

# Workplace Hazards in Metals and Engineering

This fact sheet is for students undertaking work experience programs, and for their host employers. It can be used as a tool to assist with task planning, and to develop appropriate induction, training and supervision to minimise any risk to students while they are 'at work'.

**Students must be given instruction, and must be supervised at all times. Consideration must always be given to hazards when allocating tasks. If any risk exists, students must NOT undertake the activity.**

| Hazard   | Possible Harmful Effects  | Possible Employer Action to Prevent Injury / Illness  | Preventative Action Students Can Take   |
|--|---|---|---|
| Mechanical equipment (such as metal guillotines, power presses, angle grinders)                          | Hands and fingers may be cut, sprained, dislocated, broken, crushed or severed. Eye injuries can occur from flying metal fragments or shattered metal grinding discs<br><br>These injuries can result in permanent disability | <ul style="list-style-type: none"> <li>◆ Establish a maintenance program to make sure all equipment is in safe working order</li> <li>◆ Control mechanical hazards (e.g. by installing machine guarding)</li> <li>◆ Train employees in safe operation of mechanical equipment</li> <li>◆ Provide supervision</li> <li>◆ Provide personal protective equipment (PPE) such as safety glasses and hearing protection where needed</li> </ul> | <p><b>Students must NOT operate hazardous equipment or machinery</b></p> <ul style="list-style-type: none"> <li>◆ No student should be asked to work with any machinery or equipment that presents risks when in operation</li> <li>◆ Work experience activity in metals and engineering must be limited to observing (while under direct supervision) trained and experienced operators</li> </ul> |
| Welding  | Electric shock, burns to eyes or body from the welding arc or hot metal surfaces; inhalation of fumes can result in nausea or serious illness   | <ul style="list-style-type: none"> <li>◆ Provide adequate ventilation</li> <li>◆ Provide PPE (welding mask or helmet with filtered lens, fire resistant gloves, leather apron, overalls, boots)</li> <li>◆ Establish safe working procedures</li> <li>◆ Provide appropriate training and supervision</li> </ul>   | <p><b>Students must NOT use welding equipment</b></p> <ul style="list-style-type: none"> <li>◆ If observing or working near any welding activity, make sure you are wearing appropriate PPE (helmet with filtered lens, protective clothing)</li> </ul>   |
| Forklifts  | Falls from height where people have been raised by forklifts; collisions with pedestrians   | <ul style="list-style-type: none"> <li>◆ Ensure that all forklift operators have a current forklift licence</li> <li>◆ Separate forklift pathways from pedestrian traffic</li> </ul>  | <p><b>Students must NOT operate forklifts</b></p> <ul style="list-style-type: none"> <li>◆ Don't walk in forklift-designated areas</li> </ul>   |
| Hazardous substances (chemicals): paint, glue, solvents, gases for welding, cleaning liquids and powders | Irritation or burning of skin, or if fumes are breathed in. Some chemicals, metal fumes and gases are flammable and exposure to a naked flame can result in a fire or explosion   | <ul style="list-style-type: none"> <li>◆ Provide Material Safety Data Sheets (MSDS)</li> <li>◆ Train workers in safety procedures</li> <li>◆ Provide appropriate PPE: gloves, overalls, respirator, safety glasses, boots</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Follow safe procedures for handling and use of chemicals</li> <li>◆ Don't use solvents to clean your hands</li> <li>◆ Don't enter confined spaces where fumes may have collected</li> <li>◆ Wear PPE where provided</li> </ul>   |
| Electricity  | Electric shock, electrocution   | <ul style="list-style-type: none"> <li>◆ Ensure equipment is regularly inspected, tested and tagged</li> <li>◆ Lock out and tag faulty equipment: e.g. DANGER - DO NOT USE</li> </ul>   | <ul style="list-style-type: none"> <li>◆ Immediately report any fault in electrically powered equipment or electrical leads</li> </ul>  |
| Noise  | Permanent hearing loss  | <ul style="list-style-type: none"> <li>◆ Reduce noise emissions as far as is practicable</li> <li>◆ Provide hearing protection where needed</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Wear hearing protection where provided</li> </ul>  |
| Manual handling (bending, reaching, pulling, lifting)  | Musculoskeletal disorders, including sprains and strains  | <ul style="list-style-type: none"> <li>◆ Use mechanical aids to handle heavier items</li> <li>◆ Use team lifts where required</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Use mechanical aids where provided</li> <li>◆ Seek help if a team lift is needed</li> </ul>  |
| Sexual harassment, work place bullying   | Emotional stress, fear and anxiety, physical illness  | <ul style="list-style-type: none"> <li>◆ Establish work place policy</li> <li>◆ Provide staff briefings or training</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Report any concerns immediately</li> </ul>   |

