Managing a Practical ITD Workspace

Activity scope
An Industrial Technology and Design (ITD) Workspace refers to the facilities where teachers and students in schools engage in designing, manipulating and processing materials for construction, fabrication, or development of projects or artefacts.

Special considerations
An ITD workspace could include a range of equipment, machines, tools, work benches, storage space, wet working areas, compressed air, and various types of power outlets including, single phase and three phase electricity and or compressed air.

Students could be exposed to a wide range of ITD practical activities including:
- gluing
- sealing
- polishing
- machining
- welding
- fabricating
- heating
- injecting
- forming
- joining
- fixing
- surface finishing

Students could be exposed to a wide range of materials, chemicals and hazardous substances including:
- ceramics
- solvents
- plastics
- fuel gases
- adhesives
- metals
- timber and timber based products
- paints

Minimum activity-specific qualifications for supervisors
- Expertise (formal trade qualifications) in a trade where appropriate practical workshop skills were a component of the trade qualifications, or
- For a registered teacher, Competence (demonstrated experience/ability - e.g. ITD staff profile), or Certified training in a course where working in a practical ITD workspace was part of the course, or a Trade background.

Minimum activity-specific equipment/facilities
- Appropriate and maintained fire safety equipment (extinguisher, blanket, evacuation plan). Extinguishers should be identified with standard specification identification code signs.
- Suitable and sufficient waste bins.
- Adequate lighting and ventilation.
- Suitable non-slip floor surface.
- Adequate dust extraction facilities where necessary.
- Adequate workspace area, correctly sized for the intended purpose to prevent overcrowding.
- All walkways, stairways and ramps kept clear of rubbish, leads and trip hazards.
- Safety glasses and appropriate fully enclosed footwear that protects against falling sharp tools, equipment or project materials.
- Clearly marked work areas delineated with yellow paint or similar material.
- All electrical equipment appropriately inspected, tested and tagged.
- Fixed Residual Current Device (RCD) on all portable equipment. For further information refer to quick reference guide for specified electrical equipment.
- Emergency stop buttons on machinery and equipment where required.
- Standard Operating Procedures (SOP) clear and present for ALL equipment used.
- Properly installed guards and safety devices on all machinery and equipment where necessary, including portable equipment, in accordance with manufacturer’s specifications.
- Material Safety Data Sheets (MSDS) for all chemicals stored in the workshop.
- Adequately maintained and serviced equipment and power tools, according to manufacturer’s instructions. Maintenance register available.
- The location should enable sufficient supervision to be maintained at all times. This will vary depending on the maturity and responsibility of the students.
- Physical hazards should be marked with a colour scheme (as per Australian Standard 1318-1985 (new), SAA Industrial Safety Colour Code) including:
  - RED - Danger (e.g. stop buttons);
  - YELLOW - Caution or attention (e.g. machine guards);
  - GREEN - Safety (e.g. start buttons, first aid equipment); and
  - BLUE - Information (e.g. office, toilet, store).
- Any other painted parts of machine or equipment should not conflict with colour codes, so that critical operating parts of the machine stand out in contrast with non-critical or stationary sections.
- Material safety data sheet information should be obtained for all hazardous materials used in the workspace such as paints, adhesives, glues, solvents, acids, fluxes, flammable liquids, etc. Particular attention should be given to the correct storage, disposal and clean-up of possible spillage of these substances.
- Machinery, plant and equipment should be installed to ensure that sufficient space and safe footholds are provided around an individual machine or unit and to allow for group instruction, normal operation and adjustments.

Activity-specific hazards/risks and suggested control measures

- Monitor temperature levels in workshop.
- Keep workspace floors clean and clear of debris.
- All walkways should be left free of obstructions.
- Adequate ventilation should be available during sanding, painting and gluing, especially when materials are used that release fumes during use such as contact adhesives, paints, solvents and glues.
- The location of equipment and materials should allow for quick and efficient exit in case of fire or other emergencies.
- Equipment and furniture should be arranged so that persons are able to see all work areas clearly, have ready access and can work freely in the activity.
- Emphasis should be placed on work heights and access when there are students with special needs in the class.
- Equipment and/or machines should be arranged to minimise any risks which may stem from their operation.
- When the workspace size is already determined, overcrowding should not be permitted. The number of different activities being engaged in simultaneously in the workspace, and the level of difficulty of the activities should be considered in relationship to the number of students present at any one time.
- Check equipment for damage before lesson.
- Monitor use of tools and equipment.
• Regularly maintain and sharpen equipment where appropriate. Blunt edge tools are more dangerous than properly maintained tools because of the extra pressure required using them. Tools should be properly maintained.

• Refer to and follow Standard Operating Procedures for all equipment.

• Avoid the use of extension leads where possible.

• Securely fix any jobs to a bench, table, floor or other suitable surface.

• Stepladders and other student-manufactured articles may not be safe for use other than as a demonstration exercise because of either manufacture defect or design fault. Students should be advised of this during manufacture.

• Teachers should make regular inspections of personal protective equipment supplied by students (e.g. safety glasses), and ensure that the equipment is to Australian Standard Specification and is in good serviceable condition.

• Vice handles should be left in a non-tensioned vertical position when not in use.

• Research and determine noise levels of equipment prior to their purchase and try to ‘buy quiet’. Repair and maintain equipment and machinery to reduce noise levels.

• Redesign tasks so that staff are not exposed to loud noise over extended periods. Provide personal hearing protection and training for staff in the correct use and storage of the hearing protection.

• As far as is practicable, teachers should control, administer or engineer the use of equipment and/or machines to ensure the accumulated noise in the ITD workspace is not above the recognised safe industrial level, approximately 85 dB(A). Refer to http://education.qld.gov.au/health/safety/hazards/noise.html for further information.

Useful activity-specific links

• Chemical Hazards
  http://education.qld.gov.au/schools/healthy/docs/chemhazards.doc

• Hearing Protection Fact Sheet

• Managing Noise and Preventing Hearing Loss at Work Code of Practice 2011

• Standard Operating Procedures for EQ sites