

TIMBER FRAME WORKBOOKS

# Design

## HEALTH AND SAFETY



**RISK  
MANAGEMENT**  
and more

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# 1. Introduction and Welcome

## 1.1 The STA Timber Frame Design Training Programme

### Welcome to your Health & Safety workbook.

The production of these workbooks has been **supported financially** by **The Construction Industry Training Board (CITB)**. **The Structural Timber Association (STA)** is extremely grateful to them.

The Structural Timber Association, on behalf of the industry, has developed this training programme with CITB to provide recognition of the skills and competencies of existing timber frame designers together with raising the skill levels of any unskilled or untrained timber frame designers to an acceptable level of competence.

The programme will also provide career paths for timber frame designers and assist young entrants to the timber frame industry. Over time the intention is to allow only those designers who are qualified to design timber frame buildings.

A structured training programme has been devised at three levels:

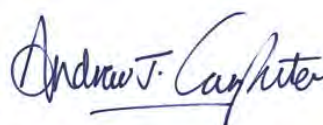
- Design
- Manufacture
- Erection

Each of the three levels is split into three modules:

- Health and Safety
- Knowledge
- Practical Skills

For most of us, our home is our largest expense and we expect it to be built to the highest standards by well trained and suitably qualified people. By using these workbooks, we, as an industry, can now provide you with the opportunity to achieve this goal. Also by having a qualified workforce we can compete with the rest in quality and workmanship.

We hope you enjoy working through this workbook. Please add to it in any way you wish. We look forward to awarding you with your Timber Frame Competency Award qualifications in the near future.



Andrew Carpenter,  
Chief Executive, STA.

### **Education and training. STA/CITB.**

If you have any queries or require any further information regarding this booklet seek advice within your own company. You may also contact:

Structural Timber Association

The e-Centre

Cooperage Way Business Village

Alloa

FK10 3LY

United Kingdom

Tel: 01259 272140

Fax: 01259 272141

Email: **[office@structuraltimber.co.uk](mailto:office@structuraltimber.co.uk)**

If you have any general enquiries on any other education and training matter, again either seek advice within your company, or visit

**[goconstruct.org](http://goconstruct.org)**



**STRUCTURAL  
TIMBER ASSOCIATION**

*Building solutions in timber*

## 2. Aims and Objectives

### 2.1 Health and Safety at work

The aims and objectives of this workbook are to assist you to:

- work more safely yourself - we must all work in ways that minimise the risks to ourselves and to others
- manage Health & Safety more effectively - there will be no improvement in safety performance without effective management
- contribute to the Health & Safety of the workplace - a designer is required to be able to conduct and maintain risk assessments for the designs you undertake, to eliminate and reduce risks during construction and for maintenance of the building, and keep them up to date including any control measures identified.

Overall safety in the workplace can only improve if we all work together.

#### Additional Resources

To provide structure and support for your learning we will use the Health & Safety Executive (HSE) publication "Managing for Health & Safety" which is more commonly known by its HSE code, HSG65.

There are other guides to Health & Safety management but a quotation from HSG65 should make it clear why it has been

chosen for this course.

It is strongly recommended you purchase or have access to the Guidance document number L153 on the Construction (Design & Management) Regulations 2015 and HSG65 (2013) and refer to them during this course.

HSG65 is available for free download from [www.hse.gov.uk/pubns/books/hsg65.htm](http://www.hse.gov.uk/pubns/books/hsg65.htm)

CDM Regulations are available for free download from [www.legislation.gov.uk/ukxi/2015/51/contents/made](http://www.legislation.gov.uk/ukxi/2015/51/contents/made)

### 2.2 What is in this workbook

This workbook is divided into sections, which follow a logical sequence. Please refer to the Contents page for an overview of the sections which are covered in this workbook.

#### Each section follows a similar pattern:

- you will be given the information to read that explains what you will be required to do, followed by some exercises to complete
- where you see a white activity box (example given below), this will indicate that there is a task for you to do. If you can't fit your answers in the space provided, please use a separate sheet
- the activities are designed to help you find out about different

**"... if you do follow the guidance you will normally be doing enough to comply with the law. Health & Safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice."**

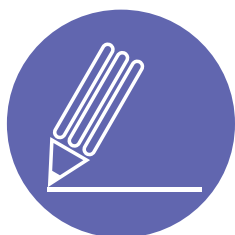
topics within the workbook

- at the end of each section there are some questions for you to answer. These are designed to check your understanding and to identify any areas that you may need to brush up on
- the workbooks have been designed to be enjoyable as well as informative
- on completion of this course you will gain suitable recognition that employers now expect.

**Please note:**

- This workbook does not replace your own company's documents and/or the main contractor's site rules.
- Furthermore this workbook supports the small handbook titled: Timber Frame Pocket Guide, which is published by the STA and for STA members is available for free download from the link below:

**<http://www.structuraltimber.co.uk/library>**



### Activity example

Take a moment to reflect on the knowledge you would like to gain from this workbook and how it will be useful for your career. Make notes below, these will serve as a motivation reminder throughout your work.

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# 3. Health and Safety at Work

## 3.1 Overview

Timber Frame workplaces such as workshops, factories and construction sites contain many Health & Safety hazards. The 1974 Health & Safety at Work Act was introduced to protect all people at work. In addition the European Union has introduced legislation that also serves to protect us at work through the introduction of specific regulations which in turn become part of Health & Safety laws in the UK.

Everyone working in the Timber Frame Industry has an important part to play as well as legal responsibilities in keeping the workplace safe for themselves and others.

## 3.2 Employer responsibilities

The law states that ... **"It shall be the duty of every employer to ensure so far as is reasonably practicable, the health, safety and welfare at work of all his/her employees."**

One of the duties the employer must carry out by law is to make sure that employees are informed about Health & Safety.

### To carry out their duties concerning Health & Safety all employers must provide:

- plant, equipment and systems of work that are safe and without risk to health
- safe arrangements for the use, handling, storage and transport of articles and substances used for work
- necessary instruction, information, training and supervision of employees to ensure safety at work
- maintenance of the workplace
- safe and well maintained access and egress entrances and exits
- a safe working environment that has adequate facilities and arrangements for employee welfare at work
- a written Health & Safety Policy must be provided if there are more than 5 or more employees

Where requested and under certain circumstances employers must agree to the appointment of safety representatives (both Union and Non Union) and where appropriate a safety committee may be provided.

## 3.3 Employee responsibilities

In the same way that the employer has responsibility for Health and Safety, so too does the employee.

The employer takes responsibility for providing employees with a safe working environment and relies upon employees to work and act



in a safe manner. Employees are legally responsible for their actions if they adversely affect the safety of themselves or others.

Section 7 of the **Health & Safety at Work Act** requires every employee while at work must:

**“Take reasonable care for the Health & Safety of yourself and of other persons who may be affected by your acts or omissions at work”**

In other words, according to the law you are responsible for your own health and safety and also for the impact of your actions or lack of actions on your colleagues’ health and safety.

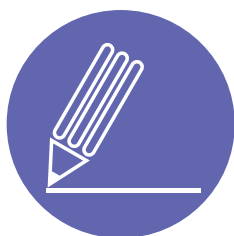
**Employees must also:**

- cooperate with the employers to enable them to comply with their legal duties
- not recklessly or intentionally misuse anything provided under the law for health safety or welfare

### 3.4 Improving Health and Safety in your workplace

**There is always something everyone can do to improve Health and Safety. Below are some methods to consider:**

- always be aware of slip and trips hazard and mitigate them immediately (clean spillages immediately)
- always make sure that your desk is adjusted at the correct height for you, with your forearms supported by the desktop
- always adjust your monitor, keyboard and mouse before you start work
- if you are working on a computer for long periods, make sure to take frequent breaks by looking away from the monitor
- always use a chair with good back support
- do not leave trailing cables when setting up IT equipment
- never obstruct fire exits
- never obstruct walkways
- always follow the operating instructions of desk equipment such as photocopiers and key software



#### Activity

Make a list of the 5 most important ways by which you can improve safety in your workplace.

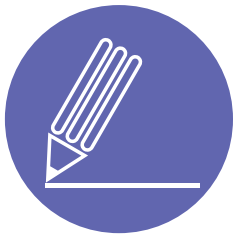
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## Activity

Is the Health and Safety at Work Act 1974 Section 7 still enforced at the time of your work?

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- be aware of screen time and optimal brightness and contrast settings
- always check that a chair is safe to use before sitting down
- ensure that the chair's settings are adjusted to the optimal settings for your posture
- ensure the screen height and tilt are adjusted for optimal eyesight line and neck position
- use a foot rest if required
- adjust the lighting in your work environment
- remove glare and reflections from your lighting environment
- do not consume and store food and beverages near computers and other electrical equipment
- take frequent breaks from screen time, for example 5 minutes every 1 hour; or follow the 20-20-20 rule, every 20 minutes look away for 20 seconds towards an object or location, which is approximately 20 feet away.

## 3.5 General hazards

There are many hazards. This section aims to cover the main ones you will face every working day.

### Electricity and portable tools:

- this is a significant hazard and you should avoid all risks when working with electricity or when an electrical supply is close to your work area.

### The Main Dangers are electric shock, burns and fire:

- electric shock is likely only when you use damaged electrical equipment or use the equipment with faulty cables and/or connections
- any noticeable problems should be reported and the faulty equipment put aside with the supply disconnected until repaired.



**The following will help keep you safe when working with electricity:**

- keep cables clear of walkways, heat sources and sharp objects
- always switch off and disconnect electrical equipment when making adjustments, cleaning, etc.
- do not touch electrical equipment with wet hands
- all portable equipment should be tested regularly
- do not overload power points and sockets
- know where the isolation points and emergency stops are located
- check equipment is safe before you use it.

## **3.6 Workplace emergencies**

### **3.6.1 Fire**

An emergency, such as an accident, sudden illness or fire, can occur at any time. Prompt and effective action is essential to help the injured and limit further injury or damage.

#### **IT COULD BE YOU!**

### **3.6.2 Calling the Emergency Services**

Emergency Services normally refer to the Police, Ambulance Service and Fire Brigade.

There will be established procedures for calling the emergency services at your place of work **make sure you know them.**

There may be different procedures for calling an ambulance or summoning the fire service. For example, in some work places or sites only authorised personnel (e.g. First Aiders) are allowed to call an ambulance.

In case of fire everyone must be able to raise the alarm. This may involve operating a fire alarm and can also involve telephoning 999 to report the details of the fire.

**Whatever the procedures are you should know them and be able to follow them promptly.**



**Make sure you see the site fire plan for your office and know what you should do in the event of a fire.**

### 3.6.3 The Fire Plan

You should be instructed on the following during site induction. If not, you should make sure you find out when first arriving at a site:

- how to raise the alarm and what action to take
- know what the alarm sounds like
- be told where the fire extinguishers are situated
- be told where the assembly points are.

### 3.6.4 Dealing with Fires

Dealing with a fire once it has started can be dangerous and dealing with the aftermath of fire can also be costly. It is better to follow good safety practice to prevent fires from starting in the first place.

#### Common causes include:

- smoking in unauthorised areas
- temporary or faulty electrical cables
- human error

Note that this is not an exhaustive list; you may be able to think of many more.

**Too many fires are caused by carelessness or poor safety practices.**



**The following measures may help to prevent fires:**

- visually check cables on your electrical equipment to make sure there are no exposed wires
- smoking should be banned in and around storage areas
- use the bins or skips for all waste material. These should be removed frequently
- have a suitable fire extinguisher available.

**Note again that this is not an exhaustive list.**

**3.6.5 Evacuating the Workplace in an Emergency**

You should know the Emergency Evacuation/Fire Alarm system in use and the safest route to your assembly area.

When the Alarm sounds move in an orderly fashion to your assembly area; you should warn others to do the same as you proceed.

You should make sure you always have a means of escape from your work area, preferably in more than just one direction. Never put yourself in a position where you can be trapped by fire.

**3.6.6 How Fires Start**

**Three things are needed to start a fire:**

- **Fuel:** something that can burn. This may be a solid such as paper, wood or a flammable liquid such as oil or gas
- **Heat:** to raise the temperature of the fuel. A small source of heat such as a spark or cigarette end can provide enough heat particularly if the fuel is easily ignited e.g. petrol, a gas or a finely divided solid such as loosely packed fibrous materials or dust
- **Oxygen:** to keep the fire burning. Oxygen in the air is sufficient.

**3.6.7 Fire Fighting Equipment – manually operated**

Manually operated fire-fighting equipment is typically separated in to two categories:

- hose reels (water)
- fire extinguishers

Fire extinguishers work either by cooling the fire to remove heat or by smothering the flames to deprive them of oxygen.

Five types of extinguishing equipment are in common use and they can be identified by their colour-coded label as outlined in the table below.

**Note: care is required when holding the extinguisher because of the extremely low temperature of the expellant.**

**3.6.8 When Not to Tackle a Fire**

**Certain circumstances may occur when you should not tackle a fire:**

- When you may be trapped by the fire
- When you may be exposed to smoke or toxic fumes
- When there is a risk of explosion e.g. from gas bottles
- If you are not trained to use the appropriate extinguishers
- Never use water or foam on electrical fires if the power is turned on and never use water on flammable liquid fires.

**Good fire prevention ensures that heat and fuel are kept apart.**

**Do not put yourself at risk when fighting a fire.**

Extinguisher content	Colour	Application
Water DO NOT use on electrical fires or fires involving flammable liquids	Red	Solid fuel fires such as wood, paper or textiles
Carbon Dioxide DO NOT use on solid fuel fires	Red with black	Small liquid fires, electrical fires
Foam DO NOT use on electrical fires	Red with cream	Flammable liquid fires e.g. petrol
Powder	Red with blue	Safe on all types of fire
Fire blanket	Red container	Small fires e.g. chip pan fires and when someone's clothes are on fire





## Activity

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Write down the evacuation procedure for your workplace.

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Write down the location of your assembly area.

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(Alternatively enter them on the plan you used for fire alarms and extinguishers)

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Site Evacuation should be practiced at frequent intervals. Tick below if you have been involved.

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Site Evacuation Completed

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Date \_\_\_\_\_

Verifier's Signature

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### 3.7 Site traffic

**If you are working on site, for example during a construction site visit, make sure you undergo a site induction and become familiar with the site traffic plan.**

Plant access and driveways should be clearly marked and free of obstruction.

Unfortunately all too many accidents involving vehicles happen in our industry. The vehicles involved include cranes, forklift trucks and lorries and/or the loads they are carrying. Be aware of these and the general safe distances to keep from each during your site visits.

Some general rules to follow during a construction site visit are:

- stick to pedestrian routes and observe signs, barriers and crossing points
- discuss where you need to go and what you need to see with the site manager so your movement around site can be planned
- wear PPE suitable for the areas you are visiting, which might include high visibility clothing
- never assume the driver of an approaching vehicle has seen you.

### 3.8 Health and Safety Management System

**In the design office Health & Safety should be managed just like any other activity.**

A Health and Safety Management System is a formal framework for management of Health and Safety issues. Either national/ international, sector-specific or in-house (created by the company) management systems may be

used. As a general guide, the documents in the Health and Safety Management System should be concise and should target changing the behaviour of those involved in work towards safer ways of working. The Health and Safety Executive INDG275(rev1) leaflet recommends a common-sense and practical approach to implementing Health and Safety at your workplace.

There are three core elements of the Health and Safety Management System:

- Leadership
- Skilled workers
- Trust and involvement of people

As a minimum, your organisation should have the processes and procedures required to meet the legal requirements, including:

- a written health and safety policy (if the company employs five or more people)
- assessments of the risks to employees, contractors, customers, partners, and any other people who could be affected by your activities – and record the significant findings in writing (if the company employs five or more people). Any risk assessment must be 'suitable and sufficient'
- arrangements for the effective planning, organisation, control, monitoring and review of the preventive and protective measures that come from risk assessment
- access to competent Health and Safety advice ([www.hse.gov.uk/competence](http://www.hse.gov.uk/competence))
- providing employees with information about the risks in your workplace and how they are protected; instruction and training for employees in how to deal with the risks
- ensuring there is adequate and

appropriate supervision in place

- consulting with employees about their risks at work and current preventive and protective measures.

To implement a successful health and safety management system, it is recommended that the 'Plan, Do, Check, Act' workflow is followed. This workflow reflects the continuous process of risk prevention, where only one preventative activity is rarely sufficient to change the safety of the workplace as a whole. The overall activities for each stage are listed below, however these will vary per company and strategy:

#### **Plan:**

- identify the current and goal Health and Safety levels
- identify the objectives and the people responsible for implanting them
- identify a measurement method
- consider emergencies, such as fire
- make a note of legal requirements;

#### **Do:**

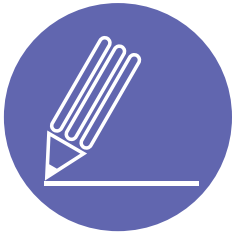
- risk assessment
- prioritisation of activities
- communicate the strategy effectively
- apply the objectives in practice, including tools, training and supervision if needed;

#### **Check:**

- measure the progress on each objective
- accidents investigation;

#### **Act:**

- review and analysis of performance
- update policies and risk assessments
- implement the lessons learnt.



### Activity

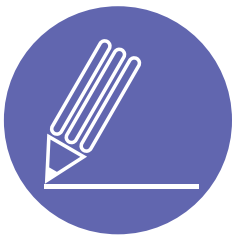
Insert below the Health and Safety Management System in your workplace. This will be useful for future reference.

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### Activity

As a team leader, supervisor or manager, what should you do to influence safety in a positive way?

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## 3.9 Health and Safety in the office environment

There are 7 main Health and Safety Hazards in an office environment, listed below. Some may not apply to your specific environment or role, however all need to be carefully considered. The Health and Safety Management System in the previous section is a suitable approach to producing risk assessments for the office environment.

### Main Hazards:

- slips and trips
- manual handling
- working at height
- health of workers, including stress
- computers, laptops and similar devices
- fire
- other equipment.

It is also critical that first aid arrangements are made in the office. This can be achieved by training selected staff to be Health and Safety.

The Health and Safety Executive have a Office Risk Assessment tool, which you can use if you are working in a low risk office environment.

More information can be found at the Health and Safety Executive website:

**[www.hse.gov.uk/office/](http://www.hse.gov.uk/office/)**

You may also find the HSE health and safety toolbox useful to help control risk at work:

**[www.hse.gov.uk/toolbox/index.htm](http://www.hse.gov.uk/toolbox/index.htm)**

**<http://records.hse.gov.uk/connect.ti/officeriskassess/view?objectId=23667>**

## 3.10 Accidents

### 3.10.1 Accident Reporting

All accidents and 'near misses' at work must be reported.

The definition of an accident is any unplanned event leading to injury or damage. A 'near miss' is anything that had the potential to cause an accident, i.e. "it nearly did, but we got away with it this time": a 'free lesson'!

#### **How could an accident affect you?**

##### **You could suffer:**

- temporary or permanent disability
- inability to carry out your normal work
- loss of earnings
- inability to take part in recreational activities
- a serious accident could result in death.

This would also have an effect on your family and others who may depend on your fitness and wages.

#### **Your employer could also suffer:**

- loss of output and loss of time
- cost of repairing damage
- wastage of materials or product
- effect on the workforce e.g. low morale
- possible prosecution leading to fines and/or imprisonment
- in an extreme case the Health & Safety Executive could shut down a dangerous site.

#### **Bear in mind that you could also be prosecuted if you knowingly work in an unsafe manner that endangers yourself and/or other.**

You, your colleagues and your employer all need to work together to prevent accidents before they occur.

You should report all accidents, near misses and dangerous occurrences to your supervisor (or other person required by your employer).

By doing this you will ensure a proper investigation is carried out and help to prevent a recurrence.

Your employer must report all serious accidents and accidents causing more than 7 days absence to the Health & Safety Executive. You must tell your employer all you know about the accident so that this report may be made fully and correctly.

Accident, near miss and dangerous occurrence reporting will vary from site to site. Certainly you must give a verbal report about any incident that caused injury or had the potential to cause injury. You may also have to give a verbal or written statement in the course of an accident investigation.

**When making notes of the important facts of an accident, near miss or dangerous occurrence the following should be included:**

#### **WHO**

- Who was injured and to what extent?
- Who else was present?
- Who were the other witnesses?

#### **WHEN**

- The date and exact time the accident occurred.

#### **HOW**

- What happened before, at the point of and after the accident and any other relevant information.
- The machinery, equipment, tools involved and any other relevant information.
- What caused the accident (if known) and any other relevant information.

Remember – today's near miss could be tomorrow's fatality, **SO REPORT IT!**

#### **3.10.2 Accident Prevention: Working Procedures and Safety Rules**

There is generally a best way to do a job. This has usually been developed from experience. The best way will also be the safest way. There are advantages to companies and individuals if everyone works consistently using similar work methods and procedures, e.g. 'Safe Systems of

Work'. This is especially important in team working where one team has to hand over to another. Accidents can easily occur when there is confusion in the workplace.

#### **There are a number of ways for recording best practice and preventing accidents:**

- risk assessments (with risk control measures)
- method statements
- training manuals often include operating procedures
- Safe Systems of Work are provided for hazardous jobs
- Safety Rules will usually be written for activities that have more general applications
- Quality Manuals sometimes include operating procedures
- Permits to Work apply to some hazardous procedures.

You must make yourself aware of all the procedures that apply to your work. They have been written for your protection and you must follow them. They will also have been written to ensure that what you do complies with legal requirements.

Don't be tempted to think that you can do better by taking short cuts. Short cuts lead to accidents and you may be breaking the law.

If you find a better way of doing something, tell your supervisor they may be able to have the work procedure changed. Then everyone will benefit from the improvement and safety will be the winner.

**Your company may have all or some of these risk record types and others which are not mentioned.**







### 3.11 Reporting of Injuries, Diseases & Dangerous Occurrences Regulation (RIDDOR)

There is a legal requirement in the UK to report injuries, diseases and other dangerous occurrences to the relevant enforcing authority. For more information the learner is encouraged to refer to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations, 2015.

The responsibility for reporting lays with the employer, the self-employed or the person in control of work. The following types of accidents must be reported:

- fatality as a result of an accident.
- major injury to a person at work as a result of an accident.
- an accident that results in a person not at work being taken to a hospital.
- a dangerous occurrence.

The notification must be by the quickest practicable means and this is usually by telephone.

The notification must be followed by a written report within ten days and this is usually done using Form F2508.

**RIDDOR** also has reporting requirements for incidents with the following outcomes:

- absence from normal work for over seven days.
- death of an employee within a year
- specified occupational diseases

You should make yourself aware of the conditions under which these requirements occur!

Records of reportable incidents must be kept by the organisation, not just sent to the Enforcing Authority.

In addition, records of individual incidents must be retained for at least three years.

The reporting of incidents involving less serious outcomes is not a legal requirement under **RIDDOR**.

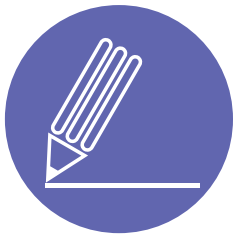
**Examples of these will include minor injuries requiring first aid or resulting in less than 73 days off work, “near misses” and property damage. However, it is good practice to report these for the following reasons:**

- it provides a more sensitive measure of safety performance.
- we can learn from data analysis.
- by looking for patterns in the way incidents occur.
- we can learn from individual incidents.
- it is usually the case that incidents have the same range of causes, and the nature of the outcome, near miss to serious, is a matter of chance.

However, none of these aspects of good practice are possible unless the incidents are reported in the first place.

Your organisation may also use an “Accident Book” (B I510), instead of, or in addition to, the in-house incident form.

Often in timber panel factories and on building sites there will be an accidents book where accidents are recorded and described.



## Activity

Give five examples of a major reportable injury

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### 3.12 Investigation

Accidents must be investigated and should follow set procedures. The procedure for minor incidents is as described below but there will be additional steps required for investigations of serious accidents.

- Visit & Recording Details of the Accident Site and Location
- On Site & Off Site Interviews
- Draft Report
- Designing Remedial Actions
- Feedback.

In addition to the legal requirements, there are also benefits from investigating accidents, such as the prevention of future adverse events, the prevention of business losses and improved morale in the workplace.

In general the HSE suggests the following workflow for investigating accidents:

- gather the information
- analyse the information

- identify the risk and control measures
- create an action plan and implement it

When investigating an accident or an incident the investigator should look for useful information from those involved in the event, their friends and family if necessary, to find out what the cause of the event was, what is the likelihood of this event re-occurring and how it could be prevented. Furthermore, it is advisable to start the investigation as soon as possible after the event, because the information gathered soon after the event is more likely to be accurate.

It is paramount that the instigator identifies the root cause of the problem, rather than the superficial triggers. The difference can be for example in a case of a saw cut, the superficial reason could be that the person used the wrong type of hand saw, whereas the secondary cause may be that all the saws are stored inconsistently and without identification labels,

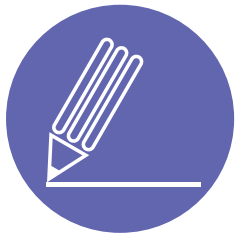
and finally the root cause would be an inadequate tools organisation system throughout the factory.

The action plan which follows the analysis and root cause identification should provide immediate, short-term and long-term measure for prevention. In addition, the objectives set out should be **SMART (Specific, Measurable, Agreed, Realistic and Time scaled)** and methods

for progress monitoring should be provided for each objective. It is recommended that the action plan and objectives monitoring are included in the Risk Assessment Review process.

More information on accidents investigation is available in the HSE publication titled 'Investigating accidents and incidents' (HSG245) 2004, available for free download from [www.hse.gov.uk](http://www.hse.gov.uk)

**It is an essential part of the process to be able to specify actions which will prevent a recurrence of the accident.**



## Activity

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Write down your own responsibility to Health & Safety as covered by the law.

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Why do you think it is necessary to report all accidents and near misses to your employer?

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List two ways in which your employer can be affected if you have an accident

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If you were responsible for Health & Safety in your Company, what would you do to improve it? (No more than 3 suggestions)

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### 3.13 First aid and welfare arrangements

#### 3.13.1 First aid

Unfortunately accidents do happen and all too frequently. When they do you need to act quickly and effectively. An emergency, such as an accident or sudden illness can occur at any time. Prompt and effective action is essential to help the injured and limit further injury or damage.

#### IT COULD BE YOU!

Prompt first aid treatment is essential and can be the most important factor in the recovery of a casualty. In case of accident or illness, summon the First Aider immediately.

You should be told who the First Aider is, where they work and how they are contacted. **If you don't know – ASK!**

#### 3.13.2 Caring for the casualty:

- only take First Aid action for which you are qualified. However, there are some basic actions that you can take while waiting for qualified help
- when taking immediate or First Aid actions, act calmly and carefully and ensure that you don't become a casualty yourself

#### 3.13.3 Limiting further injury or damage:

- when an accident occurs your immediate actions should be to help the casualty while ensuring your own safety and the safety of others
- however in some cases the first person to arrive should do nothing e.g. a crane caught to high voltage lines or an excavation crumbling.

#### 3.13.4 The hazard that caused the accident may still be present with the potential to cause:

- further injury to the casualty
- injury to you and other persons in the area
- damage to plant and equipment or the environment.

#### 3.13.5 Only take action for which you have been trained:

You may need to deal with hazards before First Aid treatment is applied.

The steps you take will depend upon the circumstances but there are some actions that have general application:

- call for further assistance e.g. a First Aider
- remove the hazard if possible and if it is safe to do so
- remove the casualty from the danger area if medically safe to do so and if you know how to do it safely
- shut down any plant and

equipment involved using emergency shut down procedures if necessary: Isolate the source of power if appropriate

- isolate the source of spillage, leakage or contamination if appropriate
- erect safety barriers and warning signs to prevent entry of unauthorised persons to the area
- clean up spillages and leakages when instructed to do so by an authorised person

### 3.13.5 Welfare Arrangements

Welfare facilities are just as important as Safety Laws and Regulations for the protection of your Health.

You should have access to the following and remember your workmates will also use them so you should contribute to them remaining clean and tidy.

- Suitable, clean toilets
- Clean washbasins, warm water, soap and towels
- Suitable clothing if you have to work in wet, dirty or other poor conditions
- Changing facilities for changing, drying and storing clothes
- Drinking water

**Your health is important so do not let your standards drop. If you do then you will be affecting others and increase the health risks to them.**

**There are additional aspects of personal hygiene that you should bear in mind when in a workshop or on a construction site:**

- if you wear protective clothing make sure that you remove it as soon as it is no longer needed.
- don't visit food vending machines

or the canteen in protective clothing or you may pass contamination on to others. This applies to dirty overalls as well

- if you use earplugs in noisy areas, use only clean plugs. Inserting dirty plugs in your ears can lead to infection and damaged hearing
- keep personal protective equipment clean to avoid contamination. This particularly applies to face masks and the inside of gloves
- wash your hands thoroughly before eating or smoking
- wash your hands thoroughly after visiting the toilet
- don't use compressed air to clean dusty clothing. It is dangerous as air bubbles can get into the blood stream. Damage to your eyes is also a possibility. You could also injure other people.

## 3.14 Role of the Health and Safety Executive (HSE) and How Health and Safety Law is Enforced

We are all responsible, under the common law duty of care for employees, visitors, members of the public and anyone whom we can reasonably foresee would be affected by our activities. The law is enforced by Inspectors from the Health & Safety Executive (HSE).

### 3.14.1 The HSE:

- have wide powers to enter sites and premises to inspect the work and equipment
- may issue notices requiring employers to make improvements when standards do not comply with legal requirements
- may shut down unsafe sites or premises to stop unsafe activities

**Remember what you observed and what actions you have taken. It will be important evidence for the accident investigation.**

**Keep a written record of events if possible and take photographs if appropriate.**

- may prosecute employers and employees who break the law.

You may not be aware that the Health and Safety Executive (HSE) Inspectors are visiting your place of work. Also Local Authority Safety Officers from the Local Authority may also occasionally visit premises and sites and have similar powers as HSE Inspectors.

**Inspectors can issue two types of notice if they feel that safety or health is threatened. These are:**

- an Improvement Notice: this type of notice requires matters to be put right within a specified period. The notice will refer to a specific breach of the law
- a Prohibition Notice: this type of notice requires that a particular activity is stopped until matters have been put right. The Notice need not refer to law, only that, in the opinion of the Inspector, there is a risk of serious personal injury.

After a serious accident, the Police turn up first, then an Inspector will visit the site and a full investigation will be conducted. The outcome could lead to prosecution.

### 3.15 PPE

In most cases you will need to wear Personal Protective Equipment (PPE) to protect you against a hazard that cannot be eliminated by other means, but it is important to realise that PPE is a last resort once other methods of hazard reduction have been tried and ruled out.

PPE should be provided free of charge by your employer, but you may have to buy it yourself if you are self-employed. You will not be allowed in the workshop, factory or on construction site unless you have the appropriate PPE.

**There are a number of essential items of PPE. These are:**

- hard hats: to protect against bumps or falling objects.
- safety footwear: to protect against moisture, chemicals, and heavy articles.
- hi-vis clothing: such as a vest or jacket.

**Other specific items include:**

- **gloves:** to protect against cuts, abrasions or chemicals.
- **overalls/jackets/trousers:** to protect against dust, dirt, moisture, weather or chemicals.
- **ear defenders:** to protect against noise.
- **goggles/eye protection:** to protect against flying particles and chemical sprays.
- **face masks and specialised respirators:** to protect against dust and fumes.
- **other specialist PPE:** designed specifically for a work activity or task e.g. harnesses etc.

PPE aims to protect you against a particular hazard. For example, gloves issued to protect against cuts and abrasions may not be suitable for protection against chemicals. The PPE you need to wear may change if you move into different areas of a site and the supervisor will typically let you know what PPE you need to wear.

#### 3.15.1 Hard Hats

Effective from 6 April 2013, the PPE Regulations 1992 apply to the provision and use of hard hats on construction sites. You may find yourself in circumstances where the risk of being struck from above may exist. Therefore, it is best practice to wear a hard hat when you visit a building site or a manufacturing facility.

**It is important that you wear the correct PPE for the job. Incorrect PPE will not protect you.**



Some things to bear in mind:

- employers must provide hard hats to employees
- ensure hard hats are worn when there is a risk of head injury
- the self-employed should provide their own hard hats and ensure that they wear them.

**Failure to wear PPE is like driving a car without fastening your seat belt – it is dangerous and is breaking the law.**

### 3.15.1 Nail guns

**Some nail gun injuries can be prevented through design. Avoid the following when designing timber frame nail connections:**

- nails positioned above shoulder height
- nails positioned in hard to reach areas such as corners
- nails positioned so that the nail gun has to be used whilst holding the work piece in place
- nailing at floor level (near the toes).







## Activity

List what PPE items would you use in the following circumstances:

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You're on a site inside a partially erected timber frame building checking a problem with panels.

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You're in a timber frame factory viewing panels being manufactured.

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# 4. Construction (Design and Management) Regulations

The Construction (Design & Management) Regulations 2015 are the main set of regulations for managing Health, Safety and Welfare of construction projects.

They are generally referred to as CDM 2015 and comprise 5 parts.

The CDM 2015 applies to all building and construction work including new build, demolition, refurbishment, conversions, repair and maintenance.

In order to allow a structured approach to the management of Health and Safety during construction, the CDM regulations define all the stages and people that comprise a construction project. CITB offers guidance for Clients, Principal Designers, Designers, Principal Contractors, Contractors and Workers.

## 4.1 The role and duties of the designer

The parts of CDM 2015 most relevant to designers are Part 2 on "Client Duties" and Part 3 on "Health and Safety duties and roles". Not only do they update previous duties on designers, but they also create a new role of Principal Designer for any construction project involving more than one contractor.

One of the reasons for this update is to ensure that Health & Safety is addressed at the earliest possible stage on a project, i.e. the design stage, and not left until the final go-ahead/appointment of contractors as has happened under the

previous CDM2007. The health and safety issues cover not only the original construction, but also the ongoing maintaining or cleaning of the structure, plus the use of a structure if it is a workplace.

In order to allow a structured approach to the management of Health and Safety during construction, the CDM regulations have had to define all the stages and people that comprise a construction project. As a Designer you are required to understand not only the H&S issues related to the numerical design but also the manufacturing processes, assembly and construction techniques that may be used to create the physical building from your specifications and designs. This workbook therefore has sections related to site and factory processes as well as dealing with your responsibilities as a Designer.

## 4.2 CDM definitions

This Section explains the duties of the DESIGNER under the Construction (Design and Management) Regulations 2015 (CDM Regs). You must have read or have access to the guidance contained in HSE book L153 and associated industry guidance.

CDM2015 contains definitions of terms used within the Regulations, and the relevant ones are as follows:

- **Design:** includes drawings, design details, specifications and bills of quantities (including

**The CDM regulations are continuously updated. To find the latest version you are advised to enter 'Construction (Design and Management)' in the search field of the UK Government legislation website: <http://www.legislation.gov.uk/>**



Obtain a copy of the current CDM regulations and list out all the defined parties. Identify the specific parts that apply to designers and understand the basic CDM duties that apply to them. In particular, ensure you know what designers should do for all projects.

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specification of articles and substances) relating to a structure, and calculations prepared for the purpose of a design.

- **Designer:** means any person (including a client, contractor or other person referred to in these Regulations) who in the course or furtherance of a business-

- (a) prepares or modifies a design; or
- (b) arranges for, or instructs, any person under their control to do so relating to a structure, or to a product or mechanical or electrical system intended for a particular structure, and a person is deemed to prepare a design where a design is prepared by a person under their control

- **Principal Designer:** means the designer appointed under regulation 5(1)(a) to perform specified duties in regulations 11 and 12.

### 4.3 Regulation 9: Duties of designers

You should read the current CDM regulations for a detailed explanation of the designer's duties.

#### Overall the CDM regulations cover:

- the point of time at which the designer may commence work, relevant to the duties of the client
- the different project stages, whose effect on H&S must be minimised by the designer:
  - construction work
  - maintenance
  - workplace
- when risks are unavoidable what steps should be taken by

the designer to reduce the risks, including:

- risk control
- communication to the principle designer
- Health and Safety file update
- the level of detail for the information, provided by the designer to the client, the principal designer and other project stakeholders.

### 4.4 Regulation 11: Duties of a principal designer in relation to Health and Safety at the pre-construction phase

Although the learners may not be the principal designer on the projects they are working on, it is useful for them to be aware of the duties of the principal designer. Regulation 11 of the CDM2015 covers the following topics:

- management, monitoring and coordination duties
- programme scheduling with H & S in mind
- remove, reduce or control foreseeable risks:
  - construction workers
  - maintenance teams
  - workplace
- ensure that all designers comply with Regulation 9
- ensure cooperation between the client, the principal designer and all other stakeholders working on H & S
- provision of pre-construction information
- separation of the principal designer duties from their design duties
- liaison with the principal contractor.

Additionally, the designers, regardless the level they are at,

have duties to:

- address foreseeable risks during construction, maintenance and use of the building and by design either eliminate, reduce or control them
- share information about those risks for construction planning and the building Health and Safety File.



#### 4.5 Regulation 12: Construction phase plan and Health and Safety File

A construction phase plan is produced during the pre-construction stage by the principal designer and covers Health and Safety precautions with accompanying specific measures for risk reduction or control. To do so, the principal designer must cooperate with the principal contractor by providing them with all relevant information such as pre-construction information from the client and designers. Furthermore, the principal contractor should provide the principal designer with relevant information to the Health and Safety File.

During the construction phase, the principle contractor must review the plan and accompanying Health and Safety File to ensure that risk is minimised during construction work. The Health and Safety File may be passed onto the principle contractor at this stage, if the principle designer's appointment has been terminated. Finally, once the building has been handed-over, the Health and Safety File is sent to the client.

There is now also an app developed by the CITB to help designers complete their Construction Phase plan whilst on the go. The app is named CDM Wizard and is available free of charge for phone and tablet devices through the Apple App Store and the Android Google Play. According to user feedback, this app can make the creation of a construction phase plan less daunting and more straightforward.

An example Construction Phase Plan can be downloaded from:

[www.citb.co.uk/documents/cdm%20regs/construction-phase-plan-example.pdf](http://www.citb.co.uk/documents/cdm%20regs/construction-phase-plan-example.pdf)

#### 4.6 The Health and Safety File content

You should review the L153 Guidance and understand the use and contents of the Health & Safety File. As a Designer you will have to contribute to the contents of this file.

The degree of detail as well as the time and effort required to comply with your legal duties need only be in proportion to the nature, size and level of Health and Safety risks involved in the project.

Therefore, for small projects with minimal Health and Safety risks, you will only be required to take simple, straight-forward steps and few, if any, specialist skills will be needed.

As suggested by the CDM 2015 regulations, the Health and Safety File should contain the following:

- (a)** a brief description of the work carried out;
- (b)** any hazards that have not been eliminated through the design and construction processes, and how they have been addressed (eg surveys or other information concerning asbestos or contaminated land);
- (c)** key structural principles (eg bracing, sources of substantial stored energy – including pre- or post-tensioned members) and safe working loads for floors and roofs;
- (d)** hazardous materials used (eg lead paints and special coatings);
- (e)** information regarding the

**It is essential  
that all designers  
are familiar with  
solutions for their  
designs and the  
safe methods of  
constructing them.**



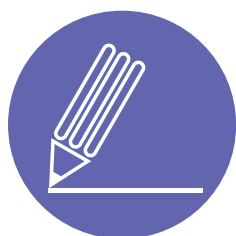
removal or dismantling of installed plant and equipment (eg any special arrangements for lifting such equipment);

**(f)** health and safety information about equipment provided for cleaning or maintaining the structure;

**(g)** the nature, location and

markings of significant services, including underground cables, gas supply equipment, fire-fighting services etc;

**(h)** information and as-built drawings of the building, its plant and equipment (eg the means of safe access to and from service voids and fire doors).



### Activity

Provide a minimum of three H&S documents that you have produced in your role as a 'Designer'. List them below and attach the documents separately.

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## 4.7 Timber frame design

The CDM2015 regulations have introduced a new responsibility for the designer regarding the Health and Safety of their design. The learner must therefore be aware of the practical site risks involved in manufacturing and constructing the designed building, instead of leaving these decisions for the contractor.

This can involve solutions such as designing in lifting points for wall panels and cassette floors, where craneage will be required on site. Importantly, the CDM2015 regulations highlight the need for a designer to understand construction site practices and minimise the risks through design.

For effective management of risk in timber frame design it is important to consider and minimise potential risks from the start. The CDM regulations have been developed over the years to help designers build in health and safety from concept the stage onwards. The requirement is then to ensure that the structure can be safely maintained and cleaned throughout its lifetime, which can be quite a different thing.

One of the most significant Health and Safety risks during timber frame design is fire during the construction stage when the timber elements are exposed. For this reason, it is recommended that all timber frame projects should be registered on the National

**See the STA's  
'Site safe' series  
of documents for  
further information:  
[http://www.  
structuraltimber.  
co.uk/library](http://www.structuraltimber.co.uk/library)**

Fire Chiefs Council web site to demonstrate that communication aspects of the CDM have been applied. In addition the STA recommends that the following 16 key points are adhered to during the timber frame design stage:

- Compliance with (Construction Design and Management) regulations
- The Fire Safety Coordinator
- The Site Fire Safety Plan
- Checks, inspections and tests throughout construction
- Communication and liaison
- Promoting a 'fire safe' working environment
- Fire detection and warning
- Protecting emergency escape routes: the 35 metre rule
- Building in fire protection along the way
- Site security against arson
- Protecting temporary buildings and accommodation
- Designing out hot works
- Keeping a tidy site
- Dealing with plant and equipment
- A 'no smoking' site

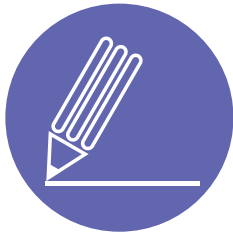
We will introduce one of these (fire safety plan), and you are encouraged to review the additional suggested resources for more specific information. The Site Fire Safety plan is one of the keystones of the process, because it includes an extensive strategy for mitigating fire risks on the specific project. The plan typically includes a general description of the works, responsibilities, procedures, emergency actions and evacuation among others. Because of changing circumstances, it is important that the Site Fire Safety Plan is updated regularly throughout the project life-cycle.

Another typical health and safety timber frame design consideration

(in addition to fire), is access for future routine maintenance. While the original build will be done from a scaffold, it may not be a practical solution to erect one in the operational phase. This could be for example because the shape or size of the structure may not lend itself to this means of access. With a range of timber-framed buildings from single storey domestic through to multi- storey commercial, there will also be a range of solutions to this access issue. In contrast, if you wanted to ensure that a timber-frame panels can be safely handled manually by 2 people, you should simply ensure that each panel weighs no more than 50kg.

More information on how to evaluate and manage different types of risks is provided in the next section.

**You may find additional information on the Fire Protection Association website with a search for 'Fire prevention on construction sites: the joint code of practice'**



### Activity

Which key elements should the Health and Safety File contain?

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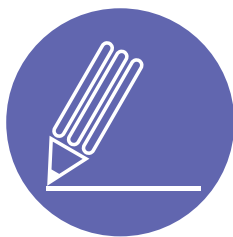
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### Activity

List some of the main health and safety timber frame design considerations.

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# 5. Risk Assessment and Control

Seeking out and identifying hazards that could cause potential harm or injury is an essential first step in controlling risk. Furthermore, employers and their employees who know their business should also know the risks involved with its activities and should manage these risks like any other part of the business. Risk assessment techniques are therefore an integral part of everyone's job.

## 5.1 What is risk

In general, a risk is any activity which puts the well-being and health of a person in danger. To describe a risk three terms are most commonly used, listed in the table below.

Hazard	Something with the potential to cause harm.
Risk	The likelihood of the harmful event occurring.
Extent of Risk	The number of people who may be affected and any other consequences.

## 5.2 Purpose of a risk assessment

**A Risk Assessment is necessary in order to:**

- identify the significant risks
- identify how best to eliminate or reduce the effects from them.

## 5.3 Likelihood

The likelihood rating is the second crucial component to describing hazards. The likelihood shows how plausible the occurrence of the activity is. For example, to use the saw risk case discussed above, the likelihood of someone cutting their finger on the saw might be medium, however the likelihood of someone getting hit by a piece of wood as a further consequence might be low, depending on the layout of the timber frame manufacturing area.

An example three-point severity scale is shown below. The learner is advised to consult a colleague regarding the severity ratings used in their company and definitions for each rating.

Likelihood rating	Definition
High (3)	When it is certain or near certain that harm will occur
Medium (2)	Where harm will often occur
Low (1)	Where harm will seldom occur

## 5.4 Severity

The severity of the hazard identifies the level of impact, which the particular hazard will have on the person executing the task or the surrounding people. For example, when using a saw the operator might cut their finger, which is a serious injury and in the process a piece of wood might hit a person, which could cause a slight injury e.g. a bruise. These two risks should be rated for severity separately although they originate from one activity.

An example three-point severity scale is shown below. The learner is advised to consult a colleague regarding the severity ratings used in their company.

Severity rating	Definition
Major (3)	Death or major injury or illness with long term disability
Serious (2)	Injuries or illness causing short-term disability and/or absence
Slight (1)	All other injuries or illness

## 5.5 Risk rating

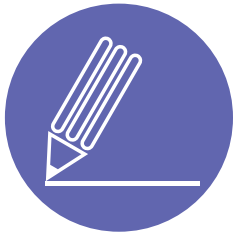
Having Identified the hazards & the risks you must now give an estimate of the likelihood of an accident happening and also to the severity of the accident.

Conventionally an overall score is calculated for the priority of each risk using a multiplication of the risk's severity and likelihood. An example 3x3 matrix is shown in the table below. As a guideline, those risks with the highest overall risk score shown in red (6-9) should be dealt with first in your risk assessment. Those with medium overall score are the values highlighted in yellow (3-4) and those with lowest overall score are shown in green (1-2). A general rule to remember is that the lower the number, the lower the risk. The learner must note that this does **not** mean that lower scoring risks should be handled less seriously than high-priority risks, **all risks are of equivalent importance.**

### Risk = Likelihood x Severity

Severity	1	2	3
Likelihood			
1	1	2	3
2	2	4	6
3	3	6	9

For further information on risk mitigation and control we recommend you read the HSE publication 'The health and safety toolbox' <http://www.hse.gov.uk/pubns/priced/hsg268.pdf>



## Activity

Provide examples of hazards with different likelihood and severity ratings and calculate their risk rating.

### 5.6 Hierarchy of risk control

After the risk ratings have been calculated, the risk assessment creator should make decisions on how to control the risks. In general a hierarchy of risk elimination, reduction or control should be used when dealing with each risks. The control measures should target to reduce both the likelihood and the severity of the risk, however on some occasions only one factor may be realistically reduced. A risk with an overall score of 9 might need to be stopped all together in order to eliminate the risk.

The list below shows a typical hierarchy of risk control, however the learner is advised to consult their company for the exact terminology used in their risk assessments.

- Elimination
- Substitution
- Physical Controls
- Administrative controls
- Information, instruction, training

& supervision

- Personal Protective Equipment.

### 5.7 Risk assessment process

Carrying out a Risk Assessment is not complicated, but it is an essential part of making the workplace safe for us all. The method is based on the following 5 step process as recommended by the HSE to assess risks:

#### 5 Steps to Risk Assessment

**Step 1:** Look for the Hazard

**Step 2:** Decide who might be harmed

**Step 3:** Evaluate the risk and decide whether existing precautions are adequate or does more need to be done

**Step 4:** Record your findings

**Step 5:** Review your Assessment and revise if necessary.





## Activity

Fill the table with examples of typical risks in timber frame design .

N	Identified risk	Rating	Mitigation/control method	Person responsible
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

	Severity	1 - Slight (All other injuries or illness)	2 - Serious (Injuries or illness causing short-term disability and/or absence)	3 - Major (Death or major injury or illness with long term disability)
Likelihood				
1 - Low (Where harm will seldom occur)	1		2	3
2 - Medium (Where harm will often occur)	2		4	6
3 - High (Where harm will seldom occur)	3		6	9

## 5.8 Carrying out risk assessments

Recording a risk assessment helps to make sure any important hazards aren't overlooked by others. It also helps to avoid any unnecessary repetition in the assessment process or review. A risk assessment also serves as a reminder of the prioritised hazards, standards to be maintained and what action has been or still needs to be taken both in the factory and on site.

A risk assessment should be carried out for every design project that you are associated with. Whenever there is significant change within that project, the risk assessment process should be completed again to ensure the risks and their control are up-to-date. For example, when a building layout changes you may need to re-evaluate loadings. During the design process, risk assessments should be reviewed whenever there's a change in circumstances in the project where a completely new risk assessment is not necessary.

A final review should be undertaken in accordance with your design office procedures, before release for construction. The review should include lessons learnt and preventative measures suggested for future events.

An enforcement officer from the Health & Safety Executive may ask to see evidence of a design risk assessment when they inspect a site that you are associated with. A clear and well-recorded risk assessment helps to show that you've done what the law requires.

The emphasis while going through the risks should be on practical steps which will create a safer working and living environment. Some suggestions on the main

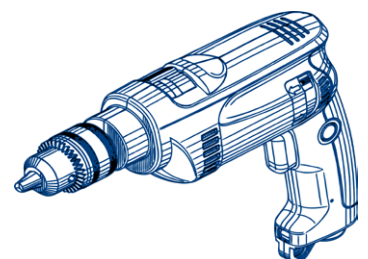
types of risks to think about are:

- Fire safety
- Working at height
- Vibration
- Noise
- Machinery, plant and equipment
- Manual handling
- Personal protective equipment (PPE)
- Electrical and gas safety
- Harmful substances
- Working in confined spaces
- Workplace transport

We previously discussed fire safety and RIDDOR, and in this section we will take a closer look at minimising vibration risk for the timber frame installers as an example. A significant consideration across the construction industry is Hand-Arm Vibration Syndrome (HAVS), also known as 'white finger.' HAVS is due to irreversible damage to nerves and its symptoms include painful sensations such as tingling and numbness, and discolouration of the skin in cold and wet weather. HAVS is caused by exposure to vibration at work for prolonged periods of time, such as when using hand-held power and guided tools. It is generally agreed that the risk of HAVS increases as a result of vibration exposure regularity and length in years. BS EN ISO 5349-1:2001 can provide you with more information on the correlation between occupational exposure to vibration and HAVS.

Typical examples include power (or impact) drills, plate compactors and in the case of timber frame design and construction, use of hand-held drills and saws. In general, construction is the industry with the highest rate of HAVS cases. According to a report investigating HAVS across the UK, carpenters (or joiners) were the occupation with the second-highest risk of experiencing HAVS symptoms. This type of risk and its control is governed by the Control

**At the end of the project, as a Designer you are legally required to record the significant findings of your Risk Assessment in the form of a Review.**



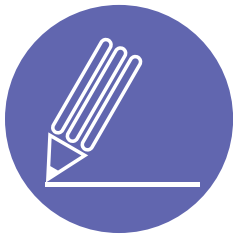
of Vibration at Work Regulations 2005, which determined that:

- Exposure action value of 2.5 m/s<sup>2</sup> A(8) at which level employers should introduce technical and organisational measures to reduce exposure.
- Exposure limit value of 5.0 m/s<sup>2</sup> A(8) which should not be exceeded.

It is useful therefore to consider the impact of the specified timber frame connectors on the workers assembling and construction the timber frame. Many connectors located at small intervals (very close to each other) or connectors specified at an angle in a tight location, can lead to increase of HAVS risk. Special attention should be given to the sole plate detail and if more complex connectors are used in engineered timber products. How this consideration could be included as part of the risk assessment is shown in the example table below.

When working as a timber frame designer, you should also consider the risks to which you and your colleagues could be exposed in your typical place of work. Some main risks associated with working in the office include exposure to screens and sitting down for prolonged periods of time, as well as slips and trips. Typical methods to mitigate and control these risks are increased training and education on topics such as configuring your work station ergonomically (seat height, monitor height, keyboard and mouse reach, etc.), observing floor cleaning methods strictly and eliminating hazards of the like of trailing cables.

What are the hazards?	Who might be harmed and how?	What are you already doing?	Do you need to do anything else to control this risk?	Action by who?	Action by when?	Completed date
Exposure to vibration during timber-frame manufacturing and construction	Carpenters, joiners, and erectors may experience HAVS symptoms if exposed to vibration for prolonged time	Adhering to legal regulations	Review the connectors specification for project X and see if they can be optimised to reduce the time spent drilling overall and the density of connectors. Look very closely at the sole plate details.	John Smith (timber frame designer) liaising with the timber frame engineer as necessary	xx/xx/xx	xx/xx/xx

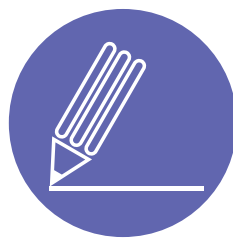


### Activity

Review the working environment shown below and identify the main risk shown. Hint: look at the seating arrangement.



**A good way to be introduced to the risks of working in an office is the HSE 'Office risk assessment tool' <http://www.hse.gov.uk/risk/office.htm>**



### Activity

Review an example risk assessment from your company and complete a similar one for a project you are working on or have worked on. Make some key point notes below.

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# 6. Final Review

## Congratulations!

On behalf of the STA and CITB we hope you have enjoyed this workbook on Health and Safety for Timber Frame Design.

As a reminder we have included below a simple checklist for you in this final review. When arriving on site you should now know what key points to consider before you start work.

### **Below is a summary of the main points discussed in this workbook:**

- The 1974 Health & Safety at Work Act was introduced to protect all people at work. Everyone working in the Timber Frame Industry has an important part to play as well as legal responsibilities in keeping the workplace safe for themselves and others.
- The employer takes responsibility for providing employees with a safe working environment and relies upon employees to work and act in a safe manner. Employees are legally responsible for their actions if they diversely affect the safety of themselves or others.
- The learner should be aware of the general hazards at their workplace.
- In the case of fire, the employee must be aware of the fire alarm location, fire extinguisher locations, evacuation route and safe gathering point in the building. The staff should not attempt to extinguish a fire if this will put them in danger.
- The learner should be aware of on site health and safety rules when they go to visit a site.
- The learner should reduce the health and safety hazards in their place of work by taking breaks from screen-time and using seats with suitable back support.
- The learner should be familiar with the key requirements of the CDM regulations
- All accidents and 'near misses' at work must be reported. The definition of an accident is any unplanned event leading to injury or damage. A 'near miss' is anything that had the potential to cause an accident.
- Best practice of risk prevention should be recorded, for example via risk assessments (with risk control measures), method statements and training manuals, which include operating procedures
- Accidents should be reported, investigated and reviewed using structured processes.
- Unfortunately accidents do happen and all too frequently. When they do you need to act quickly and effectively. An emergency, such as an accident or sudden illness can occur at any time. Prompt and effective first aid is essential to help the injured and limit further injury or damage.
- PPE such as hard hats must always be worn when required.
- According to the CDM 2015 regulations all designers and the principal designer are

responsible for the health and safety of their designs. This is materialised through a Construction Phase Plan and a Health and Safety File, updated at the start of the project, during design and at the end of the project passed on to the building owner.

- Risk assessments are critical elements of any Health and Safety Management Strategy. Risks are generally measured by multiplying the likelihood and severity of a hazard on a 3x3-point matrix and implementing risk elimination, reduction or control measures for each hazard.

been assessed on this Health and Safety Workbook in combination with the Knowledge and Practical Skills Workbooks, you will have reached the highest level of qualification available for timber frame design in the UK and a level which the industry wishes all timber frame designers will achieve over the next few years.

For most of us our home is our largest expense and we expect it to be built to the highest standards by well-trained and suitably qualified people. By using these Workbooks, we as an industry, can now provide you with the opportunity to achieve this goal. Also by having a qualified workforce we can compete with the rest in quality & workmanship.

Thank you for taking part in this training experience and we hope you will enjoy a successful and satisfying career in our timber frame industry. These workbooks have been prepared by the Structural Timber Association, in conjunction with CITB, on behalf of the industry.

STA and CITB operates a continuous improvement policy and would therefore be very grateful to receive any review comments for further editions.

**Thank you.**

Most importantly, once you have





This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

# Candidate and supervisor's final sign off

On completion of this workbook the named candidate and authorised supervisor are required to complete this final sign off declaration to confirm that:

- All aspects of the workbook have been successfully completed by the named candidate in accordance with the workbook and scheme requirements
- The named candidate has met the minimum experience requirements (1 year) in accordance with scheme requirements
- The named candidate is ready to register and undertake the online test.

<b>CANDIDATE NAME</b>	
<b>COMPANY</b>	
<b>TEL No.</b>	
<b>EMAIL</b>	

## Candidate declaration

I can confirm that I have successfully completed this workbook in accordance with workbook and scheme requirements, have met the scheme minimum experience requirement of 1 year and am ready to register and undertake the online test.

**CANDIDATE NAME** \_\_\_\_\_  
**CANDIDATE SIGNATURE** \_\_\_\_\_  
**DATE OF DECLARATION** \_\_\_\_\_

<b>SUPERVISOR NAME</b>	
<b>JOB TITLE</b>	
<b>COMPANY</b>	
<b>TEL No.</b>	
<b>EMAIL</b>	

## Authorised supervisor declaration

I can confirm that the named candidate has successfully completed this workbook in accordance with workbook and scheme requirements, has met the scheme minimum experience requirement of 1 year and is ready to register and undertake the online test.

**SUPERVISOR NAME** \_\_\_\_\_  
**SUPERVISOR SIGNATURE** \_\_\_\_\_  
**DATE OF DECLARATION** \_\_\_\_\_

NOTE: This workbook must be retained and presented for STA audit purposes upon request.

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Whilst the STA/CITB have had these workbooks prepared to provide guidance on timber frame construction, the STA/CITB accepts no liability and offers no warranties in relation to them and their contents to the fullest extent applicable law can exclude such liability. Users therefore are required to satisfy themselves as to the suitability of the contents of this guidance for their specific intended purpose.

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**Structural Timber Association/  
CITB 2017.**

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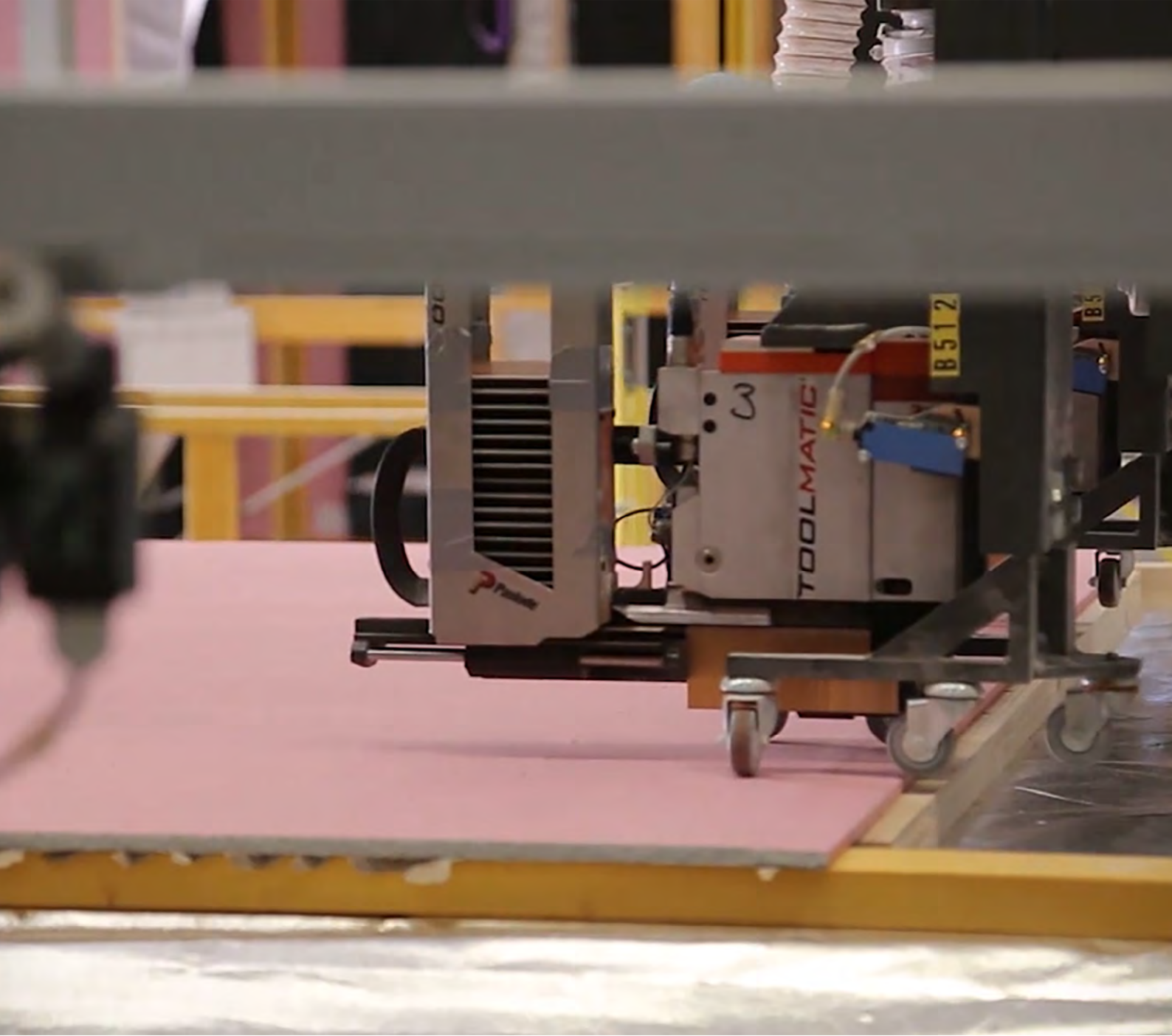
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## TIMBER FRAME WORKBOOKS



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