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Implementation of HSE Requirement in architectural design and Constructions of Residential complexs

Alireza Arianmehr- Academy Staff, Department of Architecture, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.

Abstract

HSE management involves managing, controlling and handling all aspects of health, safety and the environment in the petroleum industry with the focus on major accident risk. In the field of residential and building construction ventures the workings met lots of practical hitches like procedure, responsibility, monitoring, evaluation housekeeping at Construction Sites and associated offices, perimeter area, stores, workshops, batching plant, stock yards and labor camp etc. it describes requirement of housekeeping activity at different stages of work & periodicity to maintain site neat & tidy, which should be budgeted, planned & adhered. Before commencing this activity site execution team is recommended to evaluate the foreseeable risk by conducting risk assessment of the particular activity so as to prevent any harm to the engaged team. So we emphasis to resolve this practical hitches by safeguard methods in venture works has been undertaking. We also focused is to address the safe work practices for different activities in construction work, considering its practical and engineering aspects and its implementation at site level under the responsibility of Project Head. Our study is being used for implementation HSE at site. We specifies the topic such as to fill a knowledge gap on site safety issues, to provide handy reference of best practices for frontline management teams, to offer site safety management techniques and tools for use, by practicing these documents effectively, prevention of incidents. This process of technique will help to ensure housekeeping standards and a safe & healthy work environment at all time.

Key words: *HSE, HSE Management System documents, architectural desighn and Constructions, Residential complexs.*

Corespending authore: T: 09163604037, Email: a.r.arianmehr@gmail.com.

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Introduction

Safety of people has a high profile in Construction Company entrepreneurial business activities. Consequently the Board of Directors supports all measures to maintain the health and safety of company workforce. We believe that personal harm, injury and damage are avoidable through effective planning of work, implementing risk-based control measures and monitoring performance. The Safety Management System of Construction Company shall be applied during the construction Project and will be in full compliance with the Owners Health, Safety and Environment Specifications. Construction Company will apply their in-house Safety Management Systems, described herein. As a Contractor having an excellent health, safety and environmental record, we treasure this reputation and we will manage a project-specific Safety Plan to the highest standards in order to: 1. Protect the health of our workforce and other personnel; 2. Maintain and improve safety performance; 3. Protect our environment during all phases of the Project.

Lecturer review

The Ensign HSE Management System defines the elements by which we will conduct our operations worldwide in order to protect our people, the public, our property and the environment in which they work and live. The HSE Management System model is comprised of seven interrelated elements with underlying expectations:

1.Commitment and Leadership
2.Policies and Objectives
3.Organization, Resources and Documentation
4.Risk Evaluation and Management
5.Planning
6.Implementation, Recording and Monitoring
7.Audit and Review

Each division must communicate these expectations to all employees, customers and third parties associated with our business. Each division must provide positive evidence of conformance to this Management System and continuous improvement.

Work Instructions on Hazard Identification &

Risk Assessment

1.Hazard identification: is the process used to identify all the possible situations in the workplace where people may be exposed to injury, illness or disease.



Diagram 1. Elements of HSE in besiness; source: ENSIGN, 2015.
Figure 1.Visual elements of nature (trees) in Aqa-Bozorg mosque-school.

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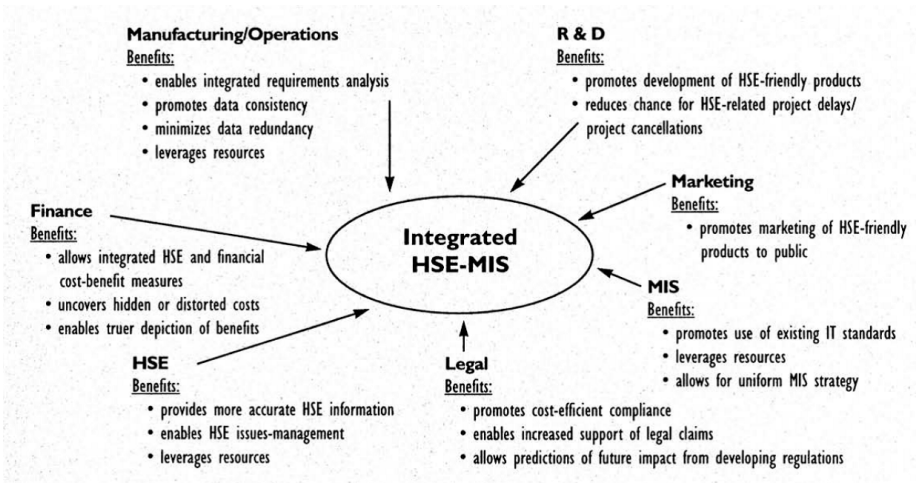
2.Risk assessment is the process used to determine the likelihood that people may be exposed to injury, illness or disease in the workplace arising from any situation identified during the hazard identification process.
3.Risk control is the process used to identify all practicable measures for eliminating or reducing the likelihood of injury, illness or disease in the workplace, to implement the measures and to continually review the measures in order to ensure their effectiveness.
4.Risk: Combination of likelihood of an occurrence of a hazardous event (P) and the severity of injury or ill health that can be caused by the event (S).
Risk (R) = Probability (P) X Severity (S)
5.Acceptable Risk: Risk that has reduced to a level that can be tolerated by the organization having regards to its legal obligations and its own OH&S policy.
6.Not Acceptable Risk: A "Not Acceptable Risk"is one which exceeds some threshold for significance.
The Bredero Shaw HSE Management System documents the Company HSE in the following ways:
•Level 1 sets leadership expectations and management actions required to achieve HSE goals;
•Level 2 provides technical direction for health, safety and environment systems; and
•Level 3 defines specific operating requirements incorporating local regulatory requirements for each location.
Using Level 2 directions, each production facility should develop Level 3 specific operating requirements incorporating local regulatory requirements. The following depicts the relationship between the various levels of the HSEMS:
As a result of the Bredero Shaw Incident and Injury Free philosophy, safety performance has consistently improved each year. Many plants have achieved an Incident and Injury Free performance for extended periods of time. As the following graphs illustrate, Bredero Shaw has consistently improved our performance.

Commitment and Leadership

Management shall provide strong visible commitment, leadership and personal involvement in health, safety and the environment. Management shall make available the resources necessary to achieve our HSE objectives.

Expectations

1.Set a personal example day to day by following HSE rules.
2.Make decisions that consider HSE matters equal to cost, quality, morale and production.
3.Delegate the necessary authority to the appropriate personnel and allocate resources to carry out HSE functions.
4.Visit operations on a regular basis to demonstrate commitment and recognize performance in HSE matters.



Digram 2. Integrated HSE-MIS; source: authors.

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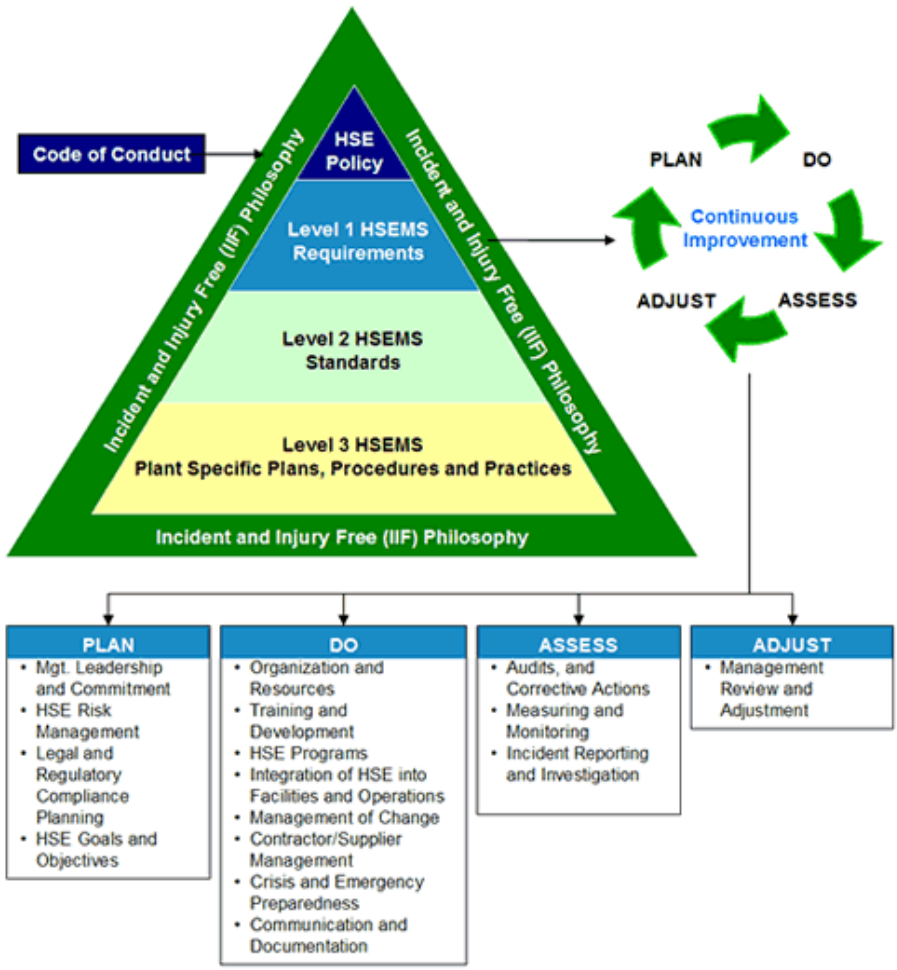


Diagram 3. HSE Management System Architecture

5.Hold those in positions of authority accountable at all levels of the company for compliance with company policies and global standards.

6.Develop HSE objectives at your level of responsibility.

7.Communicate with employees, clients, subcontractors and industry personnel so that they know and understand the intent of HSE policies.

8.Celebrate and promote your HSE success.

Policies and Objectives

Say what you are going to do. Develop and communicate policies demonstrating a commitment to HSE that is consistent with, and at least equal to, other business aims. Supporting objectives shall be defined, deployed and maintained at all organizational levels.

Expectations

1.Develop local HSE policies that support and are consistent with corporate standards.

2.Set objectives for continuous improvement.

3.Involve all levels of management and personnel in the development of objectives for the division.

4.Develop specific objectives for the reduction of risk.

5.Communicate the policies and objectives to all employees in a clear, readily understood, medium.

6.Develop performance measures to guide and gauge progress towards achieving objectives.

7.Meet and strive to exceed regulatory requirements in all jurisdictions.

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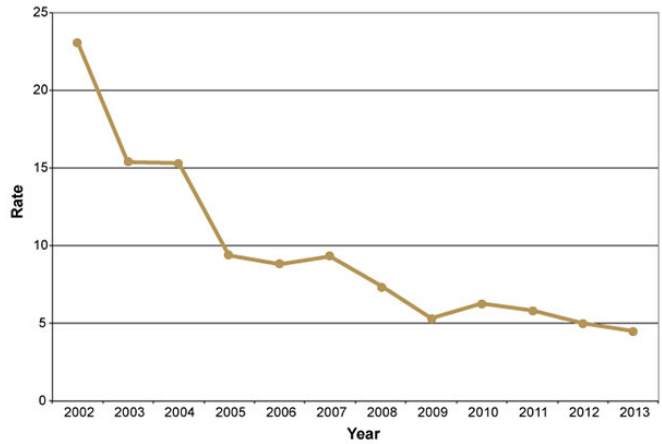


Diagram 4. Total Recordable Case Frequency (TRCF) 2002-2013 (per 1,000,000 man-hours)

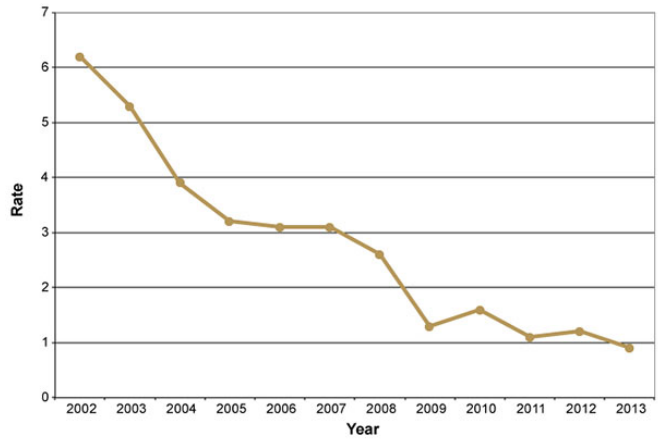


Diagram5. Lost Work Case Frequency 2002-2013 (per 1,000,000 man-hours)

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8.Review policies and objectives at all levels on a regular basis, to determine continued validity.

Organization, Resources and Documentation

Define, document and communicate the roles, responsibilities and accountabilities to enable every individual to fulfill their role in improving HSE performance.

Expectations

1.Define the interrelationships between individuals, operating groups, support functions, employees, clients and partners in joint activities, trade associations and regulatory bodies.

2.Appoint and support a management team representative to act as the focal point for HSE matters.

3.Ensure that each group and individual receives sufficient information and training to fulfill their role with respect to HSE.

4.Allocate sufficient resources to support policies and work towards achieving objectives set for HSE issues.

5.Ensure a system that provides and maintains effective procedures, resource material and records on HSE subjects.

Risk Evaluation and Management

Continually evaluate the HSE risks to the workforce, customers and the environment. Continually evaluate processes and activities for specific hazards – assess potentials, record

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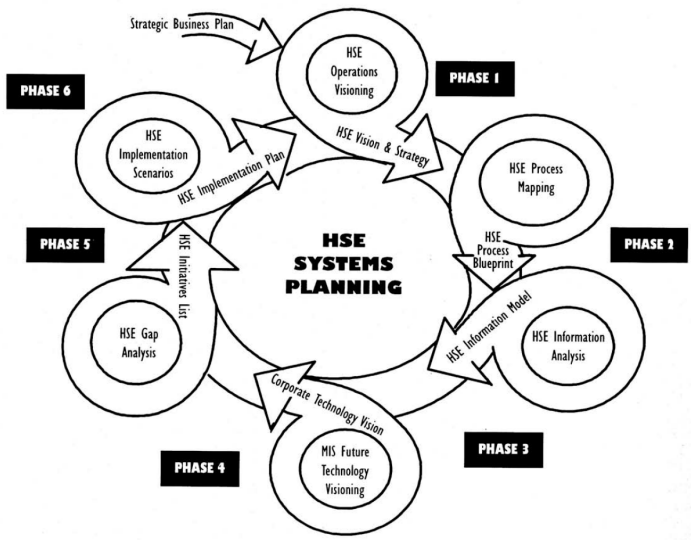


Diagram 6. HSE systems planinng; source: authors.

and control the subsequent risk to a tolerable level.

Expectations

1.Establish a methodology that identifies both acute and chronic hazards and their associated impacts. Address routine and non-routine tasks, emergencies and outside influences.

2.Conduct hazard assessments during the design, development, operating and decommissioning stages of equipment, processes and facilities.

3.Control hazards and reduce risk to a tolerable level through mitigating and recovery measures.

4.Apply risk management tools to all proposed activities including acquisitions, bids and new business development.

Planning

HSE considerations shall be integral to all aspects of business planning or changes in the design, development, purchasing and delivery of our products and services.

Expectations

1.Identify and evaluate the consequences to health, safety and the environment when making changes to organizational structure, personnel, equipment, processes or procedures.

2.Assign responsibility for the achievement of HSE objectives in plans at all levels of the organization.

3.Determine the resources required to achieve the plan.

4.Identify the means by which the plan is to be achieved.

5.Set a time scale and develop milestones for implementation.

6.Develop contingency plans for emergencies and in cases when plans or objectives cannot be completely achieved.

7.Regularly review and follow up on progress towards achieving the HSE plans and objectives.

Implementation, Recording and Monitoring

Do what you said you would do. Determine and record whether those actions are effective. Activities shall be conducted in accordance with defined standards, and continuous improvement shall be promoted and monitored through active employee participation.

Expectations

1.Assign necessary resources and authority to groups or individuals to implement plans, processes, procedures and work instructions.

2.Hold personnel accountable for completing tasks according to plans and HSE performance standards.

3.Develop and use systematic monitoring systems for both proactive and reactive performance measures to measure and support HSE objectives.

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4.Determine non-compliance and the opportunity for practicable improvement against performance measures.
5.Determine what records are needed to meet HSE policies, objectives, company standards, local laws or regulations and customer requirements.
6.Create records that are clear, easily understood and unambiguous in the language applicable to Ensign. Store records for a time interval consistent with good practice and local regulations.
7.Collect and record information on incidents which actually, or have the potential to, affect health, safety and the environment.
8.Evaluate incident information to determine the need for corrective action to prevent recurrence. Distribute lessons learned.

Audit and Review

Prove you did what you said you would do. Is the Management System achieving results and fulfilling policy intent? Audits and reviews shall be conducted to verify the implementation and effectiveness of the HSE Management System and its conformation to this specification.

Expectations

1.Set frequency and level for audits for each division or operation.
2.Document and distribute the audit report for corrective action and future reference. Review with all affected employees.
3.Monitor progress towards achieving and completing corrective actions at scheduled time intervals.
4.Schedule periodic management system reviews to include, but not be limited to:- Audit finding summaries; - Analysis of incidents, regulatory citations and non-compliance to divisional standards; - Current and future requirements of customers and regulators; - Feedback from customers and regulators; - Feedback from employees; - Analysis of risk management processes; - Appropriateness of current systems to meet business needs.
5.Create review team with the authority to change the system and update the system requirements.

Conclusion

There have been big improvements over recent years in reducing the number and rate of injuries to construction workers. However, a number of serious ill-health issues continue to affect construction workers. These can be devastating for individuals and families. This site tells you about these risks and how to manage them. Hazard identification is fundamental to construction safety management; unidentified hazards present the most unmanageable risks. So we emphasis to resolve this practical hitches by safeguard methods in venture works has been undertaking. We also focused is to address the safe work practices for different activities in construction work, considering its practical and engineering aspects and its implementation at site level under the responsibility of Project Head. Our study is being used for implementation HSE at site. We specifies the topic such as to fill a knowledge gap on site safety issues, to provide handy reference of best practices for frontline management teams, to offer site safety management techniques and tools for use, by practicing these documents effectively, prevention of incidents. This process of technique will help to ensure housekeeping standards and a safe & healthy work environment at all time.

Health and safety duties and roles

(1)A designer (including a principal designer) or contractor (including a principal contractor) appointed to work on a project must have the skills, knowledge and experience, and, if they are an organisation, the organisational capability, necessary to fulfil the role that they are appointed to undertake, in a manner that secures the health and safety of any person affected by the project.
(2)A designer or contractor must not accept an appointment to a project unless they fulfil the conditions in paragraph (1).
(3)A person who is responsible for appointing a designer or contractor to carry out work on a project must take reasonable steps to satisfy

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themselves that the designer or contractor fulfils the conditions in paragraph (1).
(4)A person with a duty or function under these Regulations must cooperate with any other person working on or in relation to a project, at the same or an adjoining construction site, to the extent necessary to enable any person with a duty or function to fulfil that duty or function.
Client duties in relation to managing projects
(1)A client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources.
(2)Arrangements are suitable if they ensure that (a) the construction work can be carried out, so far as is reasonably practicable, without risks to the health or safety of any person affected by the project; and (b) the facilities required by Schedule 2 are provided in respect of any person carrying out construction work.
(3)A client must ensure that these arrangements are maintained and reviewed throughout the project.
(4)A client must provide pre-construction information as soon as is practicable to every designer and contractor appointed, or being considered for appointment, to the project.
(5)A client must ensure that (a) before the construction phase begins, a construction phase plan is drawn up by the contractor if there is only one contractor, or by the principal contractor; and (b) the principal designer prepares a health and safety file for the project, which (i) complies with the requirements of regulation 12(5); (ii) is revised from time to time as appropriate to incorporate any relevant new information; and (iii) is kept available for inspection by any person who may need it to comply with any relevant legal requirements.
(6)A client must take reasonable steps to ensure that (a) the principal designer complies with any other principal designer duties in regulations 11 and 12; and (b) the principal contractor complies with any other principal contractor duties in regulations 12 to 14.
(7)If a client disposes of the client's interest in the structure, the client complies with the duty in paragraph (5)(b)(iii) by providing the health and safety file to the person who acquires the client's interest in the structure and ensuring that that person is aware of the nature and purpose of the file.
(8)Where there is more than one client in relation to a project (a) one or more of the clients may agree in writing to be treated for the purposes of these Regulations as the only client or clients; and (b) except for the duties specified in sub-paragraph (c) only the client or clients agreed in paragraph (a) are subject to the duties owed by a client under these Regulations; (c) the duties in the following provisions are owed by all clients regulation 8(4); and (ii) paragraph (4) and regulation 8(6) to the extent that those duties relate to information in the possession of the client.

Duties of contractors

(1)A contractor must not carry out construction work in relation to a project unless satisfied that the client is aware of the duties owed by the client under these Regulations.
(2)A contractor must plan, manage and monitor construction work carried out either by the contractor or by workers under the contractor's control, to ensure that, so far as is reasonably practicable, it is carried out without risks to health and safety.
(3)Where there is more than one contractor working on a project, a contractor must comply with (a) any directions given by the principal designer or the principal contractor; and (b) the parts of the construction phase plan that are relevant to that contractor's work on the project.
(4)If there is only one contractor working on the project, the contractor must take account of the general principles of prevention when (a) design, technical and organisational aspects are being decided in order to plan the various items or stages of work which are to take place simultaneously or in succession; and (b) estimating the period of time required to complete the work or work stages.

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(5)If there is only one contractor working on the project, the contractor must draw up a construction phase plan, or make arrangements for a construction phase plan to be drawn up, as soon as is practicable prior to setting up a construction site. The construction phase plan must fulfil the requirements of regulation 12(2).
(6)A contractor must not employ or appoint a person to work on a construction site unless that person has, or is in the process of obtaining, the necessary skills, knowledge, training and experience to carry out the tasks allocated to that person in a manner that secures the health and safety of any person working on the construction site.
(7)A contractor must provide each worker under their control with appropriate supervision, instructions and information so that construction work can be carried out, so far as is reasonably practicable, without risks to health and safety.
(8)The information provided must include (a) a suitable site induction, where not already provided by the principal contractor; (b) the procedures to be followed in the event of serious and imminent danger to health and safety; (c) information on risks to health and safety identified by the risk assessment under regulation 3 of the Management Regulations; or (ii) arising out of the conduct of another contractor's undertaking and of which the contractor in control of the worker ought reasonably to be aware; and (d) any other information necessary to enable the worker to comply with the relevant statutory provisions.
(9)A contractor must not begin work on a construction site unless reasonable steps have been taken to prevent access by unauthorised persons to that site. A contractor must ensure, so far as is reasonably practicable, that the requirements of Schedule 2 are complied with so far as they affect the contractor or any worker under that contractor's control.

General requirements for all construction sites

(1)This Part applies only to a construction site.
(2)A contractor carrying out construction work must comply with the requirements of this Part so far as they affect the contractor or any worker under the control of the contractor or relate to matters within the contractor's control.
(3)A domestic client who controls the way in which any construction work is carried out by a person at work must comply with the requirements of this Part so far as they relate to matters within the client's control.
Safe places of construction work
(1)There must, so far as is reasonably practicable, be suitable and sufficient safe access to and egress from (a) every construction site to every other place provided for the use of any person whilst at work; and (b) every place construction work is being carried out to every other place to which workers have access within a construction site.
(2)A construction site must be, so far as is reasonably practicable, made and kept safe for, and without risks to, the health of a person at work there.
(3)Action must be taken to ensure, so far as is reasonably practicable, that no person uses access to or egress from or gains access to any construction site which does not comply with the requirements of paragraph (1) or (2).
(4)A construction site must, so far as is reasonably practicable, have sufficient working
(5)space and be arranged so that it is suitable for any person who is working or who is likely to work there, taking account of any necessary work equipment likely to be used there.

Good order and site security

(1)Each part of a construction site must, so far as is reasonably practicable, be kept in good order and those parts in which construction work is being carried out must be kept in a reasonable state of cleanliness.
(2)Where necessary in the interests of health and safety, a construction site must, so far as is

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reasonably practicable, and in accordance with the level of risk posed, comply with either or both of the following (a) have its perimeter identified by suitable signs and be arranged so that its extent is readily identifiable; or (b) be fenced off.

(3)No timber or other material with projecting nails (or similar sharp object) must (a) be used in any construction work; or (b) be allowed to remain in any place, if the nails (or similar sharp object) may be a source of danger to any person.

Stability of structures

(1)All practicable steps must be taken, where necessary to prevent danger to any person,

(1)to ensure that any new or existing structure does not collapse if, due to the carrying out of construction work, it (a) may become unstable; or (b) is in a temporary state of weakness or instability.

(2)Any buttress, temporary support or temporary structure must (a) be of such design and installed and maintained so as to withstand any foreseeable loads which may be imposed on it; and (b) only be used for the purposes for which it was designed and installed and is maintained.

(3)A structure must not be so loaded as to render it unsafe to any person.

Demolition or dismantling

(1)The demolition or dismantling of a structure must be planned and carried out in such a manner as to prevent danger or, where it is not practicable to prevent it, to reduce danger to as low a level as is reasonably practicable.

(2)The arrangements for carrying out such demolition or dismantling must be recorded in writing before the demolition or dismantling work begins.

Explosives

(1)So far as is reasonably practicable, explosives must be stored, transported and used safely and securely.

(1)An explosive charge may be used or fired only if suitable and sufficient steps have been taken to ensure that no person is exposed to risk of injury from the explosion or from projected or flying material caused by the explosion.

Excavations

(2)All practicable steps must be taken to prevent danger to any person, including, where necessary, the provision of supports or battering, to ensure that (a) no excavation or part of an excavation collapses; (b) no material forming the walls or roof of, or adjacent to, any excavation is dislodged or falls; and (c) no person is buried or trapped in an excavation by material which is dislodged or falls.

(3)Suitable and sufficient steps must be taken to prevent any person, work equipment, or any accumulation of material from falling into any excavation.

(4)Suitable and sufficient steps must be taken, where necessary, to prevent any part of an excavation or ground adjacent to it from being overloaded by work equipment or material.

(5)Construction work must not be carried out in an excavation where any supports or battering have been provided in accordance with paragraph (1)

Cofferdams and caissons

(1)A cofferdam or caisson must be (a) of suitable design and construction; (b) appropriately equipped so that workers can gain shelter or escape if water or materials enter it; and (c) properly maintained.

(2)A cofferdam or caisson must not be used to carry out construction work unless (a) the cofferdam or caisson and any work equipment and materials which may affect its safety have been inspected by a competent person (i) at the start of the shift in which the work is to be carried out; and (ii) after any event likely to have affected the strength or stability of the cofferdam or caisson; and (b) the person who carried out the inspection is satisfied that construction work can be safely carried out there.

(3)Where the person carrying out an inspection informs the person on whose behalf the inspection is carried out of any matter about which they are not satisfied (under regulation

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24(1)), construction work must not be carried out in the cofferdam or caisson until the matter has been satisfactorily remedied.

Reports of inspections

(1)Where a person who carries out an inspection under regulation 22 or 23 is not satisfied that construction work can be carried out safely at the place inspected, that person must (a) inform the person on whose behalf the inspection was carried out, before the end of the shift within which the inspection is completed, of the matters that could give rise to a risk to the safety of any person; (b) prepare a report, which must include (i) the name and address of the person on whose behalf the inspection was carried out; (ii) the location of the place of construction work inspected; (iii) a description of the place of construction work or part of that place inspected (including any work equipment and materials); (iv) the date and time of the inspection; (v) details of any matter identified that could give rise to a risk to the safety of any person; (vi) details of any action taken as a result of any matter identified in sub-paragraph (v); (vii) details of any further action considered necessary;

Energy distribution installations

(1)Where necessary to prevent danger, energy distribution installations must be suitably

(2)located, periodically checked and clearly indicated.

(3)Where there is a risk to construction work from overhead electric power cables (a) they must be directed away from the area of risk; or (b) the power must be isolated and, where necessary, earthed.

(4)If it is not reasonably practicable to comply with paragraph (2)(a) or (b), suitable warning notices must be provided together with one or more of the following (a) barriers suitable for excluding work equipment which is not needed; (b) suspended protections where vehicles need to pass beneath the cables; or (c) measures providing an equivalent level of safety.

(5)Construction work which is liable to create a risk to health or safety from an underground service, or from damage to or disturbance of it, must not be carried out unless suitable and sufficient steps (including any steps required by this regulation) have been taken to prevent the risk, so far as is reasonably practicable.

Prevention of drowning

(1)Where, in the course of construction work, a person is at risk of falling into water or other liquid with a risk of drowning, suitable and sufficient steps must be taken to (a) prevent, so far as is reasonably practicable, the person falling; (b) minimise the risk of drowning in the event of a fall; and (c) ensure that suitable rescue equipment is provided, maintained and, when necessary, used so that a person may be promptly rescued in the event of a fall.

(2)Suitable and sufficient steps must be taken to ensure the safe transport of any person conveyed by water to or from a place of work.

(3)Any vessel used to convey any person by water to or from a place of work must not be overcrowded or overloaded.

Prevention of risk from fire, flooding or asphyxiation

(1)Suitable and sufficient steps must be taken to prevent, so far as is reasonably practicable, the risk of injury to a person during the carrying out of construction work arising from (a) fire or explosion; (b) flooding; or (c) any substance liable to cause asphyxiation.

Emergency procedures

(1)Where necessary in the interests of the health or safety of a person on a construction

(2)site, suitable and sufficient arrangements for dealing with any foreseeable emergency must be made and, where necessary, implemented, and those arrangements must include procedures for any necessary evacuation of the site or any part of it.

(3)In making arrangements under paragraph (1), account must be taken of (a) the type of work for which the construction site is being used; (b) the characteristics and size of the construction site and the number and location of places of work on that site; (c) the work equipment being used; (d) the number of per-

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sons likely to be present on the site at any one time; and (e) the physical and chemical properties of any substances or materials on, or likely to be on, the site.

(4)Where arrangements are made under paragraph (1), suitable and sufficient steps must be taken to ensure that (a) each person to whom the arrangements extend is familiar with those arrangements; and (b) the arrangements are tested by being put into effect at suitable intervals.

Emergency routes and exits

(1)Where necessary in the interests of the health or safety of a person on a construction

(1)site, a sufficient number of suitable emergency routes and exits must be provided to enable any person to reach a place of safety quickly in the event of danger.

(2)The matters in regulation 30(2) must be taken into account when making provision under paragraph (1).

(3)An emergency route or exit must lead as directly as possible to an identified safe area.

(4)An emergency route or exit and any traffic route giving access to it must be kept clear and free from obstruction and, where necessary, provided with emergency lighting so that it may be used at any time.

(5)Each emergency route or exit must be indicated by suitable signs.

Fire detection and fire-fighting

(1)Where necessary in the interests of the health or safety of a person on a construction

(1)site, suitable and sufficient fire-fighting equipment and fire detection and alarm systems must be provided and located in suitable places.

(2)The matters in regulation 30(2) must be taken into account when making provision under paragraph (1).

(3)Fire-fighting equipment or fire detection and alarm systems must be examined and tested at suitable intervals and properly maintained.

(4)Fire-fighting equipment which is not designed to come into use automatically must be

(5)easily accessible.

Fresh air

(1)Suitable and sufficient steps must be taken to ensure, so far as is reasonably practicable, that each construction site, or approach to a construction site, has sufficient fresh or purified air to ensure that the site or approach is safe and without risks to health or safety.

(2)Any plant used for the purpose of complying with paragraph (1) must, where necessary for reasons of health or safety, include an effective device to give visible or audible warning of any failure of the plant.

Temperature and weather protection

(1)Suitable and sufficient steps must be taken to ensure, so far as is reasonably practicable, that during working hours the temperature at a construction site that is indoors is reasonable having regard to the purpose for which that place is used.

(2)Where necessary to ensure the health or safety of persons at work on a construction site that is outdoors, the construction site must, so far as is reasonably practicable, be arranged to provide protection from adverse weather, having regard to (a) the purpose for which the site is used; and (b) any protective clothing or work equipment provided for the use of any person at work there.

Lighting

(1)Each construction site and approach and traffic route to that site must be provided with suitable and sufficient lighting, which must be, so far as is reasonably practicable, by natural light.

(2)The colour of any artificial lighting provided must not adversely affect or change the perception of any sign or signal provided for the purposes of health or safety.

(3)Suitable and sufficient secondary lighting must be provided in any place where there would be a risk to the health or safety of a person in the event of the failure of primary artificial lighting.

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