



University of  
St Andrews

# General Risk Assessment Guidance

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# Guidance on Undertaking a Risk Assessment

## Introduction

The aim of a risk assessment is to allow work to be undertaken but done as safely as is reasonably practicable. Risk assessments should be used as a proactive measure to plan proposed work activities and to put in place control measures to eliminate risks associated with this activity.

## Legislation

The Health and Safety at Work Act 1974 states that:

For Employers:

- (a) the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health;
- (b) arrangements for ensuring, so far as is reasonably practicable, safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances;
- (c) the provision of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees;
- (d) so far as is reasonably practicable as regards any place of work under the employer's control, the maintenance of it in a condition that is safe and without risks to health and the provision and maintenance of means of access to and egress from it that are safe and without such risks;
- (e) the provision and maintenance of a working environment for his employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work.

For Employees:

- to take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions at work; and

The Management of Health and Safety at Work Regulations 1999 state that:

- 3.—(1) Every employer shall make a suitable and sufficient assessment of—
- (a) the risks to the health and safety of his employees to which they are exposed whilst they are at work; and
  - (b) the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking,
- for the purpose of identifying the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions

There is specific legislation which requires specialised risk assessments eg Control of Substances Hazardous to Health Regulations 2002, Genetically Modified Organisms (Contained Use) Regulations 2014, Manual Handling Operations Regulations 1992 as modified, Health and Safety (Display Screen Equipment) Regulations 1992 as modified as well as many other pieces of legislation.

Where there is specific legislation, you have to comply with the requirements of that legislation. Where there is no specific legislation (eg fieldwork), then you have to

comply with Regulation 3 of the Management of Health and Safety at Work Regulations 1999 general requirement to undertake a risk assessment.

## Risk Assessment Process

Training undertaking a [risk assessment](#) and also in specific risk activities can be found in the [Essential Skillz Website](#) as well as can be found in the EHSS [University Moodle site](#).

The definition of two words have to be clearly defined for a risk assessment process:

- **Hazard** - A hazard is the potential for causing an injury - eg. Thus the hazard of water is drowning
- **Risk** - This is the chance that a hazard will actually cause harm - Thus the risk of drowning with a glass of water is minimal while being dropped in the middle of the Atlantic Ocean has a high risk of drowning.

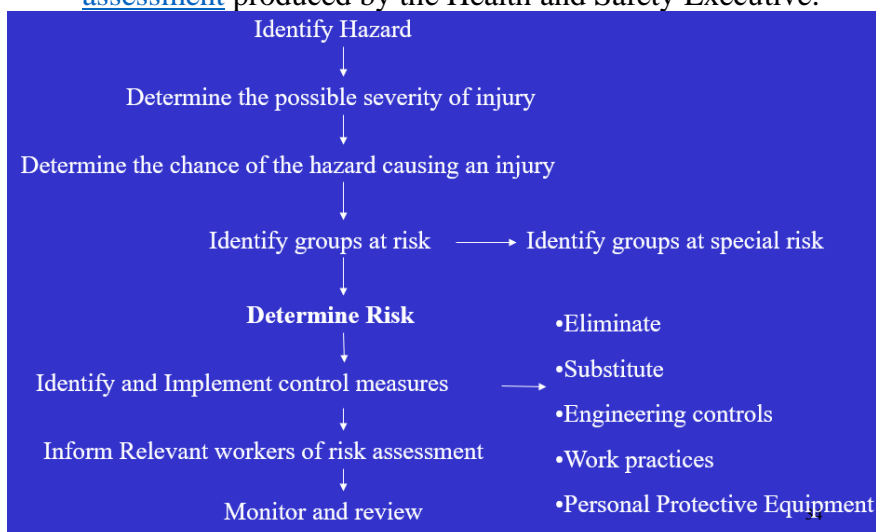
It is vital that those undertaking a work activity understand where the hazards are in a particular operation, who may be at risk and what the probability the hazard will cause harm (ie the risk). If you do not know where these risks are in an operation, you should always ask prior to starting the work activity.

To ensure the safety of workers, students and visitors, it is vital that risk assessments identify what the risks of an activity are, who may be at risk and the control measures to be implemented need to be undertaken.

Before any activity is undertaken, it is vital that the activity is completely thought through such that all relevant risks are identified.

It is vital that the risk assessment is undertaken by a person who has detailed knowledge of the activity being assessed.

The process for undertaking a risk assessment is based around the [five steps for risk assessment](#) produced by the Health and Safety Executive:



An important step of any risk assessment is to detail the activity being assessed. It is from this that risks can be identified and then an appropriate assessment be done. It is also the step whereby a risk assessment can be put in context to the work activity.

The HSE state that a risk assessment should include details on the following:

Identify hazards - A hazard is something which has the potential to cause harm to human health and/or the environment and/or damage to property. Examples of hazards are given below.

Types of hazards to look for would be:

- Slips, Trips and Falls - one of the most common incidents at the University and often dismissed as trivial. It is vital that an assessment of what the work activity will have on the slipperiness of surfaces, the ability to trip workers, students or visitors causing them to fall and injure themselves.
- Fire - Although fires are rare, when they do happen they can be catastrophic either to life or to the structure of buildings. Fires need a source of fuel, an ignition source and a supply of oxygen. Any fire risk must take into account the nature of fuel (eg highly flammable solvents), how near an ignition source (eg a Bunsen burner)
- Manual Handling operations - Again an issue which is often underestimated due to the fact that it is rare to have an acute injury due to manual handling but most such injuries are accumulative . Also, manual handling is not just about the weight of the object, but also about the activity you are doing, the environment you are in, the abilities of the worker. Detailed guidance on doing manual handling assessments can be found [HERE](#)
- Electrical risks - this would include the potential for electric shock but also the potential as an ignition source for a fire
- Chemical and biological risks - you should see the guidances for [Chemical Risks](#) and also for [Biological Risks including work with genetically modified organisms](#)
- Radiation - The hazards to human health from radioactive materials can be found [HERE](#)
- Use of lasers and laser pointers - High powered lasers have the potential to cause severe eye injuries and also have the potential to be an ignition source for a fire. Details of how such hazards can be controlled can be found [HERE](#)
- Fieldwork - working in remote areas, potential to fall, potential for being attacked, potential for being injured with no access to emergency services.
- Lone work - potential for injury when working alone.
- Crowd control issues at University events - For events, there is a potential for uncontrolled crowd movements to put people at risk
- Collapse of temporary structures
- Use of machinery:
  - Projectiles from equipment
  - Entanglement in equipment
  - Injuries due to contact with equipment eg powered saws

These are just some examples of the hazards associated with the work activities at the University. It is expected that those undertaking a specific activity will understand where the hazards of the operation are:

Look around your workplace and think about what may cause harm (these are called hazards). Think about:

- how people work and how plant and equipment are used
- what chemicals and substances are used
- what safe or unsafe work practices exist
- the general state of your premises

Look back at your accident and ill health records as these can help you identify less obvious hazards. Take account of non-routine operations, such as maintenance, cleaning or changes in production cycles.

Think about all the hazards associated with a work activity, eg hazards to health, such as manual handling, use of chemicals and causes of work-related stress.

For each hazard, think about how employees, contractors, visitors or members of the public might be harmed.

*Talk to workers - Involve your employees as they will usually have good ideas*

**Identify who is at risk** - You should identify all those who may be at risk. This will include:

- Those undertaking the activity
- Those who may be immediately affected by the work activity eg researchers working close by
- Vulnerable workers - Some workers have particular requirements, for example young workers, migrant workers, new or expectant mothers and people with disabilities.
- Other workers eg maintenance staff, cleaners etc. Be aware that you may not see such workers (eg cleaners who come in early in the morning), thus you have to be aware who may be entering the work activity area (eg plumbers to unblock sinks in a laboratory).

Always think through the process and also any support activities around the work so that you can identify who may be coming into this area. You then need to think of what controls need to be in place to protect all the workers not just the person doing the work activity.

### **Determination of Risk**

Risk is the probability of a hazard causing harm and what the severity of the hazard will be associated with the work activity.

This is done through a Qualitative judgement (eg high medium and low) rather than a very accurate quantitative measure. This will require the specialist knowledge of the person undertaking the activity who will know better than anybody else what the probability of the Hazard causing harm and what the severity of that harm would be.

As an example

- Probability of Hazard Causing Harm
  - **High Probability** - This is where there is
    - evidence from accident reports to show there is a high probability of accidents occurring.
  - It can also include work activities where there have been no accidents but there is an understanding that there would be a high potential for the hazard to cause harm
    - eg heating highly flammable solvents.
    - You should also be aware of the potential risk which may not be obvious
      - eg lone work doing social surveys with individuals who may be aggressive

- OR lone work fieldwork where there is the potential to get lost in areas where there may be sudden weather changes
- **Medium Probability** - This is where there chances of a hazard causing harm could happen during this work activity but there is no evidence from accident data that it regularly does or that the processes have a chance of a hazard causing harm but it is believed there are adequate measures to stop this happening.
- **Low Probability** - This is where there is little accident data to show that a hazard will cause harm in this work activity and from experience there is little chance of the work activity will cause harm.

The risk of an activity will also depend on potential severity of any injuries caused by the hazards in the work activity. This has to be a realist judgement (everything could be fatal given specific circumstances but in 99.9% of cases it isnt).

- **High severity** - Potential for a fatality (eg working on a boat in the ocean) or serious injury (eg broken bones, severe electrical shock requiring hospital treatment, working a severe human pathogen ), or may cause a disease which becomes severely debilitating or is reportable to the HSE (eg Carpel Tunnel Syndrome);
- **Medium Severity** - An injury which would cause a significant injury but would not require a person being off work for more than 7 days eg a muscle pull etc
- **Low Severity** - An injury which would not require any time off work.

Once the probability and the severity of a particular work activity are determined, these need to be used to identify the potential risk of a particular work activity. This can be done through a matrix for example:

|          |                         | Probability             |                            |                          |
|----------|-------------------------|-------------------------|----------------------------|--------------------------|
|          |                         | 1<br>Low<br>Probability | 3<br>Medium<br>Probability | 5<br>High<br>Probability |
| Severity | 1<br>Low<br>severity    | 1                       | 3                          | 5                        |
|          | 3<br>Medium<br>Severity | 3                       | 9                          | 15                       |
|          | 5<br>High<br>Severity   | 5                       | 15                         | 25                       |

It is possible to expand this a 5 x 5 matrix etc depending on what information is available. This matrix will identify the high risk activities from the low risk activities.

The guidance for this policy is contained in the Moodle online course available at:  
A template for a risk assessment form is given in Appendix 1

## Control Measures

The main aim of a risk assessment is to identify the risks such that appropriate control measures are in place to eliminate or minimise the risk to workers, students or members of the public. All such control measures should be proportionate to the risk involved. This will involve some judgement. The Director of EHSS or staff from EHSS are delighted to help out where there are issues relating to this.

It is vital to always be thinking about the risks of an operation and not believe that because it has always done in a particular way that this is the only way it can be done. As technology improves there is always a potential for something to be done in a safer manner.

The control measures being implemented should be prioritised. It is vital that the first control measure is to eliminate the risk:

- ***Eliminate the risk*** - All those undertaking a risk assessment should consider if there are alternative methodologies which do not require the risk concerned. It is vital that this should always be the first thought.

It may not be possible to eliminate all the risks of a particular operation but specific parts of the operation can be eliminated. For example, thinking about manual handling operations could be eliminated with mechanical devices (though remember mechanical devices may introduce other types of risks). If you cannot eliminate a particular operation, then can you substitute it with something less hazardous?

- ***Substitute*** - This is where you should considering substituting something for less of a risk. For example, substituting a carcinogenic chemical with something far less hazardous. Again just because something has been done in one way does not mean there are not safer ways of doing the operation.
- ***Engineering Controls*** - These are controls which provide an engineered system which will potentially control the risk eg
  - Mechanical Guarding which is locked into place
  - Interlocked guarding which will stop equipment when a door is opened
  - Magnetic interlocked doors - which will release a fire door into a closed position when the fire alarm activates
  - Fume cupboards and other local exhaust ventilation which will remove hazardous fumes from a work area
  - Microbiological Safety Cabinets which will remove pathogens from a breathing area

There are many different types of engineered control which can be used. It is vital to understand where the hazards are, what the risks are, what activities are being undertaken and thus what type of control is needed.

- ***Procedural Controls*** - It is always vital that good practice is followed in all situations. The risk assessment document must have all the necessary processes which are needed to undertake the activity as safely as is reasonably practicable.

Procedural controls will include things like Permit to Work, Safe Systems of Work, Method Statements. These are all documents which specify the procedures and

processes which need to be complied with by all workers. The detail in such documents will be proportionate to the risks.

Procedural controls will also include any Codes of Practice (eg for working in laboratories, workshops etc), it will include detailed requirements for specific work eg Fieldwork, Lone Working etc.

Procedural controls are very dependent on workers complying with these. As a consequence it is vital that the School/Unit does regular audits/inspections to show compliance with these rules.

- ***Personal Protective Equipment (PPE)*** - The previous control measures (Elimination, Substitution, Engineered Controls, Procedural Controls) will protect not only the worker but also those surrounding the worker ie providing group protection. Personal Protective Equipment only provides protection to the individual wearing it. Thus PPE as the first line of protection should always be a last resort when none of the other means are effective. Detailed guidance on the [Selection, Use and Maintenance of PPE](#) can be found in the EHSS Website.

The secondary use of PPE as a supplement to other means of controls eg wearing eye protection, disposable nitrile gloves etc can be done but this has to be noted in the risk assessment.

## **Updating Risk Assessments, Inspections and Audits**

Risk assessments are only as good as the people using them and complying with them.

All risk assessments must be made available to all relevant workers who may need to know the control measures identified in the risk assessment. A risk assessment locked in a filing cabinet is of no use. All risk assessments therefore must be signed by all relevant workers.

Where there is a significant change to a work activity (eg change in procedure, new equipment etc), then a new or modified risk assessment must be produced. All such risk assessments have to be resigned by all the workers, the supervisor and if necessary, the School/Unit.

All relevant risk assessments should be reviewed whenever there is an inspection of a workplace. The risk assessment should be reviewed to determine if the risk assessment covers the work activity being undertaken on the day of the inspection.

The School/Unit should review/audit a proportion of the risk assessments from their School/Unit on a regular basis. This audit should cover the quality of the risk assessment, the relevance to work being carried out, ensuring that all workers have been notified. Where there are issues, the Head of the School/Unit should require the supervisor to enact remedial actions.

The Director of EHSS will ensure there is a suitable level of inspections by EHSS staff who will ask to see and review risk assessments at the time of the inspection.

The Director of EHSS will ensure that there are University health and safety audit programme which will review the management of health and safety within a



School/Unit. This process will review the work activities being undertaken within a School/Unit, the risk assessments undertaken, the quality of the risk assessments, whether the risk assessments are suitable and sufficient and how these are being implemented within a School/Unit.

External audits by enforcement authorities and by external auditors employed by the University will be periodically be undertaken as well.

All inspections and audits should include an Action Plan (see Appendix 2 for a blank Action Plan Template) which identifies:

- The failings or substandard procedures
- The remedial actions needed to eliminate the failings
- Who is responsible for implementing the actions
- When the remedial actions need to be completed by
- The date when the remedial actions are completed

Such inspection reports should be regularly updated and kept on a One Drive site so that the Director of EHSS and senior managers at the University can follow the progress of remedial actions.

### **Training for Undertaking a Risk Assessment**

Training for those wishing to undertake a risk assessment can be found on the [Essential Skillz Risk Assessment](#) site or the [University Moodle Site](#)

### **Specific Specialised Risk Assessments**

Many specialised activities may require very specialised risk assessments as required by legislation eg COSHH, Genetically Modified Organisms (Contained Use) Regulations, High risk manual handling operations, Display Screen equipment etc. Specialised forms and procedures are often needed Guidance on completing these types of risk assessments can be found on the [EHSS Training Website](#). This website also has specialised forms for such work.

The University has specialised computer programmes for specific risk assessments:

- [CHARM programme](#) - For undertaking COSHH risk assessments and Non-Genetically Modified pathogen risk assessments
- [RadProt](#) - Programme for doing risk assessments for work with radioactive materials, X-Ray equipment and Lasers
- Essential Skillz for doing [DSE Risk Assessments](#)

These programmes should be used for undertaking any such risk assessment. This is so that the University can audit and review the completion of such risk assessments for its audit programme.

# Appendix 1



**Risk Assessment reference number:**  
(School/Unit followed by your own number)

## Risk Assessment Form For: [School/Unit]

See Moodle site for guidance on the completion of this form: <https://moody.st-andrews.ac.uk/moodle/course/view.php?id=3582#section-3>  
Details of the activity to be assessed (e.g. a brief description of the work to be undertaken and how it will be achieved – where, when, how)

People who are at risk of injury (e.g. workers, students, members of the public, pregnant women, lone workers, children)

**Assess and reduce the risks. A risk matrix (see the Moodle site, above) may be used to estimate the severity and probability of risk if you wish.**

| Hazards associated with the activity (e.g. heat, ice, violence, fall from height, harmful chemicals, noise, cuts, burns) | Severity of risk (High, Medium or Low) | Probability of risk occurring (High, Medium or Low) | Control Measures to be implemented to minimise risks |
|--|--|---|--|
|  |  |   |  |
|  |  |   |  |

| Hazards associated with the activity (e.g. heat, ice, violence, fall from height, harmful chemicals, noise, cuts, burns) | Severity of risk (High, Medium or Low) | Probability of risk occurring (High, Medium or Low) | Control Measures to be implemented to minimise risks |
|--|--|---|--|
|  |  |   |  |
|  |  |   |  |

**Signatures of Principal Investigator / Manager and all relevant staff members:**

**Post .....Name ..... Signature ..... Date .....**

**Post .....Name ..... Signature ..... Date .....**

**Proposed review date for this risk assessment: .....**

## Appendix 2 - Inspection/Audit Action Plan

| Unique identification mark for remedial action | Failing | Remedial Action | Who is responsible for implementing remedial action | Timescale for remedial action to be completed | Date when remedial action completed |
|--|---------|-----------------|---|---|-------------------------------------|
|  |         |                 |   |   |                                     |
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