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# HOW TO CARRY OUT A RISK ASSESSMENT

## Definitions

**Hazard:** something with the potential to cause harm

**Risk:** the likelihood of that harm being realised. The extent of the harm depends on the severity of any injury and the number of people involved

### 1. Risk Assessment

Why do we carry out a risk assessment?

* To identify risks to H&S of people affected
* To determine how the risks arise and impact on those affected
* To aid decisions on how to manage the risk
* To ensure that action taken is proportionate to the risk

Risk Assessment involves identifying hazards present in any working environment, or arising out of activities, and evaluating the extent of risks, taking account of existing precautions and their effectiveness.

The purpose of Risk Assessment is to determine what the employer needs to do to comply with H&S legislation.

### Suitable and Sufficient Risk Assessment

The law states that a risk assessment must be ‘suitable and sufficient’, i.e. it should show that:

* A proper check was made
* You asked who might be affected
* You dealt with all the obvious significant risks, considering the number of people who could be involved
* The precautions are reasonable, and the remaining risk is low
* You involved your workers or their representatives in the process

The level of detail in a risk assessment should be proportionate to the risk and appropriate to the nature of the work. Insignificant risks can usually be ignored, as can risks arising from routine activities associated with life in general, unless the work activity compounds or significantly alters those risks.

Your risk assessment should only include what you could reasonably be expected to know – you are not expected to anticipate unforeseeable risks.

### Risk Assessment in Practice

There are no fixed rules for carrying out Risk Assessments, although the guidelines given by the HSE does steer the practice into similar lines.

However, the means of recording the results are many and varied, often designed to meet the needs of a particular company or industry. Often standard module based assessments are supplied by trade associations which are adopted and adapted by a company. This is acceptable provided it meets the need and is appropriate for the activities.

The Risk Assessment should:

* Ensure that significant risks are addressed. Only foreseeable risks need be included
* Ensure that all aspects of the work activities are covered, including regular and occasional work
* Ensure that the maintenance and the cleaning operations of machinery is included, and that emergency operations are covered, for example, breakdowns, when the emphasis is on getting the production line working as fast as possible
* Take account of the way that the work is organised
* Take account of the risks to the public
* Take account of what actually happens, not what management thinks happens, or what the rules say happens

To be effective the Risk Assessment needs to be based on activities or tasks. This will ensure that eventually all of the activities have been assessed. The alternative is to do a location-based assessment which will fail to identify many risks, although often a combination of the two is required.

The danger of a location-based assessment is that it can turn into a simple hazard-spotting exercise, picking up physical hazards but failing to pick up activity-based hazards.

The HSE **5 Steps to Risk Assessment** gives the structure to the way to carry out an assessment.

### Step 1: Look for the hazards

This needs knowledge of the work from your own experience in the industry, the people who actually do the work, and other sources such as legislation, HSE Guidance, Trade Press, Internet, Accident history, etc.

### Step 2: Consider who is at Risk

This could be employees, customers, visitors on the premises, contractors, the general public and neighbours. Remember to include people who have special needs such as disabilities.

How many people are at risk?

**Step 3: Is the Risk controlled?**

Consider your existing control measures:

* Are they adequate?
* Do they meet the requirements of the legislation?
* Do they need further action?

Look at what actually happens, not what you think happens, or what the rules say happens.

### Step 4: Record the results

So that you can; prove you have carried out the assessment; pass the information to your employees; provide the information to others who may need it.

### Step 5: Review the Assessment

After an accident, when things have changed, after a suitable time period usually a year.

#### Recording the Assessment

The record should show the significant findings of the assessment and should lead management to take action to correct the situation.

The significant findings of the assessment that need to be recorded are:

* The control measures that are in place
* Further action that is needed
* Proof that a suitable and sufficient assessment has been made

A good system for most situations is a based on 7 for the Likelihood and Severity.

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| --- | --- |
| **Risk Rating** | **Likelihood of Occurrence of harm** |
| **7** | Almost certain |
| **6** | Very likely |
| **5** | Probable |
| **4** | Possible |
| **3** | Plausible |
| **2** | Unlikely |
| **1** | Effectively impossible |
| **Risk Rating** | **Severity of Injury** |
| **7** | Fatality |
| **6** | Permanent harm |
| **5** | Hospital admission |
| **4** | Lost work time |
| **3** | First Aid |
| **2** | Discomfort |
| **1** | No harm |

High Priority – suspend work – temporary precautions as an interim

Matrix is:

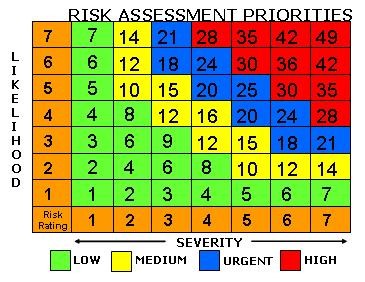
Low Priority

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No further action unless reasonably practicable

Medium Priority

Urgent Priority



It is important when carrying out the assessment that the activity is broken down into **sufficient sized sub-activities** to allow a suitable rating to be allocated to each part.

If the assessment is not broken down sufficiently, then an overall rating of say, Medium, may be allocated as a compromise between parts which are only low or medium, and those that are high. This would have the effect of masking the high-risk ratings hidden in the activity. The activity must therefore be analysed so that each hazard within that activity is addressed and allocated a suitable rating.

NOT BREAKING DOWN THE ACTIVITY INTO SMALL ENOUGH ELEMENTS IS A FREQUENT ERROR IN CARRYING A RISK ASSESSMENT, leading to an under-estimate of the risks, and consequently failing to control the risks properly.

**Remember that the rating needs to take into account the existing control measures.** If you do not do this then you will be spending a lot of time analysing everything in detail only to conclude that no further action is needed.

In situations where the risk is fairly well controlled, then the recommendations for further action could included “continuing supervision”, “monitoring”, or “continued management enforcement of PPE use”, etc.

##### 2. Other Factors

The Risk Assessment should consider whether Health Surveillance is required and also needs to take into account the special needs of young persons and new or expectant mothers in accordance with the Management Regulations.

##### 3. The Next Stage

Your Risk Assessment is only the start point. The Assessment gives you two outputs:

1. The priority based on the risk.
2. Further action needed to control the risks.

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| **List of Common Hazards**   |  |  |  | | --- | --- | --- | | Hazards associated with Plant & Equipment | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Mechanical | Trapping (crushing, drawing in and shearing injuries) | Two moving parts or one moving part and a fixed surface. Conveyor belt and drive. Vee belt and pulley.  In-running nips. Mangle, guillotine, scissors, stapler, using hammer | | Impact (including punctures) | Something that may strike or stab someone, or can be struck against. Moving vehicle, robot arm, sewing machine,  drill, pendulum, crane hook  Hypodermic needle | | Contact (cutting, friction or abrasion) | Something sharp or with a rough surface. Knife, chisel, saw, etc.  Blender blade, circular saw blade, sanding belt, abrasive wheel, lawn mower blade. | | Entanglement (rotating parts) | Drill chuck and bit, power take of shaft, lathe, abrasive wheel, capstan | | Ejection of work piece or part of tool | Woodworking machine, hammer and cold chisel | | Electrical | Shock, burn, fire, explosion | Mains electricity shock  Burns from high frequency voltage, fire from faulty apparatus. Explosion from spark in explosive atmosphere. | | Ignition sources | Static, sparks, batteries | | Pressure | Release of stored energy  (explosion, implosion, injection) | Compressed air and gasses in cylinders and receivers. Steam boiler, vacuum, hydraulic system | | Stored energy | Flying/falling materials | Springs under tension or compression, hoists and lifts. Load carried by crane, Counterweight | | Thermal | Burns, fires, scalding, frostbite | Hot surfaces, blow lamp, welding, steam | | Ionising Radiation | Burns, cancer | X Rays, alpha or beta rays Neutrons | | Non ionising radiation | Burns | Microwave, radio frequency, laser, ultra violet, infra red | | Noise | Hearing loss, tinitus | Noise > 85dB(A) lepd | | Vibration | Vibration white finger, whole body effects | Pneumatic drill, hammer power tools, operation of plant | | Stability | Crushing | Inadequate crane base, fork lift truck on slope, tower scaffold too high, scaffold not tied | | Overload due to mechanical failure | Crushing | Crane overload, chain/sling overload. Eye bolt overload  Scaffold overload | | |  |  |  | | --- | --- | --- | | Hazards associated with Materials and Substances | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | FIRE/EXPLOSION | | | | Combustion | Burns | Timber stack, coal store, paper store, grease, magnesium,  straw, plastic foam | | Increased combustion | Burns | Oxygen enrichment | | Flammable substances  (including highly flammable or extremely highly flammable) | Burns | Petrol, propane gas, methane, carbon monoxide, methanol, paraffin, acetone, toluene | | Oxidising substances | Burns | Organic peroxide, potassium permanganate,  nitric acid, explosive material, fireworks | | Dust explosions | Burns | Coal dust, wood dust, aluminium powder, flour dust | | Health Hazards | | | | Corrosive or irritating materials | Skin effects | Sulphuric acid, caustic soda, man made  mineral fibre, cement dust | | Particles | Lung effects | Asbestos fibres, silica dust, dust mite faeces, pigeon droppings, coal  dust, grain dust, wood dust | | Fumes | Acute and chronic effects on health | Rubber fume, lead fume, welding fume, asphalt fume | | Vapours | Acute and chronic effects on health | Acetone, 1,1,1Trichloroethane, dichloromethane. Benzene, isocyanates | | Gases | Acute and chronic effects on health | Carbon monoxide, hydrogen sulphide, sulphur  dioxide, carbon monoxide | | Mists | Acute and chronic effects on health | Oil mist, printing ink mist, water  (legionella) | | Asphyxiants | Acute and chronic effects on health | Nitrogen, carbon dioxide, argon | | Health hazards by ingestion | Burns to upper tract | Toxic, harmful, corrosive and irritant liquids | | Poisoning | All harmful aerosols, polluted water, contaminated food and drink | | Hazards by contact | Cuts, abrasions | Swarf, rough timber, concrete blocks | | Burns, frostbite | Molten metal, soldering irons, welding, frozen food, liquid nitrogen | |
| **List of Common Hazards**   |  |  |  | | --- | --- | --- | | Hazards associated with the working environment | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Light (can also increase risk of contact with other hazards) | Eye strain, arc eye  Cataracts | Glare, poor lighting levels, stroboscopic effect, UV light. Arc welding, molten metal | | Temperature | Heat stress, hypothermia | Work near furnace Cold store | | Heat stress, sunburn, melanoma, hypothermia | Outdoor work, hot weather, cold weather, wind chill factor, work in rain, snow, ice | | Confined spaces | Asphyxiation, explosion, poisoning | Work in tank, chimney pit, manhole, sewer, basement,  vessel, silo | | Ventilation | Sick building syndrome, nausea tiredness | Fumes, odours, tobacco smoke | | |  |  |  | | --- | --- | --- | | Hazards associated with Methods of Work | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Manual handling | Back injury, hernia, arm, hand and shoulder injuries | Lifting, lowering, carrying, pushing, pulling, supporting, hot/cold loads, rough loads, live loads animal/person | | Repetitive  movements | Work related upper limb disorders | Keyboard work, using hand tools, plucking chickens, production line tasks,  hammering | | Posture  (ergonomics) | Musculoskeletal disorders | Seated work, work above head height or at floor level | |
| |  |  |  | | --- | --- | --- | | Hazards associated with Work Organisation | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Contractors | Injuries and ill health to employees by contractor’s work | Work above employees, use of harmful substances, welding, tools and materials | | Injuries and ill health to contractor’s employees by work in premises | Process fumes, services (underground cables), stored hazardous materials, fork lift trucks | | Organisation of work | Injuries to employees | Monotonous  work, stress, too much work, lack  of control of job, work too demanding | | Work in public areas | Injuries and ill health of the public | Trailing cables, traffic or plant  movement,  obstruction to blind person, prams etc. Work above the public. Work in the road or footpath | |
| |  |  |  | | --- | --- | --- | | Hazards associated with the Place of Work | | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Pedestrian access | Tripping, slipping | Damaged floors,  trailing cables, oil spills, water on floors, debris, wet grass, sloping surfaces, uneven steps, changes in floor  level | | Work at heights | Falls | Fragile roof, edge of roof, work on ladder or stepladder, erecting scaffold,  unprotected hole  in floor | | Obstructions | Striking against | Low headroom, sharp  projections, badly placed furniture, drawers left open | | Stacking and storing | Falling materials | High stacks, insecure stacks,  inadequate or damaged  racking, stacking at heights, items on top of cupboards | | Work over or near liquids, dusts, grain etc | Fall into substance, drowning, poisoning, suffocation | Grain silo, tank, reservoir, sump, work over or near river or canal, docks and harbours | | Emergencies | Trapped in fire or explosion | Locked exits, obstructed escape route, long escape route | |
| |  |  |  | | --- | --- | --- | |  | Other types of hazard | | | CATEGORY | TYPE OF HARM | EXAMPLES | | Attack by animals | Bite, sting, crushing | Bees, dogs,  cattle, fleas, snakes | | Attack by people | Injury, illness, post trauma stress | Criminal attack, robbery, angry customer, drunken person, road rage, drug abuser, mentally  ill person, sacked employee, lover/spouse | |