

Oxford University Centre for Integrative Neuroimaging@FMRIB Workshop Rules

Seb Rieger, OxCIN Experiment Support, 12.06.2024

Access: The workshop is primarily for use by OxCIN Experiment Support. Access may be arranged on a case by case basis for other individuals who work on hardware projects, for a limited period of time, and on the understanding that these workshop rules are observed.

Housekeeping: The workshop is kept clean and tidy at all times. Work surfaces are kept uncluttered, and tools and equipment are returned to their proper place immediately after use. At the end of each working day, the benches are left clean and empty. Any dust and debris are swept up, and the bin emptied if necessary.

Storage: The workshop is not a storeroom. Only tools, equipment, and instrumentation intended for use in the workshop are kept there, as well as materials required for ongoing hardware projects. No tools and equipment that are exclusively intended for use elsewhere should be stored in the workshop, and neither should any parts, components, and raw materials other than those currently required. Storage is only permitted in drawers and cupboards, and in crates on wheeled dollies. Nothing should be stored on the floor or on the benches. Storage requirements must be discussed with OxCIN Experiment Support before a project commences.

Removing tools and equipment from the workshop: Trying to locate missing tools and equipment is very disruptive to the work of OxCIN Experiment Support and other users of the workshop. Therefore, items may only be removed from the workshop with the consent of OxCIN Experiment Support, and on the understanding that they are returned as soon as practicable and no later than the end of the same day. Note that the workshop risk assessments may not cover the use of equipment elsewhere.

Safety, supervision, and risk assessments: Every user of the workshop must ensure that a risk assessment has been carried out where appropriate which covers the activities they wish to carry out. This includes, but is not limited to, hand and power tool use, soldering and hot air guns, and the handling of chemicals and MRI phantoms of any kind. The OxCIN requires that a risk assessment be on file (in the folder in the 7T control room) for every MRI phantom being held on the premises, and the workshop is not exempt. Workshop users must comply with the precautions prescribed by risk assessments, equipment manufacturers' guidelines and instructions, and the University of Oxford's health and safety regulations. The workshop users' line managers are responsible for their supervision, training, and risk assessments.

Risks and precautions associated with common activities

The guidelines below govern the activities of OxCIN Experiment Support and are provided to other workshop users and their line managers/supervisors for information. They do not replace individual risk assessments, training, and supervision, but represent the bare minimum of good practice that every workshop user should follow.

Use of hand tools: There is a risk of injury (cuts, pinching, eye injury) from inappropriate tool use or damaged tools, or tool/workpiece fragments. Only use tools for their intended purpose and follow the manufacturers' guidelines. Do not use tools that show any signs of damage. Make sure the workpiece is held securely, where appropriate, e.g. in a vice, so as to keep hands out of the way of slipping tools. Wear appropriate PPE (gloves, eyewear) for the task.

Use of power tools: There is a risk of injury (cuts, pinching, eye injury, entanglement, electrical) from inappropriate tool use or damaged tools, tool/workpiece fragments, or inappropriate PPE and clothing, and from dust. Only use tools for their intended purpose and follow the manufacturers' guidelines. Do not use tools that show any signs of damage, or don't have up to date PAT. Keep guards in place and in working order. Make sure the workpiece is held securely, where appropriate, e.g. in a vice, so as to keep hands out of the way of slipping tools. Wear appropriate PPE (gloves, eyewear, dust mask) for the task. Do not wear gloves, loose sleeves, long hair unless tied back where there is risk of entanglement (e.g. drilling). Keep cables out of the way and avoid trip hazards.

Soldering (electronics): There is a risk of burn injury and fire from the hot soldering iron, workplace asthma from exposure to flux fumes, and electrical hazards from faulty soldering stations or irons. Use a suitable heat resistant mat or surface. Only place the hot iron in a holder designed for the purpose. Avoid breathing in fumes and ensure the work area is well ventilated. Use extract ventilation for any soldering work that exceeds a few minutes in a given day. Do not use damaged soldering stations or irons and ensure PAT is up to date. Ensure you comply with any requirements to register as a user of solder with Occupational Health.

Hot air gun: There is a risk of burn injury, fire, and health effects of any thermal decomposition products that may be generated, and electrical hazards from faulty equipment. Use a heat resistant mat or surface, and treat hot air guns like you would a blowtorch. Keep the heat source away from combustible materials and anything that might decompose and release fumes. Do not use damaged tools and ensure PAT is up to date.

ASTM RF Heating Phantoms Production and Use: There is a limited health risk from exposure to the chemicals used, and risk of injury from improper use of the electric blender. The substances used are (deionised) water, sodium chloride (i.e. table salt), and sodium polyacrylate (a.k.a. superabsorbent polymer, as used in disposable diapers). Use chemicals in granular form to avoid dust exposure. During phantom preparation, wear gloves to avoid accidental skin exposure and protect eyes from splashes using goggles. Wash affected areas in case of accidental exposure. Check blender for damage before use, and observe manufacturer's guidelines. Ensure no body parts can come close to blades while the device is plugged in.