Risk management strategies: General metal: Industrial Technology

Answers

Activity 1: Identify the hazard

Complete the following table by identifying and describing the hazard.

Situation	Hazard	Description
1. Using a MIG welder to join two pieces of 5 mm flat mild steel.	• Burns	• The molten metal can *spatter* and the two pieces of metal become extremely hot with a potential risk of burning the user.
	• Flash burns	• Eye protection needed for flying particles and flash protection.
2. Turning between centres on the lathe.	• Entanglement	• Loose clothing or hair can become entangled around rotating parts.
	• Entrapment	• Entrapment between moving parts and workpiece.
	• Impact	• Impact by thrown workpiece and chuck key.

3. Using an angle grinder to cut 5 mm flat mild steel.	• Abrasion	• Risk of abrasion from contact with abrasive disk.
	• Eye injury	• Eye injury from ejected particles.
	• Burns	• Burns from hot metal.
	• Laceration	• The revolving cutting or grinding disk poses a laceration risk if it is not used correctly.
4. Using the pedestal drill to drill holes in sheet metal.	• Cutting	• Sheet metal can jam on the drill bit and spin causing injury to the operator, particularly their hands.
	• Entanglement	• Hair and clothing can become entangled with spindle, chuck or drill bit.
	• Impact	• Workpieces can be ejected.
5. Changing the belts to alter the speed of a pedestal drill.	• Entrapment	• Fingers can easily be caught between the belt and the pulley whilst manually changing the belt configuration.
6. Lifting and moving an anvil for forging purposes.	• Strain	• Incorrect posture in lifting can cause back injuries.

Activity 2: Control measures

Consider the above hazards and describe the method for controlling any risks. The first one is completed for you.

1. *MIG welder*

   The operator must wear:
   - a face shield and appropriate eye protection
   - leather apron
   - protective gloves
   - enclosed leather shoes
   - protection for exposed skin.

   The hot pieces of metal should be lifted with tongs and cooled under water or isolated from others to avoid accidental burns.

2. *Metal lathe*

   The operator must wear:
   - a hair net or cap
   - a face shield
   - an apron
   - enclosed leather shoes.

   Jewellery must be removed and any loose clothing confined before operating the lathe.

3. *Angle grinder*

   The operator must wear:
   - a hair net or cap
   - face and eye protection
   - an apron
   - enclosed shoes.

   Always cut or grind away from the body being aware of the direction of any sparks emitted.

   Do not leave the grinder unattended unless the disk has stopped rotating.

4. *Pedestal drill – drilling*

   The operator must wear:
   - a hair net or cap
   - face and eye protection
   - an apron
   - enclosed shoes.

   Make sure the sheet metal is securely held before drilling and use a specially sharpened drill bit for drilling sheet metal.

5. *Pedestal drill – changing belts*
   Make sure the tension on the belts is completely released and that the machine is isolated from its power source. Avoid placing your fingers close to the pulley when altering the position of the belts.

6. *Anvil – moving*
   Make sure you have permission from your teacher before moving the anvil. Bend your knees and keep your back straight when lifting. The anvil may be too heavy to lift and should be moved with a suitable lifting device.