



PHOENIX ELECTRONICS

Job Site Safety Analysis

Workshop/General Tasks (Tool operations, ROV construction, electrical wiring, etc)

| Task | Hazards | Controls |
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| Operating manual hand tools (i.e. hammers, saws, riveters, etc) | 1.a. Injury from blades, sharp edges, hammers, etc 1.b. Dropping tools or heavy objects/item being worked on 1.c. Hitting/injuring other people in the surrounding area 1.d. Foreign object entering eye | 1.a.i. User has proper training 1.a.ii. User has proper PPE 1.a.iii. Proper tool is used for the task 1.b.i. User is in fit condition to operate tools 1.b.ii. All heavy objects and items being worked on are properly secured to the work surface 1.c.i. Ensure that there are no other people in the surrounding area while operating tools 1.c.ii. User alerts everyone in the area that they are using tools 1.d.i. User has proper PPE |
| Operating electrical hand tools/small power tools (i.e. drills, jig saws, dremels, etc) | 2.a. Injury from blades, sharp edges, hammers, etc 2.b. Dropping tools or heavy objects/item being worked on 2.c. Hitting/injuring other people in the surrounding area 2.d. Hair/loose clothing caught in moving parts of tool 2.e. Foreign object entering eye | 2.a.i. User has training with specific power tools in use 2.a.ii. User has proper PPE 2.a.iii. Proper tool is used for the task 2.b.i. User is in fit condition to operate power tools 2.b.ii. All heavy objects and items being worked on are properly secured to the work surface 2.c.i. Ensure that there are no other people in the surrounding area while operating tools 2.c.ii. User alerts everyone in the area that they are using tools 2.d.i. Long hair and loose clothing have been tied back/secured 2.e.i. User has proper PPE |
| Operating large power tools (i.e. table saw, | 3.a. Injury from blades, sharp edges, | 3.a.i. User has training with specific large power tools in use |

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| <p>bandsaw, drill press)</p> | <p>hammers, etc 3.b. Dropping tools or heavy objects/item being worked on 3.c. Hitting/injuring other people in the surrounding area 3.d. Hair caught in moving parts of tool 3.e. Foreign object entering eye</p> | <p>3.a.ii. User has proper PPE 3.a.iii. Proper tool is used for the task 3.b.i. User is in fit condition to operate large power tools 3.b.ii. All heavy objects and items being worked on are properly secured to the work surface 3.c.i. Ensure that there are no other people in the surrounding area while operating tools 3.c.ii. User alerts everyone in the area that they are using tools 3.d.i. Long hair and loose clothing have been tied back/secured 3.e.i. User has proper PPE</p> |
| <p>Soldering</p> | <p>4.a. Physical burns from soldering iron or molten solder 4.b. Inhalation of fumes 4.c. Chemical poisoning from lead solder</p> | <p>4.a.i. User has training soldering 4.a.ii. User is in fit condition to solder 4.a.iii. User is wearing proper clothing (long sleeves and pants) 4.a.iv. User has proper PPE 4.b.i. User is soldering in a properly ventilated area 4.b.ii. User does not stand directly over or overly close to what is being soldered 4.c.i. User is wearing proper clothing (long sleeves and pants) 4.c.ii. Use lead-free or Reduction of Harmful Substances (RoHS) compliant lead solder 4.c.iii. Minimize skin contact with solder 4.c.iv. Wash hands well immediately after soldering</p> |
| <p>CNC routing</p> | <p>5.a. Physical damage from improper setup of router 5.b. Foreign object entering eye 5.c. Hearing damage 5.d. Burns from flying machine oil 5.e. Hair or loose clothing getting caught in the router 5.f. Physical injury from rough/sharp edges on freshly cut</p> | <p>5.a.i. User has training on CNC router 5.a.ii. User is in fit condition to operate CNC router 5.a.iii. User follows step-by-step checklist to set up router 5.a.iv. Stand at least 3 feet away from router while in operation 5.a.v. Know the location of and be ready to push emergency stop button 5.b.i. User has proper PPE 5.c.i. User has proper PPE 5.d.i. Stand at least 3 feet away from router while in operation 5.d.ii. User is wearing proper clothing (long</p> |

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| | items | <p>sleeves and pants)</p> <p>5.e.i. Long hair and loose clothing have been tied back/secured</p> <p>5.f.i. Wear work gloves when taking freshly cut pieces from router</p> <p>5.f.ii. Check for and file sharp edges while wearing work gloves before handling without gloves</p> |
| Epoxying | <p>6.a. Chemical burns from skin contact with epoxy</p> <p>6.b. Inhalation of fumes</p> | <p>6.a.i. User has training with epoxy</p> <p>6.a.ii. User is wearing proper clothing (long sleeves and pants)</p> <p>6.a.iii. User is in fit condition to use epoxy</p> <p>6.a.iv. User has proper PPE</p> <p>6.b.i. User is mixing and using epoxying in properly ventilated area</p> <p>6.b.ii. User does not stand directly over or overly close to what is being epoxied or mixed epoxy</p> <p>6.b.iii. User has proper PPE</p> |
| Wiring and control box/hydrotube work | <p>7.a. Electrical shocking</p> <p>7.b. Electrical shorting</p> <p>7.c. Electrical fires</p> | <p>7.a.i. Ensure that control box and/or hydrotube are powered off</p> <p>7.a.ii. User is properly grounded</p> <p>7.b.i. Ensure all wires are properly insulated</p> <p>7.c.i. Ensure that all wires are proper gauge for their current load</p> |
| Required Training | | Required Personal Protective Equipment (PPE) |
| <ul style="list-style-type: none"> ● Training with relevant equipment ● Proper general workshop etiquette ● Adequate electrical training | | <ul style="list-style-type: none"> ● Eye protection ● Close-toed shoes ● Face masks and gloves (when handling epoxy or other hazardous substances) ● Hearing protection (when operating large power tools or CNC router) |

Off-site Tasks (ROV Transport, Poolside Setup, and Vehicle Operation)

| Task | Hazards | Controls |
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| Transporting ROV | 1.a. Back injury 1.b. Dropping heavy objects/ROV 1.c. Tripping over tether | 1.a.i. Use proper lifting technique 1.a.ii. Do not carry ROV alone 1.b.i. Use proper lifting techniques 1.b.ii. Do not carry heavy objects alone 1.c.i. Tether is properly and fully wrapped around tether management system |
| Setting up and powering control box | 2.a. Electrical shocking 2.b. Tripping over power cables | 2.a.i. Ensure that control box and/or hydrotube are powered off 2.a.ii. User is properly grounded 2.b.i. Ensure that cables are run along the ground and not hanging in the air |
| Preparing ROV for deployment | 3.a. Physical injury on sharp edges 3.b. Tripping over tether | 3.a.i. User handles ROV with care, noting and avoiding all areas marked with warning labels 3.a.ii. User is wearing proper clothing (long sleeves and pants) 3.b.i. Ensure that tether is coiled in an organized pile and consolidated to a small area away from the rest of the deck crew |
| Deploying ROV | 4.a. Physical injury on sharp edges 4.b. Tripping over tether 4.c. Falling into pool during launch | 4.a.i. User handles ROV with care, noting and avoiding all areas marked with warning labels 4.a.ii. User is wearing proper clothing (long sleeves and pants) 4.b.i. Ensure that tether is coiled in an organized pile and consolidated to a small area away from the rest of the deck crew 4.c.i. Use proper lifting/lowering techniques |
| Operating ROV | 5.a. Physical injury on sharp edges while recovering props from ROV 5.b. Tripping over tether 5.c. Falling into pool while recovering props from ROV | 5.a.i. User handles ROV with care, noting and avoiding all areas marked with warning labels 5.a.ii. User is wearing proper clothing (long sleeves and pants) 5.b.i. Ensure that tether is coiled in an organized pile and consolidated to a small area away from the rest of the deck crew 5.c.i. Use proper lifting/lowering techniques |

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| Recovering ROV | 6.a. Physical injury on sharp edges 6.b. Tripping over tether 6.c. Falling into pool during recovery | 6.a.i. User handles ROV with care, noting and avoiding all areas marked with warning labels 6.a.ii. User is wearing proper clothing (long sleeves and pants) 6.b.i. Ensure that tether is coiled in an organized pile and consolidated to a small area away from the rest of the deck crew 6.c.i. Use proper lifting/lowering techniques |
| Required Training | | Required Personal Protective Equipment (PPE) |
| <ul style="list-style-type: none"> ● Training in ROV operation ● Training in proper lifting techniques ● Adequate electrical training | | <ul style="list-style-type: none"> ● Close-toed, non-slip shoes ● Adequate eye protection ● Sun protection (if operating outdoors) |