

University of Wales Trinity Saint David
Construction
Professional Skills and Health and Safety

Health & Safety Legislation

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1. Glossary of terms

Term	Definition
HASAWA	Health And Safety At Work Act 1974
CDM	Construction Design Management regulations
COSHH	Control Of Substances Harmful to Health
PUWER	Provision and Use of Work Equipment Regulations 1998
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
HSE	Health and Safety Executive
MEWPS	Mobile Elevated Work Platforms

2. Introduction

This report will discuss how, when and where certain legislations and regulations come into fruition for health and safety on construction projects such as Crown Place . It will also contain risk assessments for significant activities that would be carried out on a construction project and the control measures put in place for the safety of the workers, public and any person in the vicinity.

3. My findings

To give a brief overview of the purpose of health and safety legislation, it is to impose obligations on companies and their employees to refrain from harming others or themselves. The public are additionally shielded from employment risks by legislation. These legislations come in many forms for vast works within construction, below are the legislations and why and how they are implemented into construction projects. (Arnite Health and Safety, 2023)

3.1) HASAWA 1974-

The HASAWA puts in place a framework that allows the government to act upon health and safety issues in the workplace and put in place regulations and guidance for employers to ensure safety on site. The HSE is also established into the act, this allows the HSE to implement the terms within the legislation and take legal action if parts of legislation are not being followed. This legislation is to be followed at all times by both the employer and employee. (HSE, ND)

The HSE have a major influence on the works, due to the fact legal action can be taken if the legislation is not followed this forces employers to abide by the legislation and ensures health and safety as a whole is one of the main priorities when conducting work.

Due to the setting out of the regulations by the government this ensures employees are working in a safe environment and lower the risk of health damage when in the workplace. HASAWA also ensures employees to receive:

- Correct safety equipment
- Required training

-
- Risk assessments in place
 - Suitable working facilities

To see the effect the HASAWA has had on workplace safety, just take a look at the data on health and safety in the workplace since 1974. The implementation of the Act has had a significant impact on British employees' health and safety. From 1974 fatal injuries in the workplace have fallen intensely over nearly 50 years, according to HSE statistics this number has fallen by 90%; with 651 fatal injuries in 1974 and from Figure 1 only 123 in 2022. (Scott.D, 2021) (Natural Hr, 2021) (HSE,2022) (Foulis.D, 2023)

3.2) COSHH

On construction projects such as Crown Place, when dealing with certain material and chemicals COSHH regulations will be put in place. This legislation protects and prevents employees being harmed from substances such as-

- Silica
- Bacteria
- Vapors
- Chemicals

It is the employers obligation to ensure the correct measures are put in place following the COSHH guidelines. There are many ways to reduce the risk of harm, some of these are listed below-

- Providing control measures to prevent harm.
- Storing substances adequately.
- Provide information and risk assessments on said substances.
- Action plan; providing a plan incase of an emergency situation.

In conjunction with figure 2 we can see that Management and assessment play the major role in the COSHH cycle with employee training only covering a small area, suggesting that both parties have a part to play in ensuring safety when dealing with hazardous substances but on the other hand the initial and larger part is down to the employer and their managerial control regarding elimination, risk assessments and control measures.

From a site perspective COSHH can be implemented by handing out risk assessments and method statements before continuing works; this means both employer and employee are happy to carry out work, provide adequate signage such as Figure 3 for visual warning to employees and general public and ensure correct PPE is given and worn when carrying out work to eliminate or limit risk of harm.

3.3) CDM Regulations

The CDM regulations are regulations that apply to all construction projects across the board including demolition, new builds, extensions, repair and maintenance and refurbishments. The aim of the regulations are to ensure the correct management of health and safety with welfare across all involved in a construction project. Within the regulations there are five duty holders with guidance for each duty holder on prevention of injury, ill health and death over the course of a construction project. (CDM, 2023)

The five duty holders are listed below with a brief overview of the duties involved within the regulations-

Employer/Contractor

- This includes companies small or large with a workforce below that carry out the work. One duty they must follow is to prepare and provide construction/project phase plans.
- Must be able to plan, organize, and watch over the work that is taking place under their management, while ensuring all work is being carried out without any risks to health, safety and welfare.
- Lastly if there are more than one contractor, they must be able to cooperate with all stakeholders of the project and comply with guidance from above by designers and principle contractors.

Client

- Both domestic and commercial projects come under the CDM regulations, suggesting all clients under that bracket are to follow the duties below. They must ensure that relevant information for the project at hand is provided to other stakeholders if needed.
- The client will also provide a sufficient time scale for the project and supply resources if needed.
- Another duty that the client must follow is to confer with designers and contractors to ensure work is carried out to the satisfaction of the client.
- Other duty holders must be selected and appointed by the client for the works to go ahead, this includes contractors and designers.

Domestic Client

- The duty that the domestic client must follow is slightly different to the general client, the project at hand would normally be a 'family home'.
- Domestic clients duties are normally passed onto the contractor and designer, although the client can choose to carry out the client duties by accumulating a written agreement with the designer.

Designer

- The designer will liaise with the client and contractor to prepare and provide drawings and instructions for the project at hand.
- In order to control, eliminate or limit the predetermined risks that could occur throughout the project or the later maintenance, the designer can modify designs to suit the situation. The contractor cannot modify the designs but can have influence on the designers decision to do so.
- In order for all stakeholders within the project to carry out their respective work and duties, the designer must provide information for them to follow.

Employee

- The employee has as much detriment when following the duties as the employer. Employees must take control and be aware of their own health and safety as well as others that can be affected by the work or actions of said employee.
- Another must is to report issues or anything that they think could cause themselves or others harm or have an effect on their health.
- Should be able to communicate and cooperate with other stakeholders within the project to come to prevent or eliminate issues before they arise.
- Must be able to follow instructions from other stakeholders, mainly the employer, if matters can affect their health and safety.

There are five main parts of the CDM regulations-

Part 1: Deals with commencement, interpretation and application.

Part 2: Client duties (Both domestic and commercial.)

Part 3: Covers the health and safety and duties of the stakeholders within the project.

Part 4: The general requirements for all construction sites

Part 5: General requirements

(CDM,2023) (CITB, 2023)

3.4) RIDDOR

RIDDOR is a piece of legislation that covers the reporting of dangerous occurrences that could or may have caused injuries and diseases. The key factors to reporting an injury incident to the HSE include fractures other than fingers, thumbs and toes, loss of consciousness, amputations, crush injuries causing damage to internal organs, any injury to cause loss of sight.

Diseases are also reportable to the HSE some of these include occupational cancer, occupational asthma, carpal tunnel syndrome, tendonitis and any disease caused by exposure to biological agents at work.

Gas incidents and dangerous occurrences such as accidental leakage of gas, plant or equipment causing harm and the accidental release of a substance that could cause harm to whom it comes in contact with are also reportable to the HSE. All reports are to be made on the HSE website/online whereas fatal incidents must be phoned in on 0345 300 9923. (HSE, 2023) (Primed, 2020) (Virtual College, 2020)

An example of where RIDDOR is complied with on site is ensuring risk assessments and methods statements before works are handed out to employees and read and signed before the works can begin. Accident report books should also be on site to report and maintain records of incidents if any occur, this is a legal requirement under RIDDOR. Procedures should also be in place for employees to understand the protocol if an incident occurs, while the correct training should also be provided to employees before commencing work. (Foulis.D, 2022)

3.5) LOLER

The legislation that is LOLER entails that lifting operations and equipment in the workplace are done safely to minimize or eliminate harm to employees and anyone in the vicinity of the work. There are many forms of lifting equipment that are in conjunction with LOLER, some of these are listed below-

- MEWPS
- Pallet trucks
- Lift trucks
- Shackles and Slings
- Eye bolts
- Cranes
- Rope pulley systems
- Vehicle expectation hoists
- Telescopic handlers

Both employer and employee have an obligation when using and inspecting these types of equipment, LOLER training should be provided to enhance competency and mitigate or eliminate the risk or harm. If trained then the most important duties involved with the equipment are listed below-

- Suitability, is the lifting aid suitable for the task at hand? Plan the lift before starting ensuring equipment is capable of dealing with the task.
- Inspection, competent persons must thoroughly inspect the equipment before use; check for damages, faults and testing dates.
- Check markings, ensure lifting equipment is visibly marked for safe working loads and extra information about the equipment.
- Installation, most heavy lifting equipment needs to be securely installed and positioned correctly to minimize risk of harm from equipment failure.

On site applications of most of these pieces of equipment are for heavy material or works that are at height, LOLER regulations would be put in place for employees using cranes for positioning of large steel stanchions and beams or the use of telescopic machinery to lift material such as cladding to certain heights. (Human Focus, 2022) (Hoist UK, 2023)

3.6) PUWER

Both PUWER and LOLER are very similar in regulations but PUWER covers all tools used within a construction project whereas LOLER only covers lifting equipment. This regulation applies to employers and management/trained personnel, this ensures employees when handling certain tools that they are in safe working order and limit the chances of harm when using them. This is done by training, this gives knowledge and competency to the user and understand the risks involved with using particular tools/machinery. Trained personnel should also do visual inspections before use to check for damage, faults and testing dates to ensure it is in fully working order. (Machinery Safety & Compliance Services LTD, ND)

PUWER applies to most tools, here is a list of what comes under PUWER-

- Machinery; drills, material handling equipment, circular saws.
- Toolbox Tools; hammers, hand saws, knives.
- Access equipment; scaffolding, ladders, towers.
- LOLER; all tools under this legislation.

PUWER also applies when employers give employees new tools for a particular job, the employer therefore has the duty to ensure tools meet standards such as British Standards or (less likely) European Standards. Instructions, method statements and risk assessments should also be filled out, read and signed before the use of said tool in order for the employee to understand the risk that's at hand and to mitigate the extent of harm if an issue was to occur. (Penny Hydraulics, 2020) (Human Focus, 2022)

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5. Appendices

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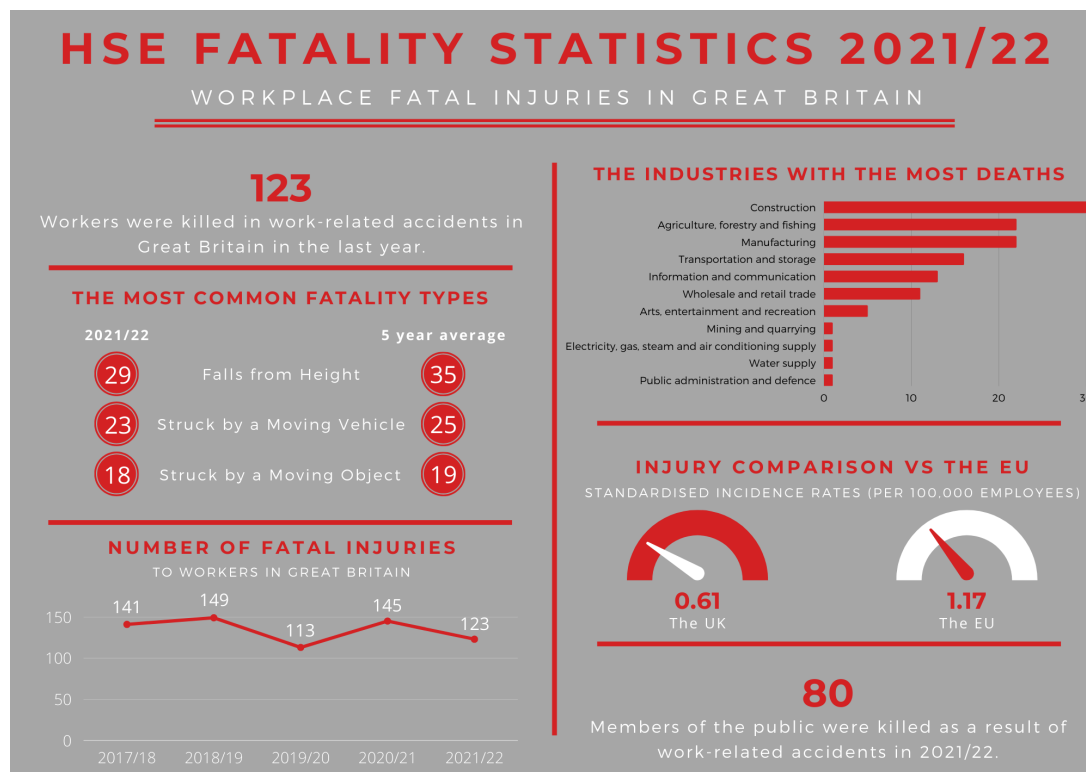


Figure 2- Auto Extract Systems (2018) 'The 7 Essential Elements of COSHH

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Infographic showing the COSHH cycle-

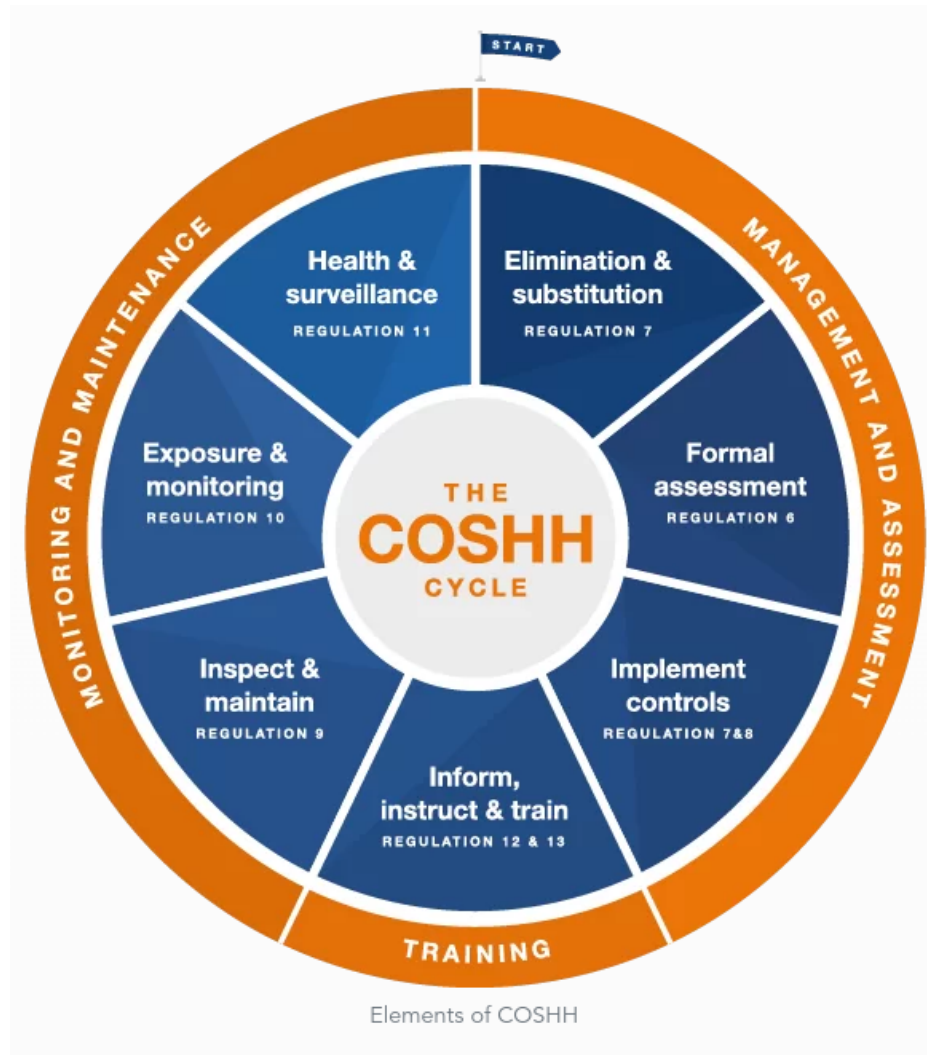


Figure 3- British Safety Council, (2023) 'What is COSHH? Everything you need to know'

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COSHH symbols and meaning-



Risk assessment 1-

Activity to be Assessed		Assessment Number	
Ground related hazards and contaminants.		AA0001	
Persons undertaking or affected by the activity			
☒ Employees ☒ Contractor ☒ Public ☐ Pupil ☐ Service User ☒ Other			
Identified Hazards and Associated Risks		Likelihood	Severity
1	Radon Gas, long term effects causing cancer.	3	5
2	Electric shock due to excavation around mains.	2	5
3	Asbestos can cause cancers over time.	4	5
4	Instability while excavating.	5	4
5	Pockets of oil, harmful to the environment.	1	4
6	Lead poisoning	1	3
Existing Control Measures / Additional Control Measures Required			
1	Radon barrier to be used if needed, or comply with government regulations for minimisation of risk.		
2	Insulated tools to be used when excavating.		
3	Correct training to identify asbestos, and report in order for removal from licensed specialists.		
4	Trench boxes to be put in place while excavation is taking place, any deep excavation to be shored.		
5	If found, contact specialists for professional clearance in a safe and correct manner.		
6	Ensure correct PPE is worn to ensure no cuts are infected.		
Reassessment of Activity Hazards		Likelihood	Severity
1	Radon Gas, long term effects causing cancer.	3	2
2	Electric shock due to excavation around mains.	2	1
3	Asbestos can cause cancers over time.	2	1
4	Instability while excavating.	1	2
5	Pockets of oil, harmful to the environment.	1	2
6	Lead poisoning	1	2
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Risk Assessment 2-

Activity to be Assessed		Assessment Number	
Lifting and positioning of steel beams.		AA0002	
Persons undertaking or affected by the activity			
☒ Employees ☒ Contractor ☒ Public ☐ Pupil ☐ Service User ☒ Other			
Identified Hazards and Associated Risks		Likelihood	Severity
1	Unclipping of attached steel from crane.	2	5
2	Steel beams coming into contact with existing buildings.(caused by wind)	3	5
3	Crane subsiding due to over weight limits.	2	5
4	Lowering beam onto workers hands or feet.	3	4
5	Fail in connection from beam to beam.	3	4
6			
Existing Control Measures / Additional Control Measures Required			
1	Ensure lifting equipment is thoroughly checked by a trained and competent worker to ensure no damages or faults are there before lifting.		
2	Ensure lift happens on a calm dry day with a step by step plan in place for the crane driver to move beams as safely as possible, and the crane to be situated away from buildings.		
3	Ensure crane is situated away from the river bank and correctly secured to the ground.		
4	Ensure hand signals or walkie talkies are used to lower the beam into place, also ensure correct PPE is worn such as safety gloves and steel toecaps.		
5	Ensure bolts are up to standards and regulations are met, steel erectors to ensure correct measures are taken in connecting components.		
6			
Reassessment of Activity Hazards		Likelihood	Severity
1	Unclipping of attached steel from crane.	1	4
2	Steel beams coming into contact with existing buildings.(caused by wind)	1	3
3	Crane subsiding due to over weight limits.	1	4
4	Lowering beam onto workers hands or feet.	1	2
5	Fail in connection from beam to beam.	2	2
6			
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Risk Assessment 3-

Activity to be Assessed		Assessment Number	
Excavation for footings/piles		AA0003	
Persons undertaking or affected by the activity			
☐ Employees ☒ Contractor ☐ Public ☐ Pupil ☐ Service User ☒ Other			
Identified Hazards and Associated Risks	Likelihood	Severity	Risk Level
1 Going through service cables.	4	4	16
2 Falling into trenches.	3	4	12
3 Coming into contact with an excavator.	3	4	12
4 Excavator overturns.	2	5	10
5 Ground related hazards	4	4	16
6			
Existing Control Measures / Additional Control Measures Required			
1	Ensure the area of excavation is CAT scanned for all types of services, contact service providers for drawings and locations of services if there are any. Always use insulated tools to ensure safety.		
2	Ensure trenches are barriered/cordoned off, ensure adequate signage is within the area of excavation and if possible to add a harness and cable system for employees working in the area.		
3	Ensure hand signals and correct communication is used at all times and check excavator cameras are in fully working order for users to see behind before slewing.		
4	Ensure ground is of good condition for stabilisation of the excavator and make sure the excavator is on a level surface when pulling footings. Ensure the excavator is in fully working order before starting work. ☐		
5	Ensure correct ground investigation is done before starting work, refer back to the investigation while carrying out work and if hazardous material is located then stop work make the area safe and report to a supervisor.		
6			
Reassessment of Activity Hazards	Likelihood	Severity	Risk Level
1 Going through service cables.	2	2	4
2 Falling into trenches.	1	3	3
3 Coming into contact with an excavator.	2	2	4
4 Excavator overturns.	1	2	2
5 Ground related hazards	2	3	6
6			
Name- Thomas Caddell Position- Trainee Engineer		Signed	Date of Completion: 29/04/2023

Risk Assessment 4-

Activity to be Assessed		Assessment Number	
Core drilling through concrete slab for services		AA0004	
Persons undertaking or affected by the activity			
☐ Employees ☒ Contractor ☐ Public ☐ Pupil ☐ Service User ☒ Other			
Identified Hazards and Associated Risks	Likelihood	Severity	Risk Level
1 Overheating of core drill.	3	3	9
2 Drill slipping in the hands of the user.	3	4	12
3 Concrete entering eyes	4	4	16
4 Breathing in of silica dust	5	5	25
5 Core falling through the slab and harming other workers under the area of work.	3	4	20
6			
Existing Control Measures / Additional Control Measures Required			
1	Ensure drill has been visually checked over for faults and damage and check when the last time it was tested before use. Correct PPE to be worn such as gloves to limit harm to users.		
2	Ensure competent and trained individuals are carrying out the work and that the drill is equipped with a clutch to limit harm if an incident occurs.		
3	Ensure correct PPE is worn at all times, protective glasses/goggles to be worn. If possible an extractor to be used to dispose of any small bits of concrete as they are released.		
4	Ensure RPE (Respiratory Protective Equipment) is used at all times and use water suppression to limit exposure.		
5	Ensure work area is cordoned off below the works with barriers and signage to inform workers of the harm it may cause.		
6			
Reassessment of Activity Hazards	Likelihood	Severity	Risk Level
1 Overheating of core drill.	2	2	4
2 Drill slipping in the hands of the user.	2	2	4
3 Concrete entering eyes	1	2	2
4 Breathing in of silica dust	2	2	4
5 Core falling through the slab and harming other workers under the area of work.	2	2	4
6			
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Risk Assessment 5-

Activity to be Assessed		Assessment Number	
Lifting material onto scaffolding on the road side of the building.		AA0004	
Persons undertaking or affected by the activity			
☐ Employees ☐ Contractor ☐ Public ☐ Pupil ☐ Service User ☐ Other			
Identified Hazards and Associated Risks		Likelihood	Severity
1	Crash caused due to telescopic lift.	3	5
2	Material falling from height.	3	4
3	Harm caused to workers at top of lift by telescopic lift.	3	5
4	Workers falling off scaffolding due to stretching.	2	5
5			
6			
Existing Control Measures / Additional Control Measures Required			
1	Ensure a traffic light system is in place or inform local people of the closure of the road for the period of time the work takes. Ensure hand signals are used to guide telescopic lift in the right direction.		
2	Ensure toe boards are fitted to scaffolding and that a lifting area is in place for correct storage of material. Ensure material is secured correctly before lift.		
3	Ensure hand signals are used to guide drivers into the correct area and ensure cameras are in working order in the cab of the machine for drivers to visually see where the material and workers are.		
4	Ensure handrails are set to correct height and harnesses are provided before works begin.		
5			
6			
Reassessment of Activity Hazards		Likelihood	Severity
1	Crash caused due to telescopic lift.	1	3
2	Material falling from height.	2	2
3	Harm caused to workers at top of lift by telescopic lift.	2	2
4	Workers falling off scaffolding due to stretching.	1	3
5			
6			
Name- Thomas Caddell Position- Trainee Engineer		Signed	Date of Completion: 29/04/2023

Review Date: 29/04/2023	Likelihood
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