



**RUWAIS REFINERY
EXPANSION PROJECT**

**EPC-4 TANKAGE AND ASSOCIATED
INTERCONNECTING PIPING**

AGREEMENT No. 09-5578-E-4

DAEWOO E&C

PROJECT No. 5578

Doc. No. 5578-E4-HSE-HU-004

Rev.
0

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HOME OFFICE HSE PROCEDURE

AGREEMENT NO. : 09-5578-E-4

PROJECT NAME : Ruwais Refinery Expansion Project
EPC-4: Tankage & Associated
Interconnecting Piping

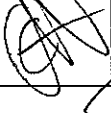
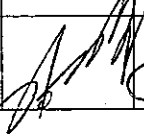
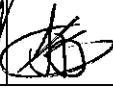

COMPANY : Abu Dhabi Oil Refining Company (TAKREER)

PMC : Mott MacDonald Ltd.

CONTRACTOR : Daewoo Engineering & Construction Co., Ltd.

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This page is a record of all revisions of this document. All previous issues are hereby superseded and are to be destroyed.

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REV	DATE	REASON FOR ISSUE	PREP	CHKD	REVD	APP'D	COMPANY
SIGNED (Initials)							

NOTES:

- (a) Revisions are denoted by a vertical line placed in the right-hand margin against the revised text.
- (b) PREP = Prepared by, CHKD = Checked by, REVD = Reviewed by, APP'D = Approved by.
- (c) In case of conflict between any requirements stipulated in this document with the contractual requirements, the contractual requirements shall prevail.

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1. INTRODUCTION

The Home Office HSE Procedure has been developed to ensure a safe and healthy working environment for all persons working in the Seoul Home Office through the application of appropriate risk control measures. The procedure furthers aims to reduce the environmental footprint of the Home Office team. The procedure will focus on training, communication, ergonomic-, fire-, environmental assessments.

1.1 Objective

The objective of this procedure is to protect the health & well-being of personnel during work at the home office, develop an organizational culture of safety as the primary objective on the project and minimize the environmental footprint of the works in the office. The objectives will be achieved through the implementation of the following systems and procedures;

- Home Office HSE Induction
- Emergency response procedure
- Fire Risk Control
- General Office Safety
- Environmental inspections
- Communication
- Near Miss reporting

1.2 Scope

The Home Office HSE procedure will be applicable for all works that are carried out in the DEC Seoul Home office, and will be applicable to Takreer, PMC and DEC personnel.

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2. HOME OFFICE HSE INDUCTION

All personnel that work in the Seoul Home Office will have to attend an HSE Induction program. There will be two separate induction programs, of which the first is for Korean staff and the second for Expatriate (non Korean national) staff. The only difference between the two programs is that the Korean program will be given in Hangul (Korean Language) and the Expatriate program will be in English with an additional section covering facts about Korea.

Apart from the induction program and Ergonomic Safety pamphlet should also be prepared which will cover ergonomic safety aspects, such as do's and don'ts whilst working at the desk. The pamphlet should also contain some useful info like a map of the subway, so that the attendees will keep the pamphlet with them. The induction program should cover the following topics as a minimum;

- 1) Project Overview
- 2) Korean Facts, i.e. Currency, Weather, Chinese dust, Hospitals etc.
- 3) General Office Safety
 - Ergonomics (Work stations, lighting, housekeeping)
 - Slips, trips and falls
 - Electricity and Office machines
 - Cabinets, cupboards and drawers
 - Manual Handling
 - Stress
- 4) Emergency Response Procedure
- 5) Near Miss reporting procedure

Training records shall be maintained, as per the training procedure, and will be available for audits, or inspections at any time. It should also be considered to receive training feedback from the initial group of attendees as part of the continual improvement cycle of HSE management, to identify opportunities for improvement in the training material as well as to gauge the effectiveness, quality and timing of the training.

3. EMERGENCY RESPONSE

The home office emergency response procedure should be established to ensure that minimal impact and quick recovery during emergencies at the home office area. The emergency response procedures should also be communicated to all personnel working in the home office area.

The procedure will further ensure that every person working in the Home Office is familiar with the steps to take in the event of an emergency or is familiar with the relevant escape routes and contact details of the Corporate Emergency team.

The emergency team will include an Office Manager, who is ultimately responsible for coordination of emergencies, first aiders, fire wardens and the HSE staff. The responsibilities of this team will be further detailed in section 3.2 below.

The designated emergency team need to be appointed in writing, and their pictures with contact numbers will be clearly displayed on notice boards and inside the offices. Emergency escape routes, with fire

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equipment also need to be clearly displayed. See Appendix 1 for details of escape routes, emergency contact numbers, emergency team posters, head count registers & first aid registers.

First aid stations will also be installed on every project occupied floor of the buildings, with equipped first aid kits, and first aid registers for recording of first aid details.

3.1 General Emergency Instructions

In the event of a general emergency in the office please refer to the Emergency contact list and dial the relevant emergency extension or number. It is important to remind office staff to remain calm and to clearly explain what the situation may be whilst conducting the call.

The emergency call shall preferably be made by a designated person fluent in Korean and English, which will allow a smooth process in terms of reporting the emergency and speeding up the medical/emergency response.

All the home office buildings (First Tower, Main Tower and S-Tower) are equipped with fire protection and detection equipment such as built in radio speaker equipment, smoke detectors, automatic sprinkler systems, alarms and other communication and safety systems.

Listed below is the flow which takes place when a fire has started;

- 1) Detection: If a fire starts, it will either be detected by the office employees or by the office smoke/fire detection system.
- 2) Alarm Activation: The fire may be detected by either personnel working in the building or by the automatic detection systems. If a fire is detected by personnel they should raise the alarm by pressing the manual alarm call button, and shouting fire. There is a control room in both buildings where all smoke detectors are visible on a computerized system (fire system) which will allow immediate response from emergency personnel to the exact location of the fire.
- 3) Evacuation: All personnel should now evacuate the building through the closest safe evacuation route. The appointed fire wardens should carry out a sweep of the floor to ensure that all the persons have left the building and take the head count register to the assembly area at the back of the S-Tower building.
- 4) Contact emergency services: The following step is the designated person shall then make the relevant call to the corporate emergency team, or depending on the situation and condition, a direct call could be made to outside Fire Services/medical services. The caller should remember to clearly state his name, location (floor), status of the fire and if there are any known injuries.
- 5) Attempt to extinguish the fire: If it is safe to do so, a staff member may attempt to extinguish the fire with the fire extinguishers provided on all floors of the Home Office Buildings. This may only be done if he will not put his own life at risk, and if his escape route is not obstructed. While using the fire extinguisher remember the PASS system;
 - P: Pull the Pin
 - A: Aim at the base of the fire
 - S: Squeeze the trigger

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- S: Sweep from side to side

- 6) Escape: Always remain aware of your escape path during any incident. Immediately leave the area if your escape path becomes obstructed, or if you feel unsafe. Ensure all persons evacuate the building (see evacuation routes posted on walls). It is important for personnel to familiarize themselves with escape routes, and drills should also aid in the familiarization process.
- 7) Assembly point: The home office buildings are not equipped with muster point signs or assembly areas. As an interim measure, in the event of an emergency evacuation, all employees, DEC and COMPANY, shall proceed out the back of the buildings to the company car park behind S-Tower.

This will allow employees to safely recuperate without the congestion with the main side of the building.

3.2 Responsibilities

The following are general responsibilities for emergency response;

1) Office Manager

The Office Manager will be selected from the HSE team and have the following general responsibilities;

- Ultimate responsibility for emergency response and evacuation
- Appointment and training of fire wardens & first aiders
- Ensure that fire wardens, first aider, emergency escape routes and emergency contact numbers are clearly displayed
- Ensure that the emergency team performs their assigned tasks as required.

2) Fire Wardens

The fire wardens will be appointed in writing by the Office Manager, and one fire warden will be appointed for every project occupied floor of the buildings. It is essential that the fire wardens are fluent in both English and Korean, as to ensure efficient coordination of emergencies. The fire wardens will have the follow responsibilities;

- Ensure that fire doors are closed and escape routes are clear
- Keep the office tidy and prevent accumulation of flammable materials
- Ensure that fire extinguishers or equipment are not removed or obstructed
- Ensure that the building carry out periodic inspections on fire equipment
- The wardens have to ensure that persons with impaired mobility get assistance from nominated helpers, if any
- Ensure that all areas of the floor (including toilettes) are cleared, and take a copy of the head count register with them
- Ensure that doors are closed as an area is vacated (except in the event of a bomb threat)
- Once the area (floor) is cleared proceed to the assembly point and report to the Office Manager
- Attempt to fight the fire, but only if they can do so without placing themselves or anyone else in danger, and can keep themselves between the fire and their escape route
- In the event of a bomb threat, follow the specific instructions from the Office Manager

The template for the fire warden appointment letters can also be found in Appendix 1.

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3) First Aiders

The first aiders will be appointed in writing by the Office Manager, and one fire warden will be appointed for every project occupied floor of the buildings. The first aiders will receive training from an authorized third party. It is essential that the first aiders are fluent in both English and Korean, to ensure efficient coordination of emergencies. The first aiders will have the following general responsibilities;

- Provide immediate assistance to casualties with both common injuries or illness and those likely to arise from specific hazards at work
- To summon the ambulance or other professional help if required
- Immediately report any first aid to the Contractor HSE department as well as Company HSE department

4. FIRE RISK CONTROL

The home office is situated in Seoul in 3 high rise buildings. Due to the nature of the work area a fire risk assessment should be carried out to identify any potential high risk situations and additional control measures should be implemented to ensure that the risk is ALARP.

As part of the fire risk control measures an emergency response plan should be in place, see section 2, and communicated to all personnel through the home office HSE induction.

The fire risk assessment will evaluate and record the following information;

- General fire information
- Fire hazards and their elimination and control
- Fire protection measures

The fire risk assessment should be carried out on a quarterly basis, and any findings should be captured in the fire risk assessment action plan and tracked in the weekly HSE meeting. See Appendix 2 for the fire risk assessment format.

5. GENERAL OFFICE SAFETY

As discussed in section 1, general office safety will be communicated to all home office personnel through the home office HSE induction program. Apart from the induction program the HSE Department and Project Managers will carry out a monthly "Office Safety Inspection" to evaluate and record the condition of office safety.

The office safety inspection should cover the following topics;

- General office safety
- Fire and Emergency arrangements
- Electrical equipment, installations, lifts etc.
- Training
- First aid and accidents
- Office risk assessment

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- Display screen equipment
- Hazardous substances
- Office inspections
- Physical conditions
- Notice boards
- Environmental management

The office safety inspection list can be found in Appendix 3. Findings should be captured in an action plan and the status tracked during the weekly HSE meeting.

6. ENVIRONMENTAL INSPECTIONS

Specific environmental impact assessments will be carried out to ensure that the environmental footprint from home office activities is minimized.

The impact assessment should cover the following topics;

- Energy usage
- Transportation
- Waste management
- Water usage
- Air quality (noise, smoke, smells)

The environmental impact assessment format can be found in Appendix 4, and should be carried out on a quarterly basis by the HSE department.

7. COMMUNICATION

Effective communication is an essential part of any management system. HSE office communication will be done through various forums. The typical means of communication will be;

- HSE weekly meetings
- HSE monthly newsletters
- Fire drills
- Safety Alerts
- HSE notice boards
- Emergency evacuation posters
- HSE induction

8. NEAR MISS REPORTING

The Takreer Near miss reporting procedure will be adopted in the head office during execution of the works. Near miss report cards will be distributed on occupied floor, and will be used to capture any near miss.

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The near miss report form will contain the following information;

- Date, time, location and brief description of near miss
- The potential consequences of the near miss
- Probable causes
- Immediate actions taken
- Actions/ measures to prevent recurrence
- Signature of the person completing the near miss

The report will then be reviewed by the HSE department and once all recommended actions are completed the report will be closed out. It is essential to provide feedback to the person who reported the near miss, as part of the near miss reporting process. See Appendix 5, for the format of the near miss report cards.

9. REFERENCES

1. Takreer: HSE in the office, HSE-CP56

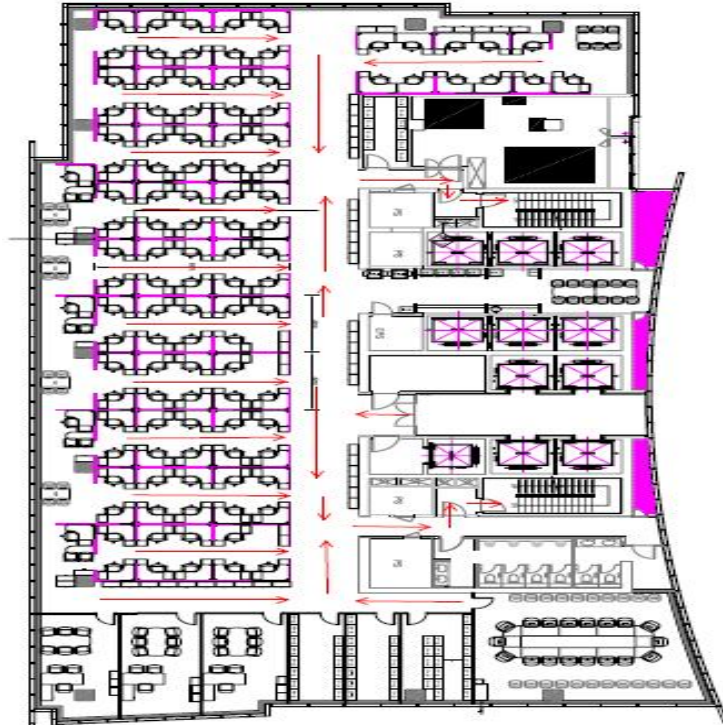
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APPENDIX 1: Emergency response documents

- 1.1 Emergency escape route & -response team main tower
- 1.2 Emergency escape route & -response team S-tower 3rd floor
- 1.3 Emergency escape route & -response S-tower 5th floor
- 1.4 Emergency contact numbers
- 1.5 Head count register
- 1.6 First aid registers
- 1.7 Drill & Inspection Schedule
- 1.8 Fire Warden appointment letter

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Emergency escape route and response team main tower



OFFICE MANAGER



Mr. DY Kim

FIRE WARDEN



Mr. ST In, ext. 5305

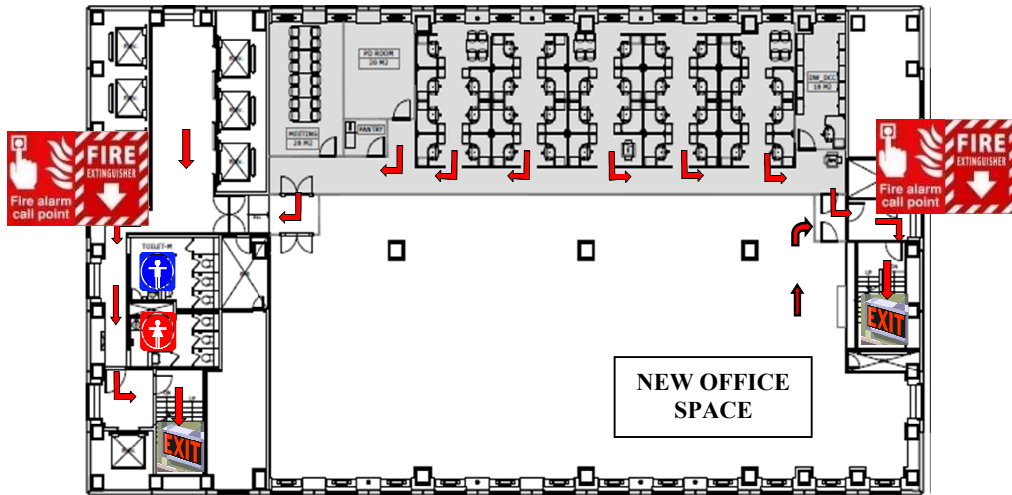
FIRST AIDER



Mr. JB Kim, ext 5316

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Emergency escape route and response team S-tower 3rd floor



OFFICE MANAGER



Mr. DY Kim

FIRE WARDEN



Mr. DH Kim, ext. 3135

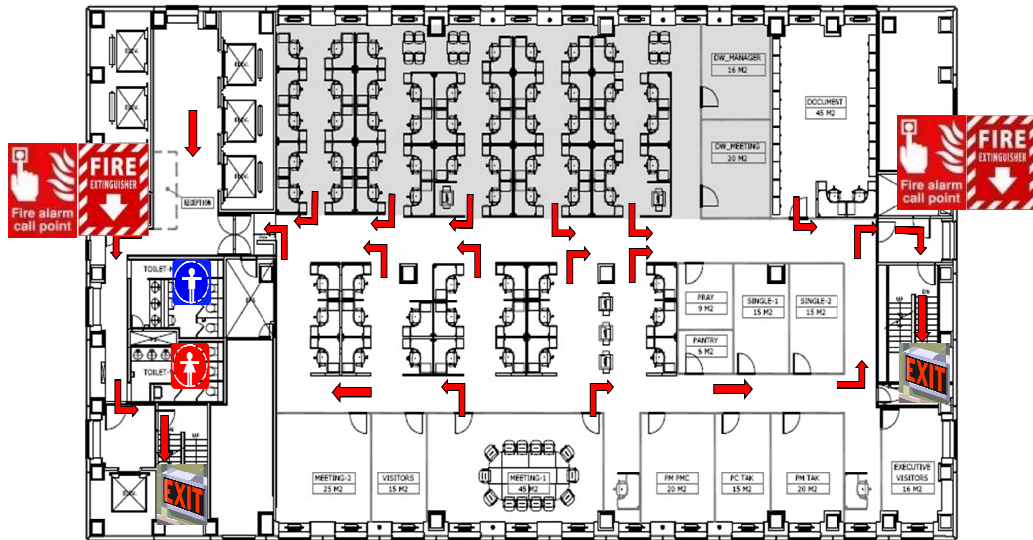
FIRST AIDER



Miss. JY Kwak, ext. 5613

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Emergency escape route and response team S-tower 5th floor



OFFICE MANAGER



Mr. DY Kim

FIRE WARDEN



Mr. JW Kim, ext. 5926

FIRST AIDER



Mr. SM Kim, ext. 3911

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Emergency contact numbers

1. DEC HSE Team - 2288 5605 Domestic
2. DEC HSE Team - 2288 3524 Overseas
3. DEC Security Office - 6303 0971
4. First Aid Clinic - 2288 3383
5. Corp Emergency Team - 2288 5588
6. Fire department – 119
7. Police - 112

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Head count registers

<u>HEAD COUNT REGISTER – DATE: _____</u>						
<u>NAME</u>	<u>DEPARTMENT</u>	<u>Ext #</u>	<u>In</u>	<u>Out</u>	<u>In</u>	<u>Out</u>

First aid registers

<u>FIRST AID REGISTER</u>					
<u>Name</u>	<u>Date</u>	<u>Time</u>	<u>First aid used</u>	<u>Reason</u>	<u>Who informed</u>

Drill & Inspection Schedule



HOME OFFICE INSPECTION AND DRILL SCHEDULE

DAEWOO E&C

No	Description	Frequency	Attendees Group *	Schedule Dates						
				April	May	June	July	Aug	Sep	Oct
1	Home Office Fire Risk Assessment	Quarterly	A	12			12			12
2	Home Office Safety inspection	Monthly	B	19	19	19	19	19	19	19
3	Home Office Environmental impact assessment guidance	Quarterly	A	26			26			26
4	First Aid Kit Inspection	Monthly	C	3	3	3	3	3	3	3
5	Fire Evacuation Drill	Quarterly	D		15			15		

No	Name and Designation	Ext	Group	Remarks
1	David Bristow	2501	B	
2	Myung Heo	5445	B	
3	Bradley Chanin	2533	A & B	
4	Johnny Brand	5263	A & B	
5	Do Yeol Kim	5298	A & B	
6	Craig Wardman	5679	C	
7	PMC and Contractor staff (all)	NA	D	

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Fire warden appointment letter

Appointment of Emergency Wardens

Office: _____

Office Manager: _____

Appointment of: _____

As Emergency Warden: _____

Area for which the above named person will be the Emergency Warden: _____

The above named person has agreed to be appointed as an Emergency Warden for the specified area. The functions of Emergency Wardens are as follows:

Emergency Wardens are to promote fire safety generally by encouraging their colleagues to:

- Keep fire doors closed;
- Keep escape routes clear;
- Keep the office tidy - do not allow accumulations of flammable materials;
- Not move fire extinguishers (and especially not to use them as door stops for Fire Doors);
- Not to obstruct fire-fighting equipment or alarm points;

They should be willing to discuss these matters with their colleagues, and report continual problems to the Office Manager.

In the event of an evacuation, the Emergency Wardens should assist the Office Manager in clearing the building by:

- Ensure that people with impaired mobility are getting assistance from their nominated helpers;
- Ensuring that all areas of their floor (including toilets) are cleared;
- Ensuring that doors are closed as an area is vacated (except in the event of a bomb threat);
- When their area is cleared, proceed to the assembly point and report to the Office Manager;
- Attempt to fight the fire, but only if they can do so without placing themselves or anyone else in danger, and can keep themselves between the fire and their escape route.
- In the event of a bomb threat, follow the specific instructions from the Office Manager.

The Office Manager will from time to time hold meetings with the Emergency Wardens to discuss matters relating to Fire, Safety and Emergency planning.

Statement by Emergency Warden:

I agree to be an Emergency Warden for the stated area, and to carry out the functions listed above to best of my ability. I understand that I may withdraw from the role at any time without detriment, by informing the Office Manager. I understand that the role imposes no additional civil or statutory liability.

Signed: _____

Date: _____

Signed (Office Manager) _____

Date: _____

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APPENDIX 2: Fire Risk Assessment

Address of Property:	
Office Manager:	
Person(s) Consulted:	
Date of Fire Risk Assessment:	
Originator:	
Date of Previous Fire Risk Assessment:	
Suggested Date for Review:	

The purpose of this report is to provide an assessment of the risk to life from fire in these buildings, and, where appropriate, to make recommendations to ensure compliance with fire safety legislation. The report does not address the risk to property or business continuity from fire.

Signatures	
Originator: (Office Manager)	Date:
Approved: (Competent Person)	Date:

Action Plan				
Action Required	Risk Identified	Priority High/Medium/Low	Action By	Due Date

This fire risk assessment should be reviewed by a competent person by the date indicated above or at such earlier time as there is reason to suspect that it is no longer valid or there have been significant changes.

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GUIDANCE

The following information should be collated by the Office Manager in preparation for the Risk Assessment being completed:

- Layout plan of the building drawn to scale: with workstation layouts, all fire appliances annotated (call points, fire detection equipment, fire extinguishers, fire bells, fire doors, wet or dry risers, fire hydrants, emergency lighting, fire alarm control panel, utility (gas, electricity) shut off points).
- Details of any fire protection measures (operational manuals, specifications, maintenance contracts etc)
- Number of staff and visitors.
- All up to date records: alarm testing, emergency lighting testing, fire detection testing, extinguisher testing, drills etc.
- Fire Risk Assessments from other building occupiers and the landlord.
- Fire Certificate if available (whilst this is not a current document, it may be of use to the Risk Assessor).
- Asbestos Register.
- List of staff who require assistance.
- Personal Emergency Evacuation Plans.
- Fire Emergency Plan.

The office Manager must arrange access for the assessor to all areas of the building including false ceilings.

Please note that whilst this document includes guidance (highlighted text) to assist completion, it must be completed by a suitable trained and competent person making referenceto appropriate standards and guidance, including Department for Communities and Local Government publication 'Fire Safety Risk Assessment Guide – Office and Shops'.

Any Hazards identified or action taken should be denoted in the comment sections. As much detail as possible should be noted within the Fire Risk Assessment. Evidence should be available to substantiate any statements within this form – and not used purely as a 'tick list'.

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TESTING FREQUENCY TABLE

<i>Routine Frequency</i>
<i>Daily</i>
<ul style="list-style-type: none"> • Fire alarm panel indicator for normal condition (BS 5839 Pt 1 2002) • Emergency lights (check for faults) (BS 5255 Pt 1) • Electro-magnetic door holders • Escape routes clear of obstructions • Fire resisting doors closing
<i>Nightly</i>
<ul style="list-style-type: none"> • Fire resisting doors held on electromagnetic door holders closed • Electric plugs and sockets
<i>Weekly</i>
<ul style="list-style-type: none"> • Fire alarm test (actuation from different trigger devices) & associated passive systems (BS 5839 Pt 12002) • Fire hose reels checked (visual) • Sprinkler test (BS 5306 Pt 2) • Smoke control systems (operation) • Fire fighting lifts (BS 5588Pt 5) • Operation of pressurization system
<i>Bi-weekly at night (for out of normal office working hours staff)</i>
<ul style="list-style-type: none"> • Fire alarm tested if night/shift workers on premises
<i>Monthly</i>
<ul style="list-style-type: none"> • Emergency lighting test, including auto start generator (simulated mains failure) (BS 5266 Pt 12002) • Fire alarm (if an automatic generator is used as secondary power source) (BS5839 Pt 12002) • Smoke control system checked • Fire fighting lifts (BS5588 Pt 5) • Inspection of pressurization system • Fire extinguishers checked in place • Fire safety signs
<i>Quarterly (3 Monthly)</i>
<ul style="list-style-type: none"> • Fire alarms (BS5839 Pt 12002) • Sprinklers (BS5306 Pt 2)
<i>Six Monthly</i>
<ul style="list-style-type: none"> • Fire alarm (BS5839 Pt 12002) • Sprinklers (dry valve only) (BS5306 Pt 2) • Emergency lighting (BS5266 Pt 1) • Dry/wet risers inspection (BS5306 Pt 1)
<i>Annual</i>
<ul style="list-style-type: none"> • Hose reels (BS5306 Pt 1) • Fire extinguishers (BS5306 Pt 3) • Emergency lighting over three years old (BS5266 Pt 1) • Sprinklers (BS5306 Pt 2) • Fire alarm (detectors) (BS5839 Pt 12002) • Fire fighting lifts (BS5588 Pt 5) • Dry/wet risers test (BS5306 Pt 1)
<i>Three Yearly</i>
<ul style="list-style-type: none"> • Emergency lighting (with subsequent annual tests) (BS5266 Pt 1) • External escape stairs/balconies/walkway • Sprinklers (BS5306 Pt 2)
<i>Five Yearly</i>
<ul style="list-style-type: none"> • Fire extinguishers (discharge test – (BS5306 Pt 3 2003) • Fire alarm wiring test (BS5839 Pt 12002)

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Ten Yearly
• Fire extinguishers (hydraulic test – carbon dioxide only (BS5306 Pt 3 2003))
Fifteen Yearly
• Sprinklers (BS5306 Pt 2)

GENERAL INFORMATION

1. THE BUILDING	
1.1 Number of floors:	
1.2 Approximate floor area:	(Delete units as appropriate) m2 per floor. m2 gross. m2 on ground floor.
1.3 Brief details of construction:	(Detail type of building, year of construction, building materials used and construction detail – used internally and externally including roof, detail any ventilation systems or ducting specifying if there are fire stops installed within them etc. Proximity of building i.e. on main road, access etc.)
1.4 Occupancy:	
1.5 Means of escape:	(Written description of the escape routes within the building...fire escapes, protected stairwells, ramps, fire doors, how many exits there are per floor or area etc.)

2. THE OCCUPANTS	
2.1 Approximate maximum number (including other occupants):	
2.2 Approximate maximum number of employees at any one time:	
2.3 Maximum number of members of public:	
2.4 Have copies of fire risk assessments been obtained from the landlord and/or other tenants (Yes or No)?	

3 OCCUPANTS AT SPECIAL RISK	
3.1 Sleeping occupants:	
3.2 Disabled occupants:	
3.3 Occupants in remote areas:	
3.4 Others:	

4 FIRE LOSS EXPERIENCE	
Detail any fire incidents that have occurred in the building.	

5 OTHER RELEVANT INFORMATION	

FIRE HAZARDS AND THEIR ELIMINATION OR CONTROL

6 ELECTRICAL SOURCES OF IGNITION	
6.1 Reasonable measures taken to prevent fires of electrical origin (Yes or No)?	
6.2 Fixed electrical installation periodically inspected and	

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tested (Yes or No)? Certificate Expiry Date (Usually required within 5 years)	
6.3 Portable appliance testing carried out at regular intervals (Yes or No). Test date (see HSE guidance contained in ORA07 for frequency of testing)	
6.4 Suitable policy regarding the use of personal electrical appliances (Yes or No). (ensuring any equipment taken into the office is reported to the Office Manager – should be included in PAT program)	
6.5 Suitable limitation of trailing leads and adapters (Yes or No)?	
6.6 Comments and hazards observed	

7. SMOKING	
7.1 Reasonable measures taken to prevent fires as a result of smoking (Yes or No)?	
7.2 Smoking prohibited in building (Yes or No)?	
7.3 Smoking prohibited in appropriate “safe areas” (Yes or No)?	
7.4 Suitable arrangements for those who wish to smoke (Yes or No)?	
7.5 Absence of any evidence of breaches of policy (Yes or No)?	
7.6 Comments and hazards observed	

8. ARSON	
8.1 Does basic security against arson by outsiders appear reasonable?	
8.2 Is there an absence of unnecessary combustible material in close proximity to the building or available for ignition by outsiders (Yes or No)? (bin areas outside / below the building secured from arson attempts etc.)	
8.3 Comments and hazards observed:	

9. PORTABLE HEATERS AND HEATING INSTALLATIONS	
9.1 Is the use of portable heaters avoided as far as practicable (Yes or No)?	
9.2 Is the use of the more hazardous type (e.g. radiant bar fires or LPG appliances) avoided (Yes or No)?	
9.3 Are suitable measures taken to minimize the hazard of ignition of Combustible materials (Yes or No)?	
9.4 Are fixed heating installations subject to regular maintenance (Yes or No)?	
9.5 Comments and hazards observed:	

10. COOKING	
10.1 Are reasonable measures taken to prevent fires as a result of cooking (Yes or No)?	
10.2 Filters changed and ductwork cleaned regularly (Yes or No)?	

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10.3 Suitable extinguishing appliances available (Yes or No)?	
10.4 Comments and hazards observed:	

11. LIGHTNING	
11.1 Does the building have a lightning protection system (Yes or No)?	
11.2 Comments and hazards observed:	

12. OTHER SIGNIFICANT IGNITION SOURCES THAT WARRANT CONSIDERATION	
12.1 Ignition sources	
12.2 Comments and hazards observed:	

13. HOUSEKEEPING	
13.1 Is the standard of housekeeping adequate (Yes or No)?	
13.2 Combustible materials appear to be separated from ignition sources (Yes or No)?	
13.3 Avoidance of unnecessary accumulation of combustible materials or waste (Yes or No)?	
13.4 Appropriate storage of hazardous materials (Yes or No).	
13.5 Avoidance of inappropriate storage of combustible materials	
13.6 Comments and hazards observed:	

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FIRE PROTECTION MEASURES

14. MEANS OF ESCAPE FROM FIRE																																	
14.1	It is considered that the building is provided with reasonable means of escape in case of fire?	Yes:	No:																														
14.2	<p>More specifically:</p> <ul style="list-style-type: none"> • Adequate provision of exits? Yes: No: • Exits easily and immediately openable where necessary? Yes: No: • Fire exits open in direction of escape where necessary? Yes: No: • Avoidance of sliding or revolving doors as fire exits where necessary? Yes: No: • Satisfactory means for securing exits? Yes: No: • Reasonable distance of travel: (scaled layout plan of the building to be used to measure all travel distances, using the tables below: <table border="1" style="margin-left: 40px;"> <tr> <td></td> <td colspan="4" style="text-align: center;">A and C = travel in one direction only B and D = travel in more than one direction</td> </tr> <tr> <td>Risk Level</td> <td colspan="2" style="text-align: center;">Within room (m)</td> <td colspan="2" style="text-align: center;">Total to storey exit (m)</td> </tr> <tr> <td>Day Risk staff only</td> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>High Risk</td> <td style="text-align: center;">6</td> <td style="text-align: center;">12</td> <td style="text-align: center;">12</td> <td style="text-align: center;">25</td> </tr> <tr> <td>Normal Risk</td> <td style="text-align: center;">12</td> <td style="text-align: center;">18</td> <td style="text-align: center;">18</td> <td style="text-align: center;">45</td> </tr> <tr> <td>Low Risk</td> <td style="text-align: center;">18</td> <td style="text-align: center;">25</td> <td style="text-align: center;">25</td> <td style="text-align: center;">45</td> </tr> </table> <ul style="list-style-type: none"> - Where there is a single direction of travel? Yes: No: - Where there are alternative means of escape? Yes: No: • Suitable protection of escape routes? Yes: No: (information on the building construction, obtain from landlord or if not available it may be necessary to seek external advice on fire rating of materials) • Suitable fire precautions for all inner rooms? Yes: No: (vision panel / fire detection within / gap at ceiling height on the connecting wall to other room) • Escape routes unobstructed? Yes: No: 		A and C = travel in one direction only B and D = travel in more than one direction				Risk Level	Within room (m)		Total to storey exit (m)		Day Risk staff only	A	B	C	D	High Risk	6	12	12	25	Normal Risk	12	18	18	45	Low Risk	18	25	25	45		
	A and C = travel in one direction only B and D = travel in more than one direction																																
Risk Level	Within room (m)		Total to storey exit (m)																														
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High Risk	6	12	12	25																													
Normal Risk	12	18	18	45																													
Low Risk	18	25	25	45																													
14.3	Is it considered that the building is provided with reasonable arrangements for means of escape for disabled occupants? (PEEPs produced? Any actions identified closed-out)	Yes:	No:																														
14.4	Comments and deficiencies observed:																																

15. MEASURES TO LIMIT FIRE SPREAD AND DEVELOPMENT			
15.1	<p>Is it considered that there is:</p> <ul style="list-style-type: none"> • Compartmentation of a reasonable standard? Yes: No: (look at ventilation and ducting systems that may intrude into storey areas, there should be a fire stop system. Maintenance records available – this should be obtained from the landlord.) • Reasonable limitation of lings that may promote fire spread? Yes: No: 		

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15.2 Comments and deficiencies observed:

16. ESCAPE LIGHTING			
16.1	Reasonable standards of escape lighting system provided? (maintenance records up to date / whole escape route illuminated?)	Yes:	No:
16.2	Comments and deficiencies observed: All fire equipment should be denoted on the office plan		

17. FIRE SAFETY SIGNS AND NOTICES			
17.1	Reasonable standards of fire safety signs and notices provided?	Yes:	No:
17.2	Comments and deficiencies observed: All fire equipment should be denoted on the office plan		

18. MEANS OF GIVING WARNING IN CASE OF FIRE			
18.1	Reasonable manually operated electrical fire alarm system provided?	Yes:	No:
18.2	Automatic fire detection provided?	Yes: (throughout building)	No: (part of building only)
18.3	Remote transmission of alarm signals?	Yes:	No:
18.4	Comments and deficiencies observed: All fire equipment should be denoted on the office plan		

19. MANUAL FIRE EXTINGUISHING APPLIANCES			
19.1	Reasonable provision of portable fire extinguishers? (there should be one fire extinguisher per 200m ² or within 30m travel distance and where there are specific hazards present, and the extinguisher should suit the fire risk i.e. CO ₂ for electrical etc.)	Yes:	No:
19.2	Are hose reels provided?	Yes:	No:
19.3	Comments and deficiencies observed: All fire equipment should be denoted on the office plan		

20. RELEVANT AUTOMATIC FIRE EXTINGUISHING SYSTEMS			
20.1	Type of system:		
20.2	Comments:		

Based on visual inspection of readily accessible areas, with a degree of sampling where appropriate.
Based on visual inspection, but no test of luminance levels or verification of full compliance with relevant British Standards carried out.
Based on visual inspection, but no audibility tests or verification of full compliance with relevant British Standard carried out.
Relevant to life safety and this risk assessment (as opposed purely to property protection).

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21. PROCEDURES AND ARRANGEMENTS			
21.1	The person responsible for fire safety in this office is:		
21.2	Is there a competent person(s) available to assist in implementation of the fire safety legislation ?	Yes:	No:
	Comments:		
21.3	Are appropriate fire procedures in place? (including arrangements for summoning the fire and rescue service)	Yes:	No:
	Comments:		
21.4	Are people nominated to respond to fire?	Yes:	No:
	Comments:		
	Who :		
21.5	Are people nominated to assist with evacuation?	Yes:	No:
	Comments:		
21.6	Is there appropriate liaison with fire brigade?	Yes:	No:
	Comments:		
21.7	Are there routine in-house inspections of fire precautions?	Yes:	No:
	Comments:		

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22. TESTING AND DRILLS			
22.1	Are all staff given instruction on induction? Comments:	Yes:	No:
22.2	Are all staff given periodic "refresher training" at suitable intervals? Comments:	Yes:	No:
22.3	Are staff with special responsibilities (e.g. fire wardens) given additional training? Comments:	Yes:	No:
22.4	Are fire drills carried out at appropriate intervals? Comments:	Yes:	No:

23. TESTING AND MAINTENANCE			
23.1	Is adequate maintenance carried out of the workplace? Comments and deficiencies observed:	Yes:	No:
23.2	Weekly testing and periodic servicing of fire detection and alarm system? Comments and deficiencies observed:	Yes:	No:
23.3	Monthly, six monthly and annual testing for emergency lighting? Comments and deficiencies observed:	Yes:	No:
23.4	Are fire extinguishing appliances maintained annually? Comments and deficiencies observed:	Yes:	No:
23.5	Is there six monthly inspection and annual testing of rising mains? Comments and deficiencies observed:	Yes:	No:

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23.6	Is there six monthly testing and periodic inspection of sprinkler installations?	Yes:	No:
	Comments:		
23.7	Are there routine checks of final exit doors and/or security fastenings?	Yes:	No:
	Comments:		
23.8	Is there annual inspection and test of lighting protection system?	Yes:	No:
	Comment:		
23.9	Details of other relevant inspections or tests		
	Comments:		
24.	RECORDS		
24.1	Are appropriate records kept of:	Yes:	No:
	• Fire drills?	Yes:	No:
	• Fire training?	Yes:	No:
	• Fire alarm tests?	Yes:	No:
	• Escape lighting tests?	Yes:	No:
	• Maintenance and testing of other fire protection systems?	Yes:	No:

FIRE PROTECTION MEASURES

The following simple risk level estimator is based on a more general health and safety risk level estimator contained in BS 8800:

Potential Consequences of fire Fire hazard ↓	Slight harm	Moderate harm	Extreme harm
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Taking into account the fire prevention measures observed at the time of this risk assessment, it is considered that the hazard from fire (probability of ignition) at this building is:

Low
Medium
High

Taking into account the nature of the building and the occupants, as well as the fire protection and procedural arrangements observed at the time of this risk assessment, it is considered that the consequences for life safety in the event of fire would be:

Silent harm
Moderate harm
Extreme harm

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In this context, a definition of the above terms is as follows:

- Silent harm: Outbreak of fire unlikely to result in serious injury or death of any occupant (other than an occupant sleeping in a bedroom in which a fire occurs.)
Moderate harm: Outbreak of fire could result in injury of one or more occupants, but it is unlikely to involve multiple fatalities.
Extreme harm: Significant potential for serious injury or death of one or more occupants.

Accordingly, it is considered that the risk to life from fire at this building is:

Trivial Tolerable Moderate Substantial Intolerable

A suitable risk – based control plan should involve effort and urgency that is proportional to risk. The following risk – based control plan is based on one advocated by BS 8800 for general health and safety risks:

Risk Level	Action and timescale
Trivial	No action is required and no detailed records need be kept
Tolerable	No major additional controls required. However, there may be a need for consideration of improvements that involve minor or limited cost.
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures should be implemented within a defined period. Where moderate risk is associated with consequences that constitute extreme harm, further assessment may be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.
Substantial	Considerable resources may have to be allocated to reduce the risk. If the building is unoccupied, it should not be occupied until the risk has been reduced. If the building is occupied, urgent action should be taken.
Intolerable	Building (or relevant area) should not be occupied until the risk is reduced.

Note that, although the purpose of this section is to place the fire risk in context, the above approach to fire risk assessment is subjective and for guidance only. All hazards and deficiencies identified in this report should be addressed by implementing all recommendations contained in the Action Plan on page 1 of the assessment. The risk assessment should be reviewed periodically

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APPENDIX 3: Office Safety Inspection List

	REQUIREMENT	COMMENTS/DETAILS
1	GENERAL	
1.1	What Health & Safety legislation applies to office premises? Provide details	
1.2	Are we the sole occupier of the building?	
1.3	What floors do we occupy/use?	
1.4	Is the office owned or leased?	
1.5	Is there a building management company? If so, whom?	
1.6	Approximate age of building	
1.7	State of repair	
1.8	Description of building/office accommodation	
1.9	What type(s) of heating are used	
1.10	What type(s) of air-conditioning are used	
1.11	Is there a kitchen/pantry? If so, what types of equipment are used – provide details	

	REQUIREMENT	Y/N	EVIDENCE/COMMENTS/ACTIONS NECESSARY	ACTIONED
2	FIRE & EMERGENCY ARRANGEMENTS			
2.1	What fire and emergency legislation applies to office premises?			
2.2	Has a fire risk assessment (identifying potential hazards; people at risk; means of avoiding/reducing risks) been carried out, identified actions implemented and record maintained?			
2.3	The following points cover arrangements for fire prevention and protection. Where we are not responsible for these arrangements, records held by the responsible organization should be examined to give reassurance that arrangements are in place.			
2.3a	Are means of raising the alarm in place? Describe.			
2.3b	Are means of raising the alarm tested at required intervals and records available?			

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2.3c	Are evacuation drills carried out at appropriate intervals? State intervals and describe any arrangements for co-ordination with other employers that are in place.			
2.3d	Are records of evacuation drills available?			
2.3e	Is there fire detection equipment in place? Describe.			
2.3f	Is fire detection equipment tested/maintained at appropriate intervals and records available?			
2.3g	Are means of fighting fire (extinguishers, sprinkler systems, hoses) in place? Describe.			
2.3h	Is firefighting equipment tested/maintained and records available?			
2.3i	Is emergency lighting provided?			
2.3j	If provided, is emergency lighting tested/maintained at appropriate intervals (state frequency) and records available?			
2.3k	Has an evacuation plan been produced and displayed? This should include instructions to staff in the event of fire/emergency (notices available from QES Cambridge); plan of each floor with escape routes marked to be prominently displayed around the building.			
2.3l	Have emergency wardens been appointed, trained & briefed? One warden per floor/area should be appointed using Form 126; training can consist of a briefing by the Office Manager.			
2.3m	Are records of appointment, training and briefing of emergency warden available?			
2.3n	Do office inspections include a check that fire hazards in offices are minimized (i.e. evacuation routes kept clear; combustible materials kept to a minimum)? See Section 11 of checklist.			
3	ELECTRICAL EQUIPMENT, INSTALLATION, LIFTS etc			
3.1	What legislation applies to office premises with respect to safety of electrical installations? Provide details.			
3.2	Is evidence available of a safe electrical installation? Test certification issued by a qualified electrician or other appropriate records should be available. (UK requirement is for a 5 yearly certificate.)			
3.3	Is evidence available of portable electrical appliances in use in the office being safe? A combination of visual inspection and test at appropriate intervals should be carried out. An indication can be gained from the condition of casings and cables. See Employee Risk Assessment (Office) Hazard Information Sheet for 'Electric Shock'			
3.4	If lifts are provided in the building is a copy of the current lift test certificates available?			
4	TRAINING			

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4.1	Have employees completed a copy of 'A Safe Way to Work' and have completed slips been returned to QES Cambridge?			
4.2	If not, have employees been given any other general training, including health and safety in the office? If so, provide details.			
5	FIRST AID & ACCIDENTS			
5.1	What legislation applies to provision of trained first aiders?			
5.2	Are trained first aiders or 'appointed persons' named (including written reciprocal agreement if we rely on other organizations/companies to provide this assistance)? If there is no first aid trained person available, an 'appointed person' is responsible for calling the emergency services in the event of a person becoming ill or injured. (UK guidelines are as follows: Where there are less than 50 employees at any location, at least one appointed person must be provided; between 50 and 100 employees, at least one first aider must be provided, and above this one additional first aider must be provided for every 100 employees.			
5.3	Are contact details for the emergency services and location of nearest hospital/doctor available?			
5.4	Are an adequate number of first aid kits available? Are these adequately stocked? (suggested contents: range of plasters, bandages, eye dressings, safety pins, surgical tape, wound dressings and disposable gloves)			
5.5	Are accidents recorded via the intranet or is there an Accident Book or similar for recording accidents to our employees? Are all employees aware of this?			
5.6	Are Office Managers being informed of accidents to our employees? Is a local accident book is held, please take a copy and return to QES, Cambridge.			
6	OFFICE RISK ASSESSMENT			
6.1	Has an Office Risk Assessment been carried out and implemented? Is this current?			
6.2	Has an Office Disaster Recovery Plan been produced?			
7	DISPLAY SCREEN EQUIPMENT			
7.1	What legislation is applicable to display screen equipment/computer workstations?			
7.2	Have assessments of computer workstations been carried out, recommendations put in place, actions signed off and records kept?			
7.3	Has information been provided to work station users on the safe use of the equipment?			
8	HAZARDOUS SUBSTANCES			
8.1	What legislation applies to the use and control of substances which could be hazardous to health?			

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8.2	Has an assessment of use of hazardous substances been carried out? Is this current?			
9	OFFICE INSPECTIONS			
9.1	Are offices inspected at monthly intervals, corrective actions put in place and records closed out when corrective action taken? Refer to the Group Office Monthly Inspection Checklist.			
10	PHYSICAL CONDITIONS			
10.1	Tidiness, cleanliness, storage etc. (where possible conduct inspection with office manager), and give description.			
10.2	Are there any out of the ordinary activities taking place in the office (e.g. laboratory, electrical testing equipment), and are these controlled?			
11	NOTICEBOARD			
11.1	What employer's liability/workers compensation insurance legislation requirement applies? Provide details.			
11.2	Is a copy of the current employer's Liability Insurance (or similar) Certificate displayed?			
11.3	Is the group Health & Safety Policy Statement displayed?			
11.4	Are Fire Orders signs displayed?			
11.5	Name(s) and location(s) of first aiders?			
12	ENVIRONMENTAL MANAGEMENT			
12.1	Has a Local Environmental Practice Plan (LEPP) been developed for the office?			
12.2	Does the LEPP set annual environmental targets to ensure that energy and raw material is used as effectively as is reasonable practicable? Are the targets measurable?			
12.3	Are the targets being met?			
13	HAZID & CONTROL, PPE, CDM, SAFETY DESIGN, ENVIRONMENTAL CONSIDERATIONS			
13.1	When employees work out on site, is a Health & Safety Risk Assessment carried out? – Hazard Identification and Control.			
13.2	Is there a supply of safety equipment, including Personal Protective Equipment (PPE) available for use by our employees visiting site? – Personal Protective Equipment.			
13.3	Is there any equivalent legislation that places duties on those involved in planning a construction project to manage health and safety, similar to the UK Construction Design & Management Regulations (CDM)?			
13.4	Is positive action taken to avoid or reduce the risks to those constructing or maintaining structures that we design? – Safety in Design.			

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13.5	Are environmental considerations reviewed during planning and design? – Environmental Considerations During Design.			
13.6	Where our staff are working outside the office (on construction sites and elsewhere) have they undertaken appropriate Site Safety Awareness training?			
13.7	Where our scope of work includes construction monitoring/site supervision, are environmental issues on site being managed via an environmental management plan? – Site Supervision and Environmental Management.			

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APPENDIX 4: Environmental Impact Assessment

Office:		Date original EIA Undertaken:	
Office Manager:		Date of next annual review:	

Environmental Aspect	Y/N?	Applicable environmental legislation	Action required in response to the environmental legislation	Responsibility / Action taken
Energy: Minimize energy use				
Transport: Minimize use, especially of air travel				
Waste: Do not discard substances as waste:				
- General waste (including sanitary waste)				
- Hazardous waste				
Do you burn or incinerate waste?				
Do you ensure that the waste produced cannot escape from your premises or cause nuisance to others?				
Do discard liquid wastes into controlled waters or into the ground?				
Others? (specify)				
Water: Minimize water use				
Do you dispose of any substances into any water course or sewers?				

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Air: So you emit any substances to air? (e.g. noise, smoke, smells)				
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Environmental Aspect	Y/N?	Applicable environmental legislation	Action required in response to the environmental legislation	Responsibility / Action taken
Do you operate any air conditioning systems or units?				
Do you operate any cooling/chilling equipment?				
Do you store significant quantities of hazardous substances?				
Asbestos: Are there any environmental impacts associated with asbestos on the premises?				
Contractors and Suppliers: Check their services/supplies are environmentally responsible.				
Any other aspect (specify):				

Note 1: The accompanying LEPP must describe the actions being taken to eliminate (or at least minimize and mitigate, as appropriate) negative impacts on the environment corresponding to the aspects identifies above.
The Office Manager must keep a record of this assessment and review it annually. If there is no changes to the EIA, record this below:

Date EIA reviewed	Description of any changes (if none state "none")	Office Manager signature

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APPENDIX 5: Near Miss Report

 NEAR MISS PRELIMINARY NOTIFICATION CARD		DAEWOO E&C
DESCRIPTION OF NEAR MISS		
Date of Near Miss:	Time of Near Miss:	Exact Location of Near Miss:
Brief description of Near Miss:		
Potential Consequence of Near Miss (Tick ✓):		
<input type="checkbox"/> Injury	<input type="checkbox"/> Fire	<input type="checkbox"/> Vapour Release
<input type="checkbox"/> Process Safety Near Miss	<input type="checkbox"/> Spill	<input type="checkbox"/> Property Damage
<input type="checkbox"/> Other (Specify):		
Probable Cause (s):	Immediate Action (s) Taken:	Actions /Measures taken to Prevent Recurrence
Name & Signature (Originator):		Name & Signature (Immediate Supervisor/ Section Head):
Name/ Employee No.:	Name/ Employee No.:	
Date & Time:	Date & Time:	
Signature:	Signature:	
FOLLOW UP		
Comments Contractor HSE Manager		Comments PMC HSE Manager
Detailed Near Miss Report Required (Tick ✓): <input type="checkbox"/> Yes <input type="checkbox"/> No		Detailed Near Miss Report Required (Tick ✓): <input type="checkbox"/> Yes <input type="checkbox"/> No
Signature:		Signature: