other combustible materials are not allowed to build up around such heaters.
- 28 Care must be taken also to ensure heaters are not used near liquid fuel cylinders. Heat applied to the surface of such cylinders will cause the contents to pressurise and could trigger an explosion.
- 29 All heaters and stoves, including cookers and kettles, must be turned off at the end of the working day. Portable electrical apparatus should be switched off, unplugged and disconnected from the mains supply.

STORAGE OF MATERIALS

- 1 Many of the materials used in the construction process are combustible.
- 2 Whilst it is appreciated that there is a need for enough material to be available to do the job, only an amount equivalent to one day's work supply should be stored in the work area. Where it is possible to use a material which is less flammable, but will do the same job, then that type of material should be specified by the designer.
- 3 Wherever possible, the stockpiling of flammable materials should be avoided, as quantity increases the scale of any fire.
- 4 Where possible, all combustible materials should be stored outside the building under construction in a locked compound or storage container with adequate separation between differing types of product. Such items as LPG and flammable adhesives should be isolated into a separate locked compound.

DISPOSAL OF WASTE

- 6 Most construction sites generate large quantities of rubbish and waste material which present a potential fire risk.
- 7 Good housekeeping is essential. Rubbish and waste should be cleared from site on a regular basis, if the risk of fire is to be controlled. Although not all rubbish and waste can be taken to a centralised point for disposal, places should be organised so that skips and other waste disposal containers can be safely positioned not less than 3 metres way from any building or structure.
- 8 Skips and other waste disposal containers should not be placed adjacent to means of escape from buildings or the site, but must be so positioned as to be readily available to vehicles contracted to collect skips or to clear the accumulations of rubbish and waste material.

PROTECTION OF FINISHED SURFACES

- 9 Once a building is nearing completion, it is common practice to use temporary coverings to protect finished surfaces during the remaining fitting-out phase. These coverings often take the form of plastic sheeting, fibreboard, or similar materials, some of which may be flammable. They can therefore add to the fire loading of the building, and consequently increase the risk of fire. Ideally, fire retardant materials will be used.
- 10 Care should be taken in such situations to ensure that, where possible, materials with flame-retardant surfaces are used, that fire precautions are upgraded as appropriate, and that features requiring such protection are installed as late as possible into the project.

2.3.13.6 Protection of employees

FIRE RISK ASSESSMENTS

- 1 The Regulatory Document, in particular Section 1.7 sets out the law regarding Fire prevention and control and stipulates specific duties for conduct of fire risk assessments.
- 2 The Regulatory Document requires that a 'responsible person' must carry out, and keep up to date, a risk assessment and implement appropriate measures to minimise the risk to life and property from fire.
- 3 The responsible person will usually be the main contractor in control of the site or in the case of a property the property owner.
- 4 Sources of fuel and ignition shall be identified and general fire precautions including, means of escape, warning and fighting fire shall be established based on fire risk assessment.
- 5 In occupied buildings such as offices, works must not interfere with existing escape routes from the building, or any fire separation, alarms, dry risers, or sprinkler systems.
- 6 There are five steps in carrying out a fire risk assessment:
 - a) **Identify hazards:** consider how a fire could start and what could burn;
 - b) **People at risk:** employees, contractors, visitors and anyone who is vulnerable, e.g. person with physical disabilities; pregnant woman etc
 - c) **Evaluation and action:** consider the hazards and people identified in the above and act to remove and reduce risk to protect people and premises;
 - d) **Record, plan and train:** keep a record of the risks and action taken. Make a clear plan for fire safety and ensure that people understand what they need to do in the event of a fire; and
 - e) **Review:** your assessment regularly and check it takes account of any changes on site.

MEANS OF ESCAPE

- 1 Key aspects to providing safe means of escape on construction sites include:
- 2 Routes: your risk assessment should determine the escape routes required, which must be kept available and unobstructed;
- 3 Alternatives: well-separated alternative ways to ground level should be provided where possible;
- 4 Protection: routes can be protected by installing permanent fire separation and fire doors as soon as possible;
- 5 Assembly: make sure escape routes give access to a safe place where people can assemble and be

accounted for. On a small site the pavement outside may be adequate; and

- 6 Signs: will be needed if people are not familiar with the escape routes. Lighting should be provided for enclosed escape routes and emergency lighting may be required.

MEANS OF GIVING WARNING

- 7 Set up a system to alert people on site. This may be temporary or permanent mains operated fire alarm (tested regularly), a klaxon, an air horn or a whistle, depending on the size and complexity of the site.
- 8 The warning needs to be distinctive, audible above other noise and recognisable by everyone.

MEANS OF FIGHTING FIRE

- 9 Fire extinguishers should be located at identified fire points around the site. The extinguishers should be appropriate to the nature of the potential fire:
- a) wood, paper and cloth – water extinguisher;
 - b) flammable liquids – dry powder or foam extinguisher;
 - c) Electrical – carbon dioxide (CO₂) extinguisher.
- 10 Nominated people should be trained in how to use extinguishers

RESPONSE TO A FIRE ALARM

- 11 In the event of a fire occurring, it is essential that the alarm is raised as quickly as possible so that employees and others, such as visitors, can quickly and safely reach a place of safety.
- 12 This can be achieved by considering the steps outlined in Module HI that cover:
- a) emergency procedures
 - b) calling the fire and rescue service
 - c) means of escape.
- 13 However, if a fire starts inside a building which is under construction, demolition or refurbishment, particularly in a basement, the location of the fire exits may be unknown to many of the people on the site. Therefore, publicised and clearly signposted escape routes must be established.
- 14 As part of the site emergency planning, dedicated escape routes should be decided on during the planning phases of the project, and arrangements made for them to be clearly signed and adequately lit.
- 15 Escape routes and their signage may have to be reviewed and reorganised as construction work progresses.
- 16 As part of establishing a satisfactory means of escape, it will be necessary to install an emergency lighting system in circumstances where failure of primary lighting would create a hazardous situation.

2.3.13.7 Fire Alarm system and compliance

- 1 A good fire alarm system should be installed within the site compliant to the current standards, and provides the level of protection demanded by current legislation.
- 2 Correct documentation to be in place:
- 3 An up-to-date risk assessment

- 4 A log book that records the date and time of weekly tests, and a record of any faults detected, false alarms and the service history, by whom.
- 5 A design certificate (such as a BS 5839-1 G1 Design certificate or equivalent) with Specification, Fire Plan or cause and effect, a set of drawings that clearly states the category or level of protection, plus any variations that have been agreed with interested parties such as Civil Defence, the Insurers or Building Control.
- 6 An Installation certificate (such as a BS 5839-1 G2 Installation certificate or equivalent) including a set of 'as fitted' drawings.
- 7 A commissioning certificate (such as a BS 5839-1 G3 Commissioning certificate or equivalent) including equipment manuals with user instructions.
- 8 An acceptance certificate that confirms the date of handover
- 9 An inspection and servicing certificate (such as a BS 5839-1 G6 Inspection & Servicing certificate or equivalent) that record all tests and checks made at each service visit since original installation – handover.
- 10 Modification certificates as applicable (such as a BS 5839-1 G7 Modification certificate or equivalent) identifying any work undertaken on the system since the date of handover.
- 11 The responsible person should ensure that certification is in place covering these subjects as identified in BS 5839-1. If there is inadequate certification available, it is recommended that a Verification Certificate (such as a BS 5839-1 G5) is obtained from a competent maintainer
- 12 In the case where installations don't have the certificates, it is recommended that the system is assessed by a competent service provider who can issue the necessary certificates detailed above.
- 13 Anyone who will undertake the works will need to be competent and those carrying out works on a fire alarm system shall hold either a BAFE SP203 or LPS1014 certificate approved from Kahramaa. The certificates should include details of their capability to Design, Install, Commission and/or Maintain a fire alarm system.
- 14 It is also important to ensure that any service provider is competent to advise of any potential sources of false alarms and their corrective action.

EMERGENCY LIGHTING

- 15 The provision of emergency lighting should always be considered when assessing the fire safety requirements for a construction site.
- 16 This is particularly important where being able to carry out work safely is dependent on artificial lighting because there is no natural light, for example in basements.
- 17 If the lighting circuits should fail, any standby emergency lighting system must switch on automatically and clearly illuminate the following:
 - a) exits and directional signs
 - b) corridors and associated exits
 - c) circulation areas
 - d) changes in levels
- 18 any projections and protrusions, such as temporary partitioning, trestles, scaffolding, items of plant and machinery
- 19 internal and external staircases, including ladders, particularly if these are essential to evacuate the site.

- 20 Emergency exit routes from the premises may have to be provided or maintained through the construction area for use by the occupiers of the premises. This is relevant where the building in which construction is taking place is partially occupied by others.
- 21 It may be necessary to amend the location and extent of the emergency lighting system as works progress.
- 22 Emergency lighting, whether powered by battery or standby generator or a combination, should be tested on a regular basis by a competent person in accordance with BS 5266 Part I.
- 23 Records of tests of the emergency lighting equipment should be kept and must be available for inspection when required.

2.3.13.8 Fire-fighting equipment

- 1 As work progresses, the requirement and suitability of fire-fighting equipment must be reviewed, and amended as necessary.
- 2 All mechanically-propelled site plant should carry its own fire extinguisher of the correct type. On large or costly items of equipment or plant, the installation of automatic fire detection and extinguishing systems should be considered if there is a risk of fire.

MAINTENANCE OF FIRE-FIGHTING EQUIPMENT

- 3 In addition to the monthly inspections of fire-fighting equipment it is particularly important to check extinguishers which, within a year, are sent to more than one site. When a site is being set up, on receipt of the fire extinguishers, the Site Manager must inspect them for the date that the next check is due.

2.3.13.9 Staff training

- 1 The Contractor must ensure that employees are provided with adequate safety training that includes suitable and sufficient instruction and training on the appropriate precautions and actions to be taken by employees in order to safeguard themselves and other relevant persons on the premises. It needs to take account of the fire risk assessment and the emergency procedures, and be easily understandable and repeated periodically. The training should cover:
 - a) discovering a fire
 - b) how to raise the alarm?
 - c) what to do on hearing the alarm
 - d) procedure for alerting visitors and all staff
 - e) calling the fire service
 - f) evacuation procedures, assembly points and fire drills
 - g) location and use of fire-fighting equipment
 - h) location of escape routes
 - i) how to open escape doors?
 - j) importance of fire doors
 - k) how to stop equipment and isolate power?
 - l) not using lifts
 - m) use and risks of highly flammable and explosive substances
 - n) good housekeeping
 - o) smoking policy and smoking areas.

FIRST AID

- 1 Trained first aiders will know how to deal with anyone who has been burnt in a fire on site. However, it may not be a trained first aider who is first on the scene.

2.3.13.10 Site security

- 1 Effective site security is a way of preventing malicious fires caused by trespassers.
- 2 Irrespective of the site boundary fence, buildings and storage areas for flammable liquids, liquefied petroleum gas cylinders and other combustible materials should be individually fenced or otherwise suitably protected.
- 3 Illumination of the site, the provision of security guards or guard dogs or the installation of CCTV is additional deterrents to unauthorized access.
- 4 At the end of each working day a fire check should be undertaken, particularly in areas where hot work has been carried out. Where 24-hour security is provided, fire checks should be undertaken throughout the night, during holiday periods and at weekends.

2.3.13.11 Fire safety and the Construction (Design and Management) CDM Regulations

- 1 CDM imposes duties with regard to the safe operation of construction sites on Contractors and Sub-Contractors. These duties focus on minimizing the risk of fires and ensuring that, if a fire should occur, it can be correctly dealt with. Fire should be one of the hazards covered in a fire safety plan that will form a part of the construction phase health and safety plan.
- 2 These Regulations require that the Contractor appoints a competent person to be responsible for continually assessing the fire risk and updating the Fire Safety Plan.
- 3 Designers, who will be guided by the fire prevention and control elements of the QCS, should attempt to 'design-out' fire risks where possible.
- 4 Additionally, CDM requires that:
- 5 suitable and sufficient steps are taken to prevent, so far as is reasonably practicable, the risk of injury from fire or explosions.
- 6 measures to be taken to detect and fight fires in relation to work are carried out on construction sites.

2.3.13.12 Guarding against fire

DESIGN PHASE

- 1 Effective fire prevention planning begins at the design stage. The architect or designer must consider the measures which will eliminate or diminish the potential for fire. It is essential that, where appropriate, an experienced and qualified person is appointed to consider the fire aspects of the design phase; not only to ensure that fire risk and potential for damage are properly assessed and kept to a minimum during construction, but also to see that the finished building will comply with all statutory requirements in respect of fire precautions.

FIRE SAFETY PLAN

- 2 On a site of sufficient size or complexity, or if required by the Contractor they may need to appoint a competent person (for example, a site fire-safety adviser).
- 3 This person should be responsible for formulating and regularly updating the site fire safety plan as construction work proceeds.

- 4 A site fire safety plan should include details of:
- a) the organisation of fire safety procedures
 - b) the names and positions of persons, and their responsibilities for the various aspects of fire safety, for example calling the fire and rescue service
 - c) general site fire precautions
 - d) fire detection and warning alarms installed on site
 - e) arrangements for maintaining fire escape routes and changing them as necessary as work progresses
 - f) arrangements for notifying staff of the emergency escape routes and any changes to them
 - g) the procedures for a Hot Work Permit system, if such is in use
 - h) the location, construction and maintenance of site accommodation
 - i) fire evacuation plans and procedures for calling the fire and rescue service
 - j) fire and rescue service access
 - k) fire drills and training, and also procedures for maintaining a written record of all checks.
- 5 The person responsible for site fire safety should:
- a) ensure that the site fire safety plan is clearly understood and complied with by all those on the site
 - b) ensure that a system using Hot Work Permits is established, as necessary, and monitor its effectiveness
 - c) carry out regular checks of fire-fighting equipment and facilities installed on site
 - d) test all alarms and detection devices weekly
 - e) carry out weekly inspections of emergency escape routes
 - f) ensure that fire and rescue service access is always maintained
 - g) liaise with site security staff, if they are employed
 - h) arrange for the necessary inspections, tests and fire inspections to be carried out
 - i) regularly monitor and check the arrangements and procedures for calling the fire and rescue service
 - j) carry out the duties required for the safe evacuation of the site in the event of an emergency situation
 - k) ensure that all staff and visitors report to the assembly points.
- 6 The site fire adviser or other competent person may, in consultation with the Contractor, need to arrange for the appointment of fire marshals to assist in the implementation of the site fire safety plan, particularly any site evacuation. On large sites it is usual for a fire marshal to be appointed from each company of subcontractors to account for that company's staff in the event of a site evacuation.
- 7 Where fire marshals' duties are more extensive, they must be allowed sufficient time to carry out their duties and to undertake any training that may be necessary.
- 8 Notices detailing the action to be taken in case of a fire should be displayed on all notice boards and adjacent to fire alarm call points.

2.3.13.13 Author

SECTION	NAME	POSITION IN COMPANY	CONTACT DETAILS
		SHE Manager	

2.3.13.14 Approvals

	NAME	POSITION IN COMPANY	SIGNATURE & DATE
Approved by:		SHEQ Director	

Para No.	Question	Tick Box for yes
1.0	Design Phase	
	Has a Co-ordinator been appointed for the Design Phase?	<input type="checkbox"/>
	Does the Co-ordinator understood the full scope of his responsibilities?	<input type="checkbox"/>
2.0	Construction Phase	
	Has a Site Fire Safety Co-ordinator been appointed by the COMPANY ?	<input type="checkbox"/>
	Has the Fire Safety Co-ordinator :	
	formulated a fire safety plan?	<input type="checkbox"/>
	ensured that staff are familiar with the plan and understood it?	<input type="checkbox"/>
	monitored compliance are fire safety plan, especially with regard to hot?	<input type="checkbox"/>
	work permits?	<input type="checkbox"/>
	established a regime of checks and inspections office protection	<input type="checkbox"/>
	equipment and escape routes?	<input type="checkbox"/>
	established effective liaison with security contractors or staff?	<input type="checkbox"/>
	written records of checks, inspections, maintenance work, fire patrols	<input type="checkbox"/>
	and fire drills?	<input type="checkbox"/>
	carried out a fire drill and analysed the results?	<input type="checkbox"/>
	checked the arrangements and procedures for calling the fire brigade?	<input type="checkbox"/>
3.0	Large Projects	
	On the large projects, has the Fire Safety Co-ordinator:	
	appointed fire marshals and/or deputies, trained them and delegated	<input type="checkbox"/>
	responsibilities to them?	<input type="checkbox"/>
	provided site plans for the emergency services detailing the escape	<input type="checkbox"/>
	routes, fire protection equipment and facilities for the fire brigade?	<input type="checkbox"/>
4.0	Fire Safety Plan	
	Does the fire safety plan detail:	
	• the organisation and responsibility for fire safety?	<input type="checkbox"/>
	• the site precautions?	<input type="checkbox"/>
	• the means for raising the alarm in case of fire?	<input type="checkbox"/>
	• the procedure for calling the fire brigade?	<input type="checkbox"/>
	• the means of escape in case of fire?	<input type="checkbox"/>
	• the hot work permit scheme?	<input type="checkbox"/>
	• the site accommodation, its use, location, construction and maintenance?	<input type="checkbox"/>
	• the points of access and sources of water for the fire brigade?	<input type="checkbox"/>
	• the control of waste materials?	<input type="checkbox"/>
	• the security measures to minimise the risk of arson?	<input type="checkbox"/>
	• the staff training programme?	<input type="checkbox"/>

Para No.	Question	Tick Box for yes
5.0	Emergency Procedures	
	Is the means of warning of fire known to all staff?	<input type="checkbox"/>
	It is checked routinely and can be heard in all areas above background noise?	<input type="checkbox"/>
	Are fire instruction notices prominently displayed?	<input type="checkbox"/>
	Are the fire brigade access routes clear at all times?	<input type="checkbox"/>
	Have specified personnel been briefed to unlock barriers when the alarm sounds?	<input type="checkbox"/>
	Have signs been installed indicating fire escape routes and the positions of fire protection equipment?	<input type="checkbox"/>
6.0	Fire Protection	
	Have measures been taken to ensure the early installation and operation of:	
	escape stairs (including compartment walls)?	<input type="checkbox"/>
	lighting conductors?	<input type="checkbox"/>
	automatic fire alarms	<input type="checkbox"/>
	automatic sprinkler systems	<input type="checkbox"/>
	hose reels?	<input type="checkbox"/>
	are fire dampers and fire stopping provided at the earliest opportunity?	<input type="checkbox"/>
	<ul style="list-style-type: none"> is steel work protected as soon as possible? 	<input type="checkbox"/>
	<ul style="list-style-type: none"> are adequate water suppliers available for fire fighting purposes? 	<input type="checkbox"/>
	<ul style="list-style-type: none"> are all hydrants clear of obstruction? 	<input type="checkbox"/>
7.0	Temporary Covering Materials	
	Are temporary protective materials required to protect surfaces and fittings?	<input type="checkbox"/>
	Have these been selected so that the fire load is still acceptable?	<input type="checkbox"/>
	Where flexible covering materials are used do they comply with relevant Standards?	<input type="checkbox"/>
8.0	Portable Fire Extinguishers	
	Are adequate numbers of suitable extinguishers provided?	<input type="checkbox"/>
	Are sufficient personnel trained in their use?	<input type="checkbox"/>
	Are extinguishers located in conspicuous positions near exits?	<input type="checkbox"/>
	Are carbon dioxide extinguishers in place adjacent to electrical equipment?	<input type="checkbox"/>
	Does all mechanically-propelled site plant carry suitable extinguishers?	<input type="checkbox"/>
	Have procedures been implemented for the regular inspection and maintenance of extinguishers?	<input type="checkbox"/>
9.0	Site Security Against Arson	
	Are adequate areas of the site, including all storage areas, protected by hoarding?	<input type="checkbox"/>
	Is security lighting installed?	<input type="checkbox"/>
	Has closed circuit television (CCTV) been installed?	<input type="checkbox"/>
	If CCTV is in position are the screens monitored and/or recorded?	<input type="checkbox"/>
	Is the site checked for hazards at the end of each work period, particularly where hot work has been in progress?	<input type="checkbox"/>

Para No.	Question	Tick Box for yes
10.0	Temporary Buildings	
	Is the fire break between the temporary building and the structure undergoing work more than 10 meters?	<input type="checkbox"/>
	If the fire break is less than 6 meters	<input type="checkbox"/>
	Is the temporary building constructed with materials which will not significantly contribute to the growth of a fire?	<input type="checkbox"/>
	Is the building fitted with an automatic fire detection system?	<input type="checkbox"/>
	If the temporary building is within the building under reconstruction or refurbishment:	
	• is escape for personnel sufficiently easy?	<input type="checkbox"/>
	• is access for the Civil Defence (Fire Department) readily available?	<input type="checkbox"/>
	• is the building fitted with an automatic fire detection system?	<input type="checkbox"/>
	If the floor of the building is raised above ground level is the space beneath enclosed with non-combustible material?	<input type="checkbox"/>
	Are heaters enclosed with guards and securely fixed on the walls?	<input type="checkbox"/>
	If separate buildings contain heaters for drying clothes, are the heaters	<input type="checkbox"/>
	thermostatically controlled? (with enclosed elements) are the drying racks fixed firmly at a safe distance?	<input type="checkbox"/>
	Are all heaters and cookers properly installed and is adequate ventilation provided?	<input type="checkbox"/>
	Are automatic fire and intruder alarms installed and is temporary buildings used for storage of flammable liquids and gases?	<input type="checkbox"/>
	Do temporary buildings contain the minimum of furniture and fittings made from synthetic materials?	<input type="checkbox"/>
	In all areas of fire hazard does a no smoking policy prevail and there adequate "No Smoking" signs in place?	<input type="checkbox"/>
11.0	Site Storage of Flammable Liquids and LPG	
	Are containers of flammable liquids and LPG stored in purpose designed compounds?	<input type="checkbox"/>
	If flammable liquids are not stored in compounds, is the quantity less than 50 litres (or half a days' supply, whichever is less) and is it kept in a fire resistant cupboard or bin?	<input type="checkbox"/>
	Is the storage area at least 10 meters from temporary and permanent buildings	<input type="checkbox"/>
	If not, are the recommended precautions taken?	<input type="checkbox"/>
	Are cylinders of oxygen and chlorine and containers of similar agents kept separately from flammable liquids and LPG?	<input type="checkbox"/>
	Are the stores properly signed?	<input type="checkbox"/>
	Has the store a paved or compacted base, and is clear of weeds and rubbish?	<input type="checkbox"/>
	Are all electrical fittings of intrinsically safe design?	<input type="checkbox"/>
	Is automatic gas detection equipment installed?	<input type="checkbox"/>
	Are suitable fire extinguishers provided at the entrances?	<input type="checkbox"/>
12.0	Site Storage of Flammable Liquids and LPG	
	Do electrical installations conform to British or International Standards?	<input type="checkbox"/>
	Is all electrical work undertaken by competent electricians?	<input type="checkbox"/>

Para No.	Question	Tick Box for yes
	Are all circuits, other than those controlling security devices and security lights, turned off when work ceases?	<input type="checkbox"/>
	Are all gas suppliers installed by a competent gas fitter?	<input type="checkbox"/>
	Are all gas suppliers in fixed piping or armoured flexible tubing?	<input type="checkbox"/>
	Where gas cylinders are used are they located outside building, secured and protected from interference?	<input type="checkbox"/>
	Are flexible links for LPG supplies only connected by a competent person?	<input type="checkbox"/>
13.0	Hot Work	
	Is a permit to work system in operation?	<input type="checkbox"/>
	Does that system include an adequate maintained register?	<input type="checkbox"/>
	Is the area involved cleared of combustible materials before work commences, and are the opposite sides of walls or partitions also inspected?	<input type="checkbox"/>
	Is a careful watch maintained while hot work is in progress, with suitable extinguishers of appropriate type at hand?	<input type="checkbox"/>
	Is wooden flooring and other combustible material which is not movable covered before commences?	<input type="checkbox"/>
	Is the work area screened when welding or grinding is undertaken?	<input type="checkbox"/>
	Are gas cylinders secured vertically, and are they fitted with flashback arresters?	<input type="checkbox"/>
	Are tar boilers supervised by experienced operatives, and only taken onto roofs in exceptional circumstances?	<input type="checkbox"/>
	Is the work area thoroughly examined and hour after work is finished?	<input type="checkbox"/>
14.0	Waste Materials	
	Are provisions made for the safe storage and removal of waste materials?	<input type="checkbox"/>
	Are checks carried out routinely to ensure that waste materials are not accumulating on the site?	<input type="checkbox"/>
	Are metal bins, with metal lids provided for oily rags?	<input type="checkbox"/>
	Is collected waste, awaiting disposal, kept away from temporary buildings stores and equipment?	<input type="checkbox"/>
	Is all dry vegetation removed regularly from around the site?	<input type="checkbox"/>
	Is there an absolute prohibition on burning rubbish on site?	<input type="checkbox"/>
15.0	Plant	
	Is all plant with internal combustion engines positioned in well-ventilated, non-combustible enclosure with the exhaust pipes clear of combustible materials?	<input type="checkbox"/>
	Are compressors housed away from other plant?	<input type="checkbox"/>
	Do notices and staff training make it clear that fuel tanks must not be refilled whilst engines are running?	<input type="checkbox"/>
	Is plant equipment protected from accidental impact?	<input type="checkbox"/>
	Are air intakes positioned so that air is cool and free from flammable gases and vapours?	<input type="checkbox"/>
	Are sand-trays provided to absorb drips of fuel and lubricant?	<input type="checkbox"/>