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The Health and Safety Plan

Although a requirement of the Construction (Design and Management) Regulations 1994 (CDM), the development of project- and site-specific Health and Safety Plans is a recognised part of best practice in safety management in the construction industry worldwide. Only a legal requirement in the member states of the European Union and Australia, their use is now encouraged in many other countries and mandated by contractors wishing to achieve maximum levels of control of site work. In this Chapter, 'Safety Plan' is used as an abbreviation for 'Health and Safety Plan'.

The Safety Plan is produced to assist and contribute to the establishment of a safe, healthy and environmentally sound working environment, so as to benefit all workers and management personnel on site, neighbours and third parties, and to minimise the environmental impact of the work. It should include details of the project and its safety, health and environmental requirements, anticipated site hazards and conditions and their means of control. It will also contain rules developed following consideration of all significant hazards and their risks, and other items which are important for the safe and efficient conduct of the work. 'Significant hazards' in this context refers to those hazards which a competent contractor could not be expected to identify in advance.

It must be the responsibility of every contractor to be aware of the Safety Plan and its contents, and to make known to their workers all specific provisions which they are required to comply with. One particular benefit of the Safety Plan is that, when made available in its preliminary form at the bid stage, it allows contractors foresight of conditions which may alter their bids. 'I didn't know you wanted me to allow for doing it that way' has been a frequent complaint of contractors in the past.

The Safety Plan cannot be developed until a project risk assessment has been made, in order to list all the issues and

obtain an overview of significant hazards and risks, and if necessary to specify solutions to them. Many contractors have developed systems to do this; early resistance to the concept on the grounds of time lost and difficulty can be removed by the demonstration of its worth. Benefits include the advance identification of problems so that they can be managed by organising rather than by 'fire fighting'.

Pre-tender Health and Safety Plan

A summary of the matters which should be addressed at the pre-tender stage is given in an Appendix to the Approved Code of Practice to the Regulations, which should always be consulted. This shows the topics which should be covered where relevant to the project:

- General description and location of the work, with details of those involved including the client and Planning Supervisor, and any safety requirements of the client (probably in relation to interfacing with the client's own operations)
- Time and programme – including stage start and finish dates
- Existing off-site conditions – adjacent land use, ground instability and contamination, traffic systems and restrictions, potential for trespass or vandalism, restrictions on noise and other nuisances
- Existing on-site conditions – status and location of buried and overhead services, traffic conditions and restrictions, site investigation reports, underground obstructions, ground contamination and ground water conditions
- Hazards from existing structures which might arise from demolition and refurbishment – presence of asbestos, fragile materials, fire damage, post-tensioned concrete structures and structural instability
- Existing records – available drawings of existing structures, the health and safety file if available,

previous site investigation reports, historical maps if relevant

- The design – principles and assumptions of design for structures, including suggestions for methods or sequence of erection/assembly, specific inherent risks where the contractor will be required to state how he will avoid or control them, significant hazards not eliminated by the design
- Site layout and management – access egress, storage and unloading arrangements, site offices and welfare facilities
- Site rules and procedures – security arrangements, permit-to-work procedures, site rules from statutory bodies and emergency procedures
- Procedures for review of the Safety Plan itself – procedures for managing design changes
- Information required for the health and safety file
- Arrangements and format for the Safety Plan
- Arrangements for communication and liaison between all parties
- Issues which will arise when the project is located in occupied premises

Developing the construction phase Health and Safety Plan

The principal contractor's role is to take the pre-construction plan and breathe life into it. In so doing, the principles of prevention must be followed, as required by Schedule 1 of the Management of Health and Safety at Work Regulations 1999:

- Where possible, avoid risks altogether – by doing the work a different way without introducing new hazards
- Evaluate risks that cannot be avoided by risk assessment
- Combat risks at source, for example by removing a problem rather than posting a warning sign
- Adapt work to the individual, and give them control over speed of work where possible, rather than making the individual adjust to the work
- Make use of technological progress – mechanical handling, for example, replacing manual handling
- Have a policy of active risk prevention based on continuous improvement
- Give priority to solutions protecting the whole workplace rather than individuals – guardrails rather than safety harnesses
- Make sure everyone knows what they need to do to remain safe and healthy

- Achieve a positive organisational safety culture, where risk control is accepted as a normal part of life rather than an add-on.

The level of detail required in the Safety Plan should be in proportion to the risks involved. As with other control documents, the intention is for it to describe the practical arrangements made to control those risks.

The contents of the plan are not specified within the CDM Regulations, but guidance is given on them in the Approved Code of Practice. The list of topics given in Table 8.1 illustrates the comprehensive nature of the plan, but those that are not relevant to a particular project can be left out. Many of the topics are discussed elsewhere in this book.

Project safety management commitment statement

It has been found useful to require the most senior member of the project management team to sign the Safety Plan, thus demonstrating commitment to it. In some cases, principal contractors require the production of a project-specific statement of commitment to be placed in the front of the plan. For example see page 99.

Roles and responsibilities of project staff

The numbers and levels of management on a project will be proportional to its size and complexity. The following suggested duties and responsibilities of senior management may be found useful. Roles can be combined where appropriate on smaller projects.

Project Director / Senior Project Manager

1. Understand and be responsible for the implementation of the company safety, health and environmental policy, and policies, practices and procedures developed in compliance with it to meet the needs of the project
2. Co-operate in the co-ordination of safety, health and environmental activities between all contractors and clients, and any other contractors who may be working on the project
3. Appoint one or more members of staff to monitor the standards of safety, health and environment awareness and action on the project
4. Ensure that all relevant legislation is observed on the project

Table 8.1: Safety Plan contents	
Topic heading	Examples of detail that may be appropriate
Project introduction	Description of the work, project safety policy or statement of intent, restrictions on work such as traffic flows and noise limits, work activities of the client, contractors' layout for the site including storage areas
Project management	Management structure and responsibilities of the principal contractor's project team, arrangements for co-ordination meetings
Safety, health and environmental standards set for the project	Any special codes and conditions to be complied with, possibly set by the client
Information for contractors	Information that must be passed to on to lower tier contractors
Principal contractor's selection procedures for contractors, designers and suppliers	This may be relevant on larger projects where substantial procurement continues throughout the project's life
Communications	Examples are: how information is to be communicated to project teams and workforce, how co-operation is to be achieved between contractors, how design changes will be carried out and authorised
Hazardous activities	Arrangements including method statement requirements for dealing with the effective management of hazardous activities, of which examples are: <ul style="list-style-type: none"> ■ Storage and distribution of materials ■ Waste control and disposal ■ Means of access and places of work ■ Mechanical plant ■ Temporary services ■ Temporary support structures ■ Commissioning ■ Permit-to-work arrangements ■ Fall prevention and protection ■ Protection against falling materials ■ Exclusion of unauthorised people from work areas ■ Protection of the public
Emergency Plan or procedures	Dealing with injuries, fire and other dangerous occurrences, including remediation – see below
Reporting of incidents and other information	Arrangements for reporting incidents under RIDDOR, and statistical information
Welfare	Responsibility for provision and maintenance of welfare facilities, statement of what is available
Information and training for workers	Induction training and site orientation requirements, toolbox talks or task instruction
Consultation arrangements	Communication with workers and/or their representatives
Site rules	Any site rules established by the principal contractor
Health and Safety File	Requirements for the collection and handling of information to enable the file to be prepared
Monitoring arrangements	Compliance with the law, the site rules, procedures and standards
Project review	System for applying lessons learned, including continuing evaluations of contractor competence

Example of a project-specific statement of commitment

[YOURCO] is committed to the provision of a safe and healthy working environment for all employees and contractors, as well as other people affected by our work. These may include employees of the client or owner, our own visitors and those of contractors, and third parties such as the general public.

We recognise that the project work will result in the creation of a potentially dangerous work environment, and our aim is to achieve our objectives by eliminating all potential life-threatening and disabling situations, and to minimise the occurrence of all incidents which could lead to personal injury, damage to or loss of property and plant, and damage to the environment.

To achieve these objectives, we are committed to the following:

- Identification in advance of potential hazards, and organising the work activities so as to minimise the risks arising from them
- Setting and achieving essential basic standards for safety, health and the environment, and aiming to achieve best construction practice through a process of education and development

- The presence of a nominated person on site whose role will be to manage safety on site, including the identification and rectification of any potentially dangerous situations
- Establishing the site so that all necessary safe working procedures and equipment are implemented and used
- Ensuring that all workers are given induction training prior to access to the site, and making appropriate arrangements to brief visitors
- Establishing a site safety committee with regular meetings and follow-up actions, to which each contractor is to nominate a representative
- Keeping our client advised in advance of any works that will affect their operations

As the senior Project Manager for this project, I have reviewed the contents of this Health and Safety Plan, and will ensure the necessary support and resources to achieve the above objectives and the provision of a safe and healthy workplace.

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Project Manager

5. Ensure the prompt reporting of injuries suffered on the project, and the investigation of pollution incidents, significant incidents and other matters which may be required by company policy to be investigated or recorded
6. Reprimand any member of staff failing to discharge satisfactorily the responsibilities allocated to him/her
7. Ensure that adequate information is received regarding matters which might affect safety, health and the environment in order to determine at the planning stage:
 - (a) The most appropriate order and method of working
 - (b) Allocation of responsibilities with contractors and others
 - (c) Facilities for welfare and sanitation
 - (d) Necessary fire precautions
 - (e) Hazards which may arise from overhead or underground services and other situations which may lead to unnecessary improvisations on site
 - (f) Provision of adequate power supplies and lighting

8. Ensure that pre-start kick-off meetings are held with contractors and that adequate safety and health plans or method statements have been prepared by them which establish work methods and sequences of operations, together with the precautions to be adopted
9. Act as Chairman of the project Safety and Health Committee and ensure that safety and health are discussed and recorded as part of the agenda of all project and progress meetings held with contractors
10. Be responsible for the planning, implementation, publication, operation and review of the written Project Major Emergency Plan, and ensure that the proposed Emergency Plan meets the objectives of company policies on safety, health and the environment
11. Appoint a senior manager to act as Fire and Emergency Procedures Co-ordinator
12. In the event of an emergency, act on advice from the Fire and Emergency Procedures Co-ordinator and

activate the Project Major Emergency Plan where appropriate

13. In relation to company and statutory environmental requirements:
 - (a) Ensure the removal of waste in accordance with statutory requirements, or best practice
 - (b) Implement measures necessary to control ground, river and coastal water pollution
 - (c) Implement measures necessary to control noise pollution
 - (d) Implement a 'good neighbour' policy
 - (e) Prevent the atmospheric discharge wherever possible of ozone-depleting gases such as CFCs and halons
 - (f) Protect wherever possible and as appropriate wild life, flora including trees, archaeological and heritage remains
 - (g) Promote sustainable development, minimise materials wastage, promote recycling options and conserve water, paper and energy
 - (h) Investigate and report on environmental incidents, taking preventative action against repetition
 - (i) Operate vehicles where possible on unleaded fuels to minimise exhaust pollutants
14. Set a personal example

Assistant Project Manager(s)

1. Organise the project and supervise to ensure that work is carried out to agreed standards of safety and quality, with minimum impact on the environment and risk to workers, equipment and materials
2. Co-ordinate the activities of contractors, and monitor that legislation, site rules and other instructions are being complied with
3. Ensure that first-aid and welfare facilities are available as planned, and that their location is known to all workers
4. Be familiar with the details of the Project Major Emergency Plan, and management's role in it
5. Set a personal example

Appointed site safety person

1. Supervise to ensure that work is carried out to agreed standards of safety and quality, with minimum impact on the environment and risk to workers, equipment and materials
2. Monitor that legislation, site rules and other instructions are being complied with

3. Carry out weekly formal inspections of the project and record the results, giving copies to the contractors concerned and keeping a file record
4. Investigate all injuries reported, to identify the cause and determine responsibility
5. Accompany visiting company and contractors' safety staff and local enforcement officials during their visits to the project
6. Set a personal example

All employees

1. Develop a personal concern for their own safety and health whilst at work, and for that of others, especially new employees
2. Report defects in equipment or plant, and any obvious health or environmental risks, to their superior
3. Be aware of the principles of the company policy on safety, health and the environment, and promote these
4. Comply with any company and project rules on safety and health as they affect their work, particularly in regard to the wearing or use of personal protective clothing and equipment
5. Set a personal example

Project Major Emergency Plan

The objective of a Project Major Emergency Plan (PMEP) is to ensure that all members of the project's management are able to respond to a major emergency quickly and systematically, by following a sequential plan of action. There is no statutory requirement to include a PMEP within the Health and Safety Plan, but their value has been proved beyond doubt. The remainder of this chapter offers suggestions on the format and development of a PMEP.

A **major emergency** can be defined as a situation where, in the opinion of the senior member of the project management, significant loss or damage has been caused to the project, persons working on the project in any capacity, or the surrounding area, and where external rescue, emergency or regulatory agencies and the media are likely to become involved.

Examples of major emergencies include (but are not restricted to) multiple injury incidents, fires which cannot be controlled by site facilities, natural disasters such as floods, earthquakes and exceptional wind speeds, and significant structural failures.

The PMEP will contain details specific to the project, and information under the following suggested headings:

Emergency planning Before physical work begins on the project, and at intervals throughout its duration, the following should be reviewed: exposure to risks arising from fire, structural collapse, terrorist attack, risks to the general public outside the site perimeter and the likelihood of trespass or other unauthorised access to the premises. At the same time, the major work tasks involved should be reviewed to identify those with high risks which, in combination with the nature, size and location of the project structures, will make it necessary for special emergency arrangements to be put in place. The plan should begin with a statement of the project's exposure to these and other risks, and the significant work tasks.

Details of notifications made and the dates of notifications The local police and fire authorities should be advised in writing of project start and estimated end dates, and key personnel contact telephone numbers during and outside normal working hours

Notification priority list Who needs to know and in what order?

Posting of emergency telephone numbers Outside normal working hours contact telephone number for notification of an emergency/incident, and details of project management outside hours numbers should be supplied to contractors' representatives and posted on noticeboards as well as included in the PMEP.

Evacuation plan, including emergency escape procedures and routes. It is important that everyone working on a project knows what actions they are expected to take in emergency situations that may require evacuation of the premises. The main points of the PMEP will therefore need to be covered during induction training.

The plan should include:

- Floor plans or maps clearly showing the emergency escape routes and assembly areas – these may need to be updated frequently
- Location of safe or refuge areas in high-rise buildings and other premises where speedy evacuation may not be possible
- Procedures to be followed by any workers allowed to

remain behind to look after essential operations until their evacuation becomes absolutely necessary

- Details of who is responsible for making emergency notifications for situations that may occur outside normal working hours
- Safe or refuge areas offering safety to occupants pending evacuation. Such an area is created by using barriers that either fold across or shut, to provide a space protected from fire and smoke, such as in enclosed stairways

Arrangements for personnel head count after emergency evacuation has been completed. Generally, evacuated staff should be directed to a known assembly point a safe distance and location away from the evacuated premises. Supervisors should then make sure that all their staff are accounted for, and confirm this to the Emergency Procedures Co-ordinator or person deputising.

Visitors to the project should be accompanied at all times by a responsible person in the organisation being visited, who must ensure their safety at all times and account for them at the head count. This requirement should be covered during the kick-off briefing for contractors.

Emergency evacuation drills The need to practise emergency evacuation cannot be over-emphasised. Without such drills, it is unlikely that an adequate response in a real emergency will be achieved. The PMEP should contain appropriate arrangements for them, but their frequency will depend on individual needs, and these are likely to alter at different stages of a project. Accordingly, their scope and frequency must be kept under constant review and revisions given appropriate publicity.

Rescue and medical duties for those/any employees who are to carry them out. It is important to make sure that only those who have a detailed knowledge of the project layout and any processes involved are allowed to undertake rescue operations. These people should be in possession of current first-aid qualifications where possible, and be properly equipped with personal protective equipment so as to minimise the risks to themselves.

Security Effective security arrangements are important in emergency planning. The security unit should be located away from potential disaster areas, in a commanding position. It should be fire-proof and contain a copy of the emergency contact numbers, the PMEP, and plans showing fire points, emergency exit routes and assembly areas, dry/

wet fire main inlet points and access route for emergency services.

It will normally be necessary to detail the arrangements made for project security within the PMEP. Security staff have a valuable role to play, especially outside normal working hours, and they should be involved in any rehearsal of arrangements. It is also possible that they may themselves be involved in an incident, and so the personnel head count must also include security staff.

Site fire precautions Summary details of the project fire precautions should be included in the PMEP, and will be useful as a basis for decisions on what situations may require activation of the plan.

Out of hours incidents The PMEP should provide for emergency notification for situations that may occur outside regular working hours, including nights, weekends and holidays. Security staff should be given specific instructions to call the senior person in charge of the project. In the event of a fire or serious injuries, the appropriate emergency services should be alerted before calling the person in charge of the project.

Personnel

Project major emergency plans should be co-ordinated by someone other than the senior person in charge of a project, designated the **Emergency Procedures Co-ordinator**. That person should, in conjunction with colleagues, write the PMEP and keep it up to date. The PMEP may nominate people to take various roles and act as the Emergency Management Team, or the group can be nominated at the scene.

The composition and numbers of the Emergency Management Team will depend on the nature, size and complexity of the project. They should all be familiar with the layout and nature of the project and any processes involved, and should be given the opportunity to practise their actions in association with fire drills. Members should be sufficiently senior in position to allow them to give instructions where necessary, and have experience which allows them to make appropriate assessments of the situation and judgements as to what actions will be most appropriate under the changing circumstances.

In the event of a major emergency, the Emergency Procedures Co-ordinator's job is to:

1. Assess the situation, determine whether the PMEP should be activated and advise the senior member of the project management accordingly
2. Take charge of the work of the Emergency Management Team
3. Direct all efforts in the area, including taking charge of the evacuation process and minimising property damage and loss
4. Ensure that outside emergency services are called in where necessary, and liaise with the senior person controlling those services, especially concerning the number and locations of any persons not accounted for, and for handover of control where appropriate
5. Direct the shutdown of project operations as necessary

Immediate action following activation of the PMEP

The decision to activate the PMEP will be taken by the senior member of management. The decision will be taken on the basis of advice given by the Emergency Procedures Co-ordinator or person deputising. The guiding principle should be that the safety of site personnel and any person likely to be affected by the emergency always takes priority. When the plan is activated, the following steps should be taken without delay:

1. Evacuate the premises according to the detailed PMEP, under the control of the Emergency Procedures Co-ordinator or person deputising
2. Arrange for a site personnel head count to be taken, and advise the senior external emergency services controller if anyone is unaccounted for
3. Establish an Emergency Management Team for the immediate control of the situation, led by the Emergency Procedures Co-ordinator or person deputising. Ensure that members of the Emergency Management Team take prompt steps to advise their own next of kin of their personal safety
4. Initiate discussion with external emergency services to establish who will be in overall control of the situation. Control should normally be relinquished to external emergency services, except where they decline to accept this
5. Notify company management as soon as possible by telephone
6. Pass information to the client, insurers and contractors affected by the emergency.

The following tasks should be carried out by the Emergency Management Team:

1. Confirm that full evacuation has taken place
2. Confirm that the PMP has been properly followed
3. Establish a preliminary view of the nature and scale of the emergency and report this to the senior member of management
4. Decide what needs to be done to stabilise the situation. For example, is there a need for demolition to remove unstable materials; is there a safe method for re-entry into the premises; is there an emergency evacuation signal and system in place before re-entry is attempted; is there a safe temporary exit route?
5. Send non-essential personnel home, having decided upon the need for and size of a multi-service crew and clean-up gang
6. Alert specialist service contractors of any immediate needs, such as temporary equipment, generators, pumps, lighting and lifting equipment
7. Brief the senior member of management on what needs to be done, so that liaison can be maintained with the client, insurers and contractors, and the necessary actions agreed
8. Co-ordinate investigations to determine the cause of the emergency
9. Obtain clearance to re-enter the premises from rescue service and enforcement agencies, where necessary (for example, where there is any question of structural weakness having resulted)

Management information requirements

Information required by senior management at the beginning of an emergency is best addressed by the use of a checklist as a scratchpad memory aid (Figure 8.1).

Figure 8.1: Emergency information checklist	
What happened?	
What was the probable cause?	
When did the incident happen?	
How many casualties are there?	
Who is the employer of any casualties?	
What is the total number of people normally working on the project?	
How many were present at the time of this incident?	
Have all those who were present at the time of the incident been accounted for?	
Has the project site been evacuated?	
Is anybody trapped?	
Which emergency services have been involved?	
How long did it take for them to arrive?	
What are the details of any injuries?	
Which hospital (if any) received casualties [address required]?	
What is the current status of the project in terms of damage and delay to work?	
Have there been other previous similar incidents on the project?	