School of Engineering

# Dept of Mechanical & Electronic Engineering

# *Health and Safety File*

## Thermo – Fluids Laboratory

## W118

**File 1**

Rev: April 2016


## School of Engineering

## Dundalk Institute of Technology

# Ancillary Safety Statement

# April 2016

This Ancillary Safety Statement is to be read in conjunction with the Parent Safety Statement of Dundalk Institute of Technology

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# 1. Introduction

Under the provisions of The Safety, Health and Welfare at Work Act 2005, Dundalk Institute of Technology is required to ensure so far as is reasonably practicable the health, safety and welfare of all its employees and students engaged in work or study, and all visitors to the Institute premises.

In view of the recent extensive expansion that has taken place on the campus and in order to comply with the requirements of the 2005 Act, the Institute has decided to review and update its Safety Statement. Dundalk Institute of Technology's safety management programme consists of a Parent Safety Statement supplemented by seven ancillary Safety Statements, which apply to different functional areas of the Institute. These ancillary Safety Statements take account of the diverse range of activities, which apply across the Institute.

The Institute's overall Safety Statement is comprised of the following documents:

- Parent Safety Statement
- Ancillary Safety Statement – School of Business & Humanities
- Ancillary Safety Statement – School of Health & Science
- **Ancillary Safety Statement – School of Engineering**
- Ancillary Safety Statement – School of Informatics & Creative Arts
- Ancillary Safety Statement – Secretary/Financial Controller's Functional Area
- Ancillary Safety Statement – Registrar's Functional Area
- Ancillary Safety Statement – Regional Development Centre Functional Area
- Emergency Evacuations Procedures Manual

The purpose of the Ancillary Safety Statements is to provide details of the specific hazards and control measures which apply in these areas. Each Ancillary Safety Statement should be read in conjunction with the Parent Safety Statement.

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## 2. General Statement of Policy within the School of Engineering

The School of Engineering Functional Area is committed to ensuring that high standards of health and safety are achieved and maintained throughout all areas under our control. The key mechanism for achieving and maintaining safety is Risk Assessment, by which we identify hazards, which have the potential for harming health or causing accidents, evaluate the risks arising and select and implement appropriate precautions.

Throughout the School of Engineering Functional Area, Risk Assessments are carried out in all areas under our control periodically. Risk Assessments must take account of any changes with regard to the structure of the organization, Academic Staff, work practices; use of machinery, design techniques or equipment all may necessitate periodic changes to this document as well as any periodical amendments or updates to legislation.

It is essential that all staff and students contribute and cooperate to this process, thus ensuring that the School of Engineering Functional Area's stated objective of providing in so far as is reasonably practicable a safe place of work is achieved. Employees are encouraged to contribute to the improvement of health and safety by making suggestions to their departmental manager. The success of this policy depends on the co-operation of all staff and students, and it is therefore extremely important that staff:

Read and understand the safety information provided

Know their role and responsibilities.

Always abide by the arrangements the Institute has put in place to ensure their health, safety welfare, and that of their colleagues and others.

The process of Risk Assessment in the School of Engineering Functional Area enables us to take all relevant precautions to ensure that Dundalk Institute of Technology's legal standard as an employer is fulfilled particularly in relation to:

- Exercising all due care
- Putting in place necessary protective and preventative measures
- Identifying hazards and assessing risks likely to result in accidents or ill-health
- Not being required to take further measures where these would be grossly disproportionate having regard to the unusual, unforeseeable and exceptional nature of the circumstances.

Health and Safety is overseen in the School by the Functional Area Safety Committee which contains representatives from all of the areas within the School (See Appendix I for membership details)

Signed on behalf of School of Engineering, Dundalk Institute of Technology,

_____

**Mr. Eugene Roe**
**Head of School of Engineering**

## 3.0 School of Engineering Functional Safety Area: Description

The School of Engineering is divided into Four Departments, one Research Centre.

1. Department of Electronic & Mechanical Engineering
2. Department of the Built Environment
3. Department of Engineering Trades
4. Centre for Renewable Energy at DkIT(CREDIT)

The School of Engineering is predominantly located in the following areas of the Institute:

| Location | Description | Primary Activity |
|---|---|---|
| North Block | Dept. Electronic & Mechanical Engineering | ○ Lecture rooms<br>○ Computer Labs<br>○ Office based activities<br>○ Work Placements<br>○ Laboratories<br>○ Workshops |
| North Block<br>South Block | Dept. of the Built Environment | ○ Lecture rooms<br>○ Computer Labs<br>○ Office based activities<br>○ Laboratories<br>○ Fieldwork |
| North Block<br>South Block<br>The Carroll's Building | Dept of Engineering Trades | ○ Lecture Rooms<br>○ Computer Labs<br>○ Office based activities<br>○ Drawing Offices<br>○ Motor Engineering Workshop<br>○ Plumbing Workshops<br>○ Carpentry Workshops<br>○ Electrical Workshops<br>○ Motor Engineering Lab<br>○ Electrical Lab<br>○ Plumbing Lab |

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Risk Assessment is carried out at least once per year in each location in the School of Engineering functional area under the direction of the Head of School, Mr. Eugene Roe who is the responsible person.

The wide range of workplace activities and the associated risks to health, safety and welfare within the School of Engineering can be broadly categorized as follows:-

- Offices, (Administration and Lecturing Staff) – low to medium risk.
- Lecture Rooms, Drawing Offices, Computer Labs. – low to medium risk
- Workshops – low to high risk

Refer to Appendix II for School of Engineering safety management organizational layout.

Hard copies of this Functional Area Ancillary Safety Statement are available at the following locations:

1. Administration Office, School of Engineering
2. Workshop locations
3. Laboratories

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## 4.0 School of Engineering – Overview of Risk Assessment Process.

This Ancillary Safety Statement covers all activities carried out by the School of Engineering, and should be read in conjunction with the Institute Parent Safety Statement.

Dundalk Institute of Technology will adapt the "General principles of prevention" as outlined in the 2005 Act Schedule 3

When a hazard is identified and the risk assessed, the necessary arrangements are put in place to protect safety and health.

Dundalk Institute of Technology will utilize the hierarchy of controls A series of common sense steps for hazard control (often called hierarchy of control) **where elimination of the risk is not reasonably practical**,.

These steps are:

1. Substitute the hazard (e.g. use a less harmful substance).
2. Isolate the hazard.
3. Use engineering controls (e.g. Physical controls).
4. Put in safe work practices (e.g. Instruction, training, supervision).
5. Use Personal Protective Equipment (PPE) such as gloves / overalls.

If a hazard cannot reasonably be eliminated it is the policy to work through this list to minimise exposure to risks. For example, the Institute will try to substitute the hazard first. If this is not possible, will go to the next step and so on. In some cases it may be appropriate to implement a combination of the steps e.g. Steps 3, 4 and 5.

The list above indicates an "order of priority" for remedial measures for any hazard situation which Dundalk Institute of Technology will adapt.

The process of Risk Analysis is by numerical format.

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

The above risk analysis is incorporated into the School's **Safe Work Practice Sheets**

The Analysis takes into account who is exposed
The initial Risk Rating before controls are implemented
The Reduction Risk Rating after controls is in place

**A risk is the probability or likelihood of a hazard actually causing a degree of injury or damage.**

**A hazard is anything that can potentially cause harm.**

After a hazard has been identified, it is evaluated in order to assess what its impact would be if steps to control it were not taken. In practical terms, one determines the likelihood of an accident happening and the consequences of it happening.

There are inevitable difficulties in assessing risks. Some risks such as exposure to e.g.- Chemicals / Manual Handling / Lone Workers / Trainees may require physical or organisational measurements to be taken. Risk depends on many (often related) circumstances:-

Is anyone exposed to the hazard? Is the hazard likely to cause injury?
Is the hazard well controlled? Is the level of supervision adequate?
How long people are exposed and what are are the levels of exposure that should not be exceeded (e.g. Equipment, chemicals, poor lifting techniques)

**Risk Assessment** will be carried out at least once a year in all of the different sites in the School. The Risk Assessment process adopted by the School of Engineering identifies hazards posed by activities within the School and quantifies the risk posed by same.

In most cases these hazards can be controlled by adhering to procedures detailed in the School's **Safe Work Practice Sheets** (Appendix III) which are developed on an as-needed basis and identified through regular area-by-area risk assessment / Inspection. As part of the annual Risk Assessment process, all Safe Work Practice Procedure Sheets will be reviewed and updated to ensure that they take account of any changing circumstances that have arisen during the course of the year, any changes to work practices, introduction of equipment, changes in legislation will also require updating as is necessary.

**Safe Work Practice Sheets** are available in the School of Engineering Administrative office, Heads of Departments, Workshop Locations, Laboratories and on the Institute's website

The list of these SWPS is also included in Appendix III of this document. More generic college wide SWPS are also to be adhered to and are available at:

The primary objective of the Safe Work Practice procedures is to eliminate, reduce or control any risks posed as a result of the hazards that exist throughout the School. These Safe Work Practice Procedures are also made available to all staff and students operating in any lab, workshop or classroom environment that is the subject of a risk assessment and safe work practice procedures.

Adherence to the Safe Work Practice Procedures is the primary means of risk control in the School of Engineering. However, hazards may arise from time to time, which are not covered by

these procedures. Under Section 13 (h)(i - iii) of the 2005 Safety, Health & Welfare at Work Act, all staff are required to report any hazards that they notice or observe to their employer. Within the School of Engineering, any hazard noted or observed by any member of staff must be reported to their immediate superior.

Incidents and Dangerous Occurrences must be notified to the relevant supervisor using the forms included in Appendix IV.

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## 5.0 Functional Area Safety Records

Functional Area safety records include but are not limited to the following documents:

1. Ancillary Safety Statement, including Safe Work Practice Sheets
2. Health and Safety Training Records
3. Accident, Incident and Near Miss Dangerous Occurrence Reports
4. Functional Area Safety Committee Meeting Records
5. Inspection Certificates (where applicable)

(1-5 ) can be located as follows for:

(a) **The School of Engineering**

| Record Type | Building | Room No. | Contact |
|---|---|---|---|
| Ancillary Safety Statement, including Safe Work Practice Sheets | North Block | School of Engineering Office, NC121 | Orlagh Devine orlagh.devine@dkit.ie, ext. 2894 |
| | | Offices | |
| | North Block | Mr. Eugene Roe (HOS) NC126 | eugene.roe@dkit.ie ext. 2893 |
| | | Mr. Simon O'Neill (HOD) NC124 | simon.oneill@dkit.ie ext. 2847 |
| | | Mr. Noel McKenna (HOD) NC127 | noel.mckenna@dkit.ie ext. 2891 |
| | | Mr. Pat McCormick (HOD) NC128 | pat.mccormick@dkit.ieext. 2551 |
| | | Mr. Padraig McGuigan (Section Head) NW207 | padraig.mcguigan@dkit.ie ext. 2698 |
| | | Mr James Mulvany (Section Head) NW216 | james.mulvany@dkit.ie ext 2520 |
| | South Block | Mr. John Doherty (Section Head) S120 | john.doherty@dkit.ie ext. 2692 |
| Training Records | North Block | School of Engineering Office, NC121 | Orlagh Devine orlagh.devine@dkit.ie, ext. 2894 |
| Incident & Accident Reports | North Block | School of Engineering Office, NC121 | Orlagh Devine orlagh.devine@dkit.ie, ext. 2894 |
| FASC Meeting Records | North Block | School of Engineering Office, NC121 | Orlagh Devine orlagh.devine@dkit.ie, ext. 2894 |
| Inspection Certificates | North Block | School of Engineering Office, NC121 | Orlagh Devine orlagh.devine@dkit.ie, ext. 2894 |

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# APPENDICES

# Appendix I

## Functional Area Safety Committee 2015/2016

1. Eugene Roe, Head of School of Engineering (Chairperson)
2. Simon O'Neill, Head of Department of Engineering Trades
3. Pat McCormick, Head of Department of Mechanical and Electronic Engineering
4. Padraig McGuigan, Head of Section: Mechanical Engineering
5. James Mulvany, Head of Section: Electronic Engineering
6. Noel McKenna, Head of Department of the Built Environment
7. John Doherty, Head of Section Carpentry/ Joinery / Plumbing
8. Orlagh Devine, Senior Administration
9. Jim Connolly, Senior Technical Officer
10. Paul Egan, Lecturer
11. William Lyons, Lecturer
12. Brendan Walsh, Lecturer
13. Dermot Clarke, Lecturer
14. Paul Durcan, Lecturer

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# Appendix II

## List of Responsible Persons within the School of Engineering

| | |
|---|---|
| **Head of School** | **Mr. Eugene Roe** |
| **Head of Dept of Mechanical & Electronic Engineering** | **Mr. Pat McCormick** |
| **Head of Section: Mechanical Engineering** | **Mr. Padraig McGuigan** |
| **Head of Section: Electronic Engineering** | **Mr. James Mulvany** |
| **Head of Dept of the Built Environment** | **Mr. Noel McKenna** |
| **Head of Dept of Engineering Trades** | **Mr. Simon O'Neill** |
| **Head of Section: C&J and Plumbing** | **Mr. John Doherty** |
| **Centre for Renewable Energy at Dundalk Institute of Technology (CREDIT)** | **Dr. Tom Dooley** |

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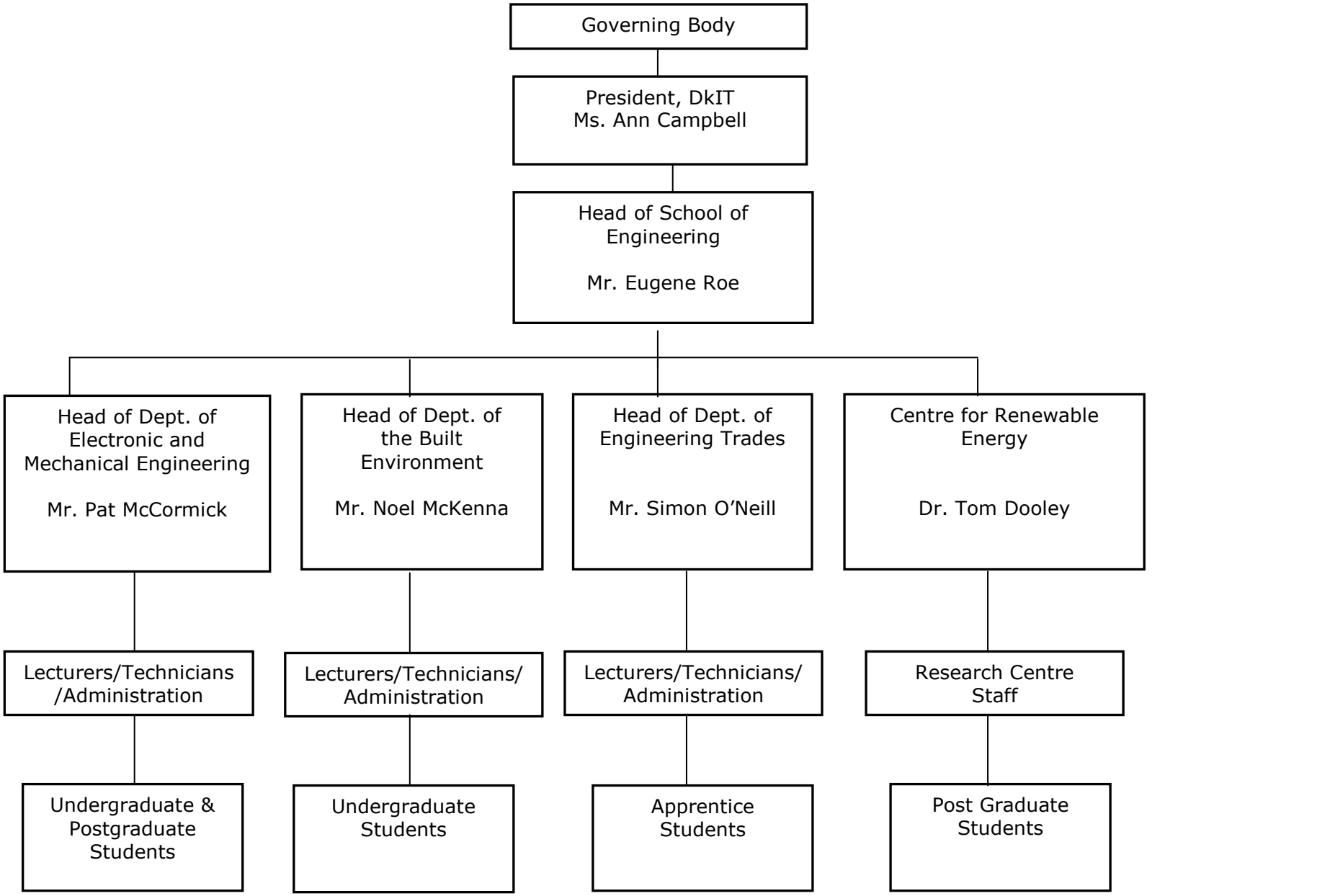


**School of Engineering**
**Safety Management Organisation Chart**

# Appendix III

# Safe Work Practice Sheets

**SWPS ID Mechanical Engineering Thermo - Fluids Lab W118**

**General Routine Safe Work Practice Sheets Used in this Area:**

| | |
|---|---|
| GEN 001 | General Rules |
| GEN 002 | Access and Egress |
| GEN 003 | Fire Safety |
| MEC 08 | Electrical Safety |
| GEN 005 | Chemical Agents |
| GEN 009 | Slips, Trips and Falls |
| GEN 010 | Lone Person Working |
| MEC 09 | Manual Handling |
| GEN 019 | Storage Areas |
| GEN 025 | General Workshop Safety |
| GEN 026 | Use of Hand Tools |
| SWPS 007 | Safe Use of Ladders/Stepladders |
| GEN 027 | Cutters, Scalpels and Stanley Knives |

**Engineering Specific Safe Work Practice Sheets Used in this Area:**

| | |
|---|---|
| MEC 002 | Air Conditioning Test Unit |
| MEC 008 | Internal Combustion Engine Test Bed |
| MEC 018 | Parker Hydraulics Training Unit |
| MEC 025 | Pneumatics Training Boards |
| MEC 030 | Electric Reciprocating Water Pump Flow Test Unit (TE 83/1976) |
| MEC 064 | Electric Piston Water Pump Test Unit (TE52/1943) |
| MEC 065 | Electric Oil Gear Pump Test Unit (TE74/1971) |
| MEC 067 | Portable Solar Panel |
| MEC 068 | Concentric Tube Heat Exchanger |
| MEC 072 | Cussons (P6112/223/224) Water Flow Measuring Apparatuses |
| MEC 073 | Photovoltaic Energy Stand |
| MEC 074 | Air Flow Test Unit |
| MEC 075 | Hot Box Oven |
| MEC 076 | Carbolite Furnace |
| MEC 078 | Osborne Reynolds Apparatus |
| MEC 082 | Workshop Floor Cleaning |
| SWPS 015 | General Health and Welfare Provisions |
| SWPS 016 | Emergency Response |
| SWPS 017 | Emergency Contact Numbers |

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# Appendix III

# General Routine Safe Work Practice Sheets

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| Safe Work Practice Sheet<br>General Rules | Ref: SWPS 001 |
|---|---|
| | Date: July 09 |
| | Assessed by: E.Roe |

**Hazards**

There is always an ever-present risk of accidents occurring due to lack of vigilance and awareness of staff and students

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Everyday working environment

**Controls**

- Smoking, eating and drinking is prohibited in all areas other than designated
- areas. Smoking is prohibited in all areas.
- Exercise care when opening or closing doors on entering or leaving rooms. Never run.
- Conduct yourself in a responsible manner and do not act in a way that could be dangerous to yourself or others. Refrain from indulging inappropriate behavior as it could have serious consequences.
- No student or member of staff should ever work alone in a Laboratory, Workshop, Service Duct or Plant Room, without prior notification to Line Manager.
- All bags and coats are to be left in designated areas. All work and teaching areas should be kept tidy when in use and left tidy when finished.
- All accidents however minor must be reported to immediate superior.
- No member of staff or student is to interfere with any workplace equipment.
- Report any malfunctioning or dangerous or defective equipment to immediate supervisor without delay. Never attempt to effect repairs, no matter how trivial.
- Become familiar with position and use of safety equipment for each area in which you work.
- Study carefully and obey the Safe Work Practice Sheets for any area in which you are required to work.
- Co-operate with Employer in fulfilling duties imposed under Section 13(1)(a- h) of the Safety, Health & Welfare Act 2005

**Checks & Inspections**

Constant vigilance and awareness

**Information, Instruction & Training**

Not applicable

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 3 | = | Risk Factor | 6 high risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 low / medium risk |
|---|---|---|---|---|---|---|---|

## Risk Assessment Review

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Access and Egress | Ref: SWPS 002 |
|---|---|
| | Date: July 09 |
| | Assessed by: E.Roe |

**Hazards**

Inadequate access and egress in the workplace can result in slips, trips and falls. Obstructed access roads and paths can also pose a risk of injury to pedestrians and to vehicle operators and can also delay emergency escape and emergency vehicle access.

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Everyday working environment on campus

**Controls**

1. All doorways and access points in the workplace must be kept clear of obstructions.
2. All passageways and pedestrian routes must be kept clear from obstructions.
3. Materials must be stored in designated areas away from pedestrian and vehicular routes.
4. All stairways with more than 3 steps should be provided with handrails and maintained in good condition.
5. Adequate lighting must be provided throughout the Institute at all entry points, exit points and along corridors and passageways.
6. Workplaces must be kept clean and tidy at all times.
7. All spillages must be cleaned up immediately.
8. All cabling and hosing must be neatly tied off or ramped in order to prevent tripping.
9. Workplace floors must be kept in a level and even condition where possible in so far as is practicable. All holes and trip hazards should be removed, filled in or covered.
10. Trip hazards which cannot be removed must be clearly visible or signed as such.
11. Chairs, desks or drawers should never be used to access shelving or any other elevated area.
12. Stepladders or kick stools must always be used.
13. Vehicle drivers must exercise extreme caution when driving on Institute site.

All defects in flooring, lighting, stairwells, etc must be reported to the Estates Office via the Maintenance Request online system.

**Checks & Inspections**

Constant vigilance and awareness.

**Information, Instruction & Training**

Not applicable

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 3 | = | Risk Factor | 6 |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 |
|---|---|---|---|---|---|---|---|

## Risk Assessment Review

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Fire Safety | Ref: SWPS 003<br>Date: July 09<br>Assessed by: E.Roe |
|---|---|

**Hazards**

The outbreak of fire can lead to:

- Serious bodily injury or fatality
- Damaged property or plant
- Disruption of premises causing loss of facilities **Person**

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

There is always an ever-present risk of fire occurring in all workplaces. Common fire hazards include improperly stored combustible or flammable materials, the use of naked flames, faulty electrical equipment, the use of flammable fuels, the use of inappropriate equipment, the build up of flammable materials or wastes in the workplace and smoking in undesignated areas. The accidental release of chemical material may also lead to the outbreak of fire, especially if the material is pyrophoric, extremely flammable or is a strong oxidiser.

**Controls**

The Institute is committed to providing a fire safety programme that guards against the outbreak of fire in all areas and also makes provisions for the safety of all persons in the event of a fire. The Institute would like to reiterate to all staff at this point that every employee has a responsibility to guard against the outbreak of fire in the workplace through the implementation of good fire safety practises and where applicable the adherence to the control measures outlined below.

Employees should also refer to specific fire risk assessments that apply to their specified places / type of work.

*Fire Detection, Equipment & Emergency Lighting*

Layout drawings, detailing the location of the fire detection and alarm systems, throughout the campus have been prepared by the Estates Office. Copies of these drawings are held by members of the Caretaking Staff, to assist in the identification of the location of any alarm signal.

Fire detection and alarm systems are installed and maintained in accordance with current standards. Emergency lighting systems are in operation in all parts of the Campus. These are installed to and regularly maintained in accordance with current standards.

Fire mains and Hydrants and Fire Hose Reels are inspected and maintained in accordance with current

standards The date of the most recent inspection is noted on each hose reel. Test reports on ring mains and hydrants are held in the Estates Office and Fire Registers.

Portable fire extinguishers are inspected and maintained in accordance with current standards. The date of testing is noted on each extinguisher.

Copies of all testing and certificates are held in Estates Office in the Fire Register.

*Emergency Response*

1. Each building has in place an emergency plan detailing the reponse to be taken in the event of the sounding of a fire alarm or the discovery of a fire. Refer to http://ww2.dkit.ie/about_dkit/health_safety/emergency_evacuations_procedures_manual for further details.
2. Fire response procedures are displayed in prominent locations within the area covered by their provisions.
3. Emergency response procedures are tested at least annually by use of a fire drill.

*Procedural Controls*

1. It is prohibited to use a naked flame (outside of a laboratory area) or to engage in 'hot' work (outside of designated workshops) anywhere within the Institute without first obtaining a 'Hot Work Permit' from the Institute Estates Office. Hot work is defined as grinding, welding (all types), hot cutting, and any other work with the potential to generate a spark or an ignition source.
2. It is prohibited to disengage a fire detection device, remove a fire extinguisher from its designated location or to isolate a component of a fire safety system without the express permission of the Institute Estates Office.

*Training*

1. It is the responsibly of individuals within the Institute to ensure that they are familiar with the provisions of any relevant emergency procedures.
2. Fire safety training is available through the Staff Training & Development Officer for all interested parties.

*Means Of Escape*

1. All Institute premises will be provided with clearly signed suitable means of escape and emergency exits for use in the event of a fire.
2. All escape routes and emergency exits throughout a building / premises must be kept clear at all times.
3. It is the responsibility of all Institute employees to ensure that escape routes and emergency exits in their working area are kept free from obstruction.
4. No individual may obstruct or remove from service an escape route or emergency exit without prior arrangement with the Institute Estates Office.
5. In the event that employees have a concern regarding means of escape then they must contact their manager immediately. Urgent concerns can be conveyed directly to the Institute Estates Office.

*Hazardous Agents*

1. As part of a hazardous agent risk assessment fire safety provisions for handling the agent(s) in question must be detailed.
2. Flammable materials may only be handled and stored in accordance with the requirements of their Material Safety Data Sheets, with due regard being paid to their fire risks.
3. Flammable materials must be stored in a suitable storage area. The requirement for low voltage or flame proof wiring should be considered.

4. The large scale storage of flammable materials (>200l / kg) in a single location requires completion of a specific risk assessment prior to storage taking place.

1. Where new buildings are constructed by the Institute or existing buildings are substantially modified the requirements of Part B of the Building Regulations (1997) Technical Guidance Documents will be adhered to.
2. Smoking is prohibited in all indoor workplaces within the Institute.
3. Employees are encouraged to make themselves familiar with the location of alarm activation points and escape routes in their working areas.
4. Employees must not attempt to repair any electrical equipment unless they are competent to do so. All electrical repairs and installations within the University must only be completed by a competent person, following the rules laid down in the National Rules for the Electrical Installations, as prepared by the Electro-Technical Council of Ireland.
5. The amount of combustible materials stored within the workplace should be kept to a minimum.
6. In the event of an evacuation all persons must leave the workplace without exception and assembly at their designated assembly point.
7. Employees must adhere to any instructions given by Institute Fire Wardens or emergency services personnel in the event of an emergency.
8. Persons must not fight workplace fires unless they have been trained to do so and it is safe to do so.

***All employees are reminded of their statuary obligation to protect their own and their co-workers safety by guarding against the outbreak of fire in the workplace through the use of safe systems of work***

**Checks & Inspections**

**Information, Instruction & Training**

- Fire Drills
- Fire Warden Training
- Use of fire fighting equipment

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 3 | = | Risk Factor | 6 high risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 Low Risk |
|---|---|---|---|---|---|---|---|

***Risk Assessment Review –*** *As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Electrical Safety | Ref: SWPS 08 |
|---|---|
| | Date: March 2009 |
| | Assessed by: E. Bell |

**Hazards**

- Electrocution
- Electric shock
- Burns
- Inadvertent starting of machines

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

A range of electrical appliances are used in the Institute. This Safe Work Practice Sheet covers Portable Appliance Testing and general electrical safety

**Controls**

- **General**
- Installation or repair work may only be carried out by qualified electricians.
- New installations will comply with the requirements of the General Application Regulations and the Electro-Technical Council of Ireland publication 'National Rules for Electrical Installations.
- Flexible cables will be adequately protected against external mechanical and heat damage.
- Flexible cables should not be run across floors or walkways. Where electrical cables have to be run across open floor areas ramps will be placed over them to prevent the tripping and damage to cables.
- Adequate fusing or excess protection, e.g. circuit breakers, must be provided for all fixed and portable equipment.
- RCDs should be tested at the beginning of each term.
- Areas around fuse boards will be kept clear of flammable materials and the fuse board cabinets will be kept closed at all times.
- Work on electrical appliances by contractors or work requiring isolation of electrical supplies requires an Electrical Work Permit. Buildings and Estates must be contacted.
- Staff must report defective equipment and take out of service Portable AC electrical appliances that may be subject to deterioration as a result of their use such as power supplies and oscilloscopes must be visually inspected and tested at regular intervals. The schedule of testing should be determined by following the Electrical Technical Councils guidelines available at www.etci.ie/docs/ET215(2008).pdf. A record of testing and inspection must be kept by the relevant departments.
- Live working is prohibited except in circumstances where it is not possible to carry out the work in any other manner.

The following precautions must include as appropriate;

- the use of people who are properly trained and competent to work safely on live equipment
- the provision of adequate information to the person carrying out the work, about the live parts involved, the associated electrical installation and the likely risks, the use of suitable tools including insulated tools, equipment and protective clothing
- For example, insulating gloves, insulating boots and insulating rubber matting, the use of suitable insulated barriers or screens,
- the use of suitable instruments and test probes,
- accompaniment by a second person who is trained and able to act in an
- emergency, e.g. switch off power and give first aid treatment for electric shock,
- effective control of any area where there is danger from live parts.
- A safe system of work must be drawn up.

**Checks & Inspections**

• Portable appliance testing must be carried out on certain portable AC electrical equipment
• RCDs tested once per term
• Electrical circuits tested every 3 years

**Information, Instruction & Training**

- Trained First Aider/CPR (available when live working is carried out)

***Personal protective equipment required (last resort)***

Safety boots

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 2 | x | Severity | 2 | = | Risk Factor | 4 Medium Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Chemical Agents | Ref: SWPS 005<br>Date: July 09<br>Assessed by: E.Roe |
|---|---|

**Hazards**

Exposure to certain chemical agents can cause a range of injuries from minor to serious long term damage. A chemical is regarded as any substance (solid, liquid, aerosol or gas) which is used for the purpose of reacting with or effecting a change in another material. This definition extends beyond the narrow context of laboratory use and embraces broadest possible interpretation. It includes substances such as solvents, cleaning fluids, detergents, glues/resins, drain cleaners, paint strippers, preserving fluids as well as chemical reagents. A broad range of chemicals are in use throughout the Institute consisting of seemingly harmless readily available substances to highly specialised and reactive laboratory agents. Exposure may be through ingestion, inhalation, skin absorption, absorption through the mucous membranes.

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Information, Instruction & Training**

The hazards associated with each chemical substance are brought to the attention of the users (Senior technical staff are responsible for informing other technical staff, lecturers are responsible for informing students)

Ensure Material Safety Data Sheets are made available

***Personal protective equipment required (last resort)***

Care must be taken in the selection of personal protective equipment, eg. select the correct glove to ensure that the chemical does not readily break through Personal Protective Equipment should be CE marked.

***Initial Risk Rating (without any control measures)***

Probability : **2-3** x Severity **2-4** = Risk Factor **4-9**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **2-3** = Risk Factor **2-3**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Slips, Trips & Falls | Ref: SWPS 009 |
|---|---|
| | Date: July 09 |
| | Assessed by: E.Roe |

**Hazards**

Slips are caused by the presence of substances such as water, grease, oil, fats, soaps, granules, plastic sheets, packaging, leaves, ice etc deposited on the floor arising from the working conditions or in some cases the weather. Slip hazards can be found on both wet and dry surfaces.

Trips can be caused by such features as electric cables or compressed-air lines across walkways, curled-up or worn carpets, uneven floor surfaces and steps, or discarded work items.

Falls may be caused by slips or trips or when adjacent surfaces are at different levels leading to persons losing their balance because they had not anticipated the change in level. Slips or trips on stairs are particularly dangerous.

The hazards listed above are so ordinary and commonplace that people often accept them as part of normal living until they or someone close to them has an accident and is seriously hurt.

**Person Exposed to Risk**

✓ Students ✓ Employees ✓Public ✓ Contractors ✓ Visitors

**Work Description**
Everyday activity on campus

**Controls**

**Observe & Adhere to Health & Safety Authority Guidelines as below**

- The starting point lies with everybody becoming aware of these hazards and taking appropriate action.
- Management must take responsibility for controlling these hazards and must assign appropriate responsibilities to staff. Clear policies should address what people need to do to identify and monitor slip, trip and fall hazards and the action to take once they identify a hazard.
- Slips, trips and falls must be considered in the workplace hazard assessment that is required by law. This assessment should take account of:
- The type of hazard including how likely it is to occur
- Characteristics of the workplace such as the nature and condition of floor surfaces, quality
- of lighting
- Influence of the weather (e.g. rain, frost or leaves)
- Maintenance and cleaning procedures
- Workplace users
- Where workplaces are being modified or constructed there is an excellent opportunity to prevent slips and trips by selecting appropriate floor materials that are slip resistant and
- installed so as to minimise trip hazards.

## Nature of the hazard

In some work areas such as certain food processing activities slip hazards may not always be completely avoidable and the control measures will need to assume the hazard is always present.

- In other situations the floor surface may be non-slippery for most of the time but leaks from
- plant or bad weather may lead to the creation of a slip hazard. It only takes a small amount
- of liquid on a smooth floor to create a hazard. In these situations the immediate control
- measures will focus upon detection of liquids and the actions to be taken to remove the hazard or

reduce it by the provision of warnings and cordoning off areas.
- Permanent trip hazards should be removed as far as possible by such measures as the rerouting of pipes or cables, provision of more sockets to reduce long cable lengths, use of battery powered tools and the repair of uneven floor and stair surfaces.
- A good housekeeping regime will go a long way to reduce intermittent hazards from badly stored or discarded items. Materials should never be left or stored on stairs.
- Where changes in floor level cannot be avoided they should be clearly marked and the provision of handrails to control the movement of persons may be appropriate.
- Changes in level should not take people by surprise.

**Characteristics of your workplace**

- It is better to eliminate slip hazards by choosing a suitable surface rather than depending on cleaning regimes to keep a floor safe. Building designers should ensure that the intended appearance of a building does not compromise the choice of inherently safer floor options.
- Macro-rough surfaces (i.e. those that contain an aggregate) are recommended for areas that are expected to experience high levels of contamination. Floors that have hard particles throughout their thickness can maintain their slip resistance throughout their life but floors with a superficial layer of grit or slip resistant paint can become slippery as the layer is worn away.
- Profiled floors (ridges or blisters) are sometimes used in areas subject to slip hazards but these can become slippery over time as the profile becomes worn and contaminants can be left trapped within the profiles.
- Carpets or mats placed on smooth floors can pose both slip and trip hazards and, if used, should be securely fixed to the floor at their edges and at any joints.
- The slip resistance of steps is improved by the fitting of nosings which protect the edge of the step from wear and help users to the place their feet more accurately on it. Care has to be taken that the nosing itself does not constitute a hazard.
- The design of stairways in buildings will need to take account of Technical Guidance Documents B (Fire Safety), K (Stairways, etc) and M (Access for People with Disabilities) produced by the Department of Environment, Heritage and Local Government.
- Adequate lighting, including the avoidance of glare and shadows, is necessary to expose slip /trip hazards. Higher lighting levels are needed where older people are present.
- Poorly sited or excessive signage can distract people who are then less likely to notice slip or trip hazards.
-

**The weather**

- Building entrances can become slippery due to the ingress of moisture, mud and debris in bad weather. Measures such as having a slightly higher internal air pressure in the vestibule or the provision of a suitably designed shelter or canopy above the entrance can reduce the ingress of rain. Another simple measure is the installation of doors that do not blow open in the wind.
- Where matting is provided it should be aligned with the way pedestrians use the entrance. It should be laid immediately inside the door entrance and extend across the full width of the door. The existence of wet footprints beyond the entrance or matting is usually a sign that existing controls are not sufficient.
- Where mats in mat-wells are prone to becoming waterlogged the provision of drainage holes should be considered.

**Maintenance and cleaning procedures**

- Floor cleaning procedures should be incorporated in the operation and maintenance procedures for a company. The procedure should specify the methods and materials to be used as the use of the wrong cleaning method can increase the area of hazard and level of risk. The cleaning agent used should be suitable for the floor surface and the type of contamination encountered. A build -up of

polish or detergent residues should be avoided. The drying of floors after cleaning is most important for the control of slip hazards. Staff should be informed, trained and supervised with regard to:

- Cleaning and drying floors
- Importance of dealing with spillages/leaks

**"Cleaning as you go"**

- Reporting hazards as they arise and any equipment defects contributing to slip hazards or problems with the cleaning equipment itself
- Prompt incident reporting
- Use of suitable footwear
- Cleaning should, where practical, be carried out when there are less people around.
- Cleaning activity should be organised so as to provide dry paths through areas being cleaned. It is better to restrict access to areas that are being cleaned by the use of barriers rather than depending on the use of cones or signs alone.
- Research has shown that forewarning people of a hazard can lead them to modifying their gait so as to anticipate the situation but attention must be paid to removing signs when the hazard has been dealt with; otherwise people will tend to ignore them if their experience tells them that the signs are always displayed irrespective of the conditions underfoot.
- Where existing unsuitable floor surfaces are identified, the hazard can be reduced by controlling contamination, using mats, treating the surface or in some cases replacing it altogether with a safer material.

**Workspace users**

- Where there is control over access to the workspace, the risk of falls can be reduced by the introduction of a "sensible shoe" policy i.e. no high heels or loose fitting shoes. In addition: Shoe soles should have deep cleating and a well defined tread pattern.
- Safety footwear may not always be slip-resistant and purchasers should check that it is suitable for the conditions under which it is going to be used.
- Slip resistant shoes will not remain so if they become worn or contaminated underfoot.
- The risk of slipping while barefoot is often greater than when wearing shoes, so this factor needs to be taken into account in shower areas and in other tiled areas associated with swimming pools, etc
- Disposable plastic overshoes can have poor resistance on smooth floors
- In other workspaces where there is general public access there will greater dependence on the selection of floor material in combination with maintenance regimes to control slip, trip and fall hazards.

**Checks & Inspections**

- Visual checks and Risk Assessments as required in each Functional Area

**Information, Instruction & Training**

Not applicable

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 3 | = | Risk Factor | 6 High RISK |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 2 | = | Risk Factor | 2 Low Risk |
|---|---|---|---|---|---|---|---|

## Risk Assessment Review

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Lone Person Working | Ref: SWPS 010 |
|---|---|
| | Date: March 09 |
| | Assessed by: E.Bell |

**Hazards**

- Persons working alone using hazardous chemicals or equipment may not be able to summons
- help in the event of an accident or spillage.
- Certain exit routes may not be available during out of hours working.
- Entrapment in areas or spaces due to negligence or accident

**Person Exposed to Risk**

☐ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

**Definition of lone working**

Lone working/out of hours working is defined as follows:

Any Laboratory / Experimental work carried outside of 9 am - 5 pm Monday – Friday when there are no persons aware of your work within calling distance.

Any other work undertaken outside of 7 am-10 pm Monday – Friday and during the hours of 9am - 6pm on Saturday, Sunday & Bank Holidays.

All buildings must be vacated by 6pm on Saturdays, Sundays and Bank holidays to allow for full lock up. At Christmas & Easter the campus will close down for a specified number of days and access will only be granted under exceptional circumstances .

Lone working includes carrying out field work in hazardous terrain or in areas where there is a risk to personal safety.

Lone working may also include carrying out routine maintenance work in isolated areas such as roofs or plant-rooms.

**Controls**

**General**

- Lone working in laboratories is not permitted unless a risk assessment has been carried out in conjunction with an academic supervisor and the risk is deemed to be low. Typical work that may be allowed includes work on PCs, microscope work, viewing plates, taking items in and out of incubator.
- The supervisor may allow working on high risk activities if the person is competent (typically an experienced member of staff) and a buddy is in attendance.
- The supervisor may allow work on medium risk activities for competent researchers (with or without a buddy present).
- Where a person is working alone without other persons within shouting distance then a phone or mobile phone must be readily available. They must also notify a colleague of their intention, how long they intend to be working in the isolated area, and check back with the colleague at an agreed, pre-determined time, when the work in the isolated area is complete.
- Field work in hazardous terrain or where there is a risk of personal injury as a result of confrontation must not be carried out alone (see SWPS Fieldwork).
- Hazardous experiments must not be left unattended overnight.

**Out of hours access**

- If out of hours work is required permission must be sought from the Head of Department.
- All persons requiring 'Out of Hours' access must be aware of what to do in the event of an emergency, i.e. what emergency exit doors are available, how to raise the alarm, where to go etc.
- The Head of School must provide Security with the names and locations of persons working out of hours. The person must contact Security on leaving the building.
- Persons authorised to work out of hours must not admit any other person to the building out of hours. Persons claiming to be authorised but without a swipe access card or key should be referred to Security for access.
- Where the fire alarm is activated in the building after hours, those evacuating the building must assemble at the building fire assembly point. Otherwise emergency services will assume that they are still in the building.
- Researchers or Staff members who in exceptional circumstances, due to the nature of their research work, require access during 'Lock-Up' must seek authorisation for such access from Buildings and Estates.

**Checks & Inspections**

Visual checks and Risk Assessments as required in each Functional Area

**Information, Instruction & Training**

Not applicable

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 2-3 | = | Risk Factor | 4-6 |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 2-3 | = | Risk Factor | 2-3 |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

# Lone working/Out of Hours working

| | Name | Position | Date |
|---|---|---|---|
| Prepared by | | | |
| Reviewed by: | | | |
| Approved by | | | |

| Revision | Date | By | Description |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |

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| Safe Work Practice Sheet<br>Manual Handling | Ref: SWPS 09 |
|---|---|
| | Date: 30/03/2011 |
| | Approved by: E. Roe |

**Hazards**

Incorrect method of lifting
Attempting to lift something which is to heavy
Lifting sharp/awkward shapes
The main injuries associated with manual handling and lifting are:
Back strain, slipped disc, hernia,
Lacerations, crushing of hands or fingers.
Repetitive Strain Injury.
Bruised or broken toes or feet.
Various sprains, strains, etc.

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Staff and students may be required to lift or move heavy items from time to time including large pieces of wood, bags of aggregate, metal piping, moving rotating electrical boards, pushing/pulling trolleys and lifting engines and transmissions and various motor parts

**Controls**

- Risk assessments must carried out on manual handling tasks normally performed by staff As a rule of thumb an assessment is required where weights are above the guideline weights set out by the Health and Safety Authority and reproduced overleaf in figure 1. The assessment should be in writing and set out on form 1 Manual handling assessment attached to this procedure.
- Manual handling will be avoided where possible. Mechanical or other means of moving or lifting will be used such as trolleys and winches.
- Staff will be provided with manual handling training where manual handling is a regular part of their job.
- Seek assistance where possible when lifting heavy items.

Consideration must be given to the arrangement of stored items so that heavier items are not stored near floor or above shoulder height.

**Risks**

The injuries associated with objects involving, lifting, lowering, manoeuvring and handling objects are:

- Back injury, including slipped disks. The effect of the injury may be cumulative over a period of years (as with chronic backache).
- Pulled muscles and strained ligaments.
- Note: once the back or any other part of the body "goes", then it is easier to go again.

**Primary controls**

- Trained in the correct manual handling techniques and requirements
- Whenever and wherever possible and practicable use the correct mechanical means to lift, lower or manoeuvre heavy or awkwardly shaped loads.
- Split large loads into several smaller loads if possible.

**Basic controls**

**1 Assessment**

Carry out the following assessment process before you begin:

- Is it too heavy, too large, unwieldy or unstable?
- Will it require an unstable body posture position?
- Is the ground, floor or surface uneven or slippery?
- Are you able to maintain good posture while lifting?
- Will it require excessive lifting, lowering or carrying distances?
- Are you physically suited to carry out the task (e.g. physique, fitness, body strength)?
- Are you wearing suitable PPE (e.g. gloves, safety footwear)?

**2 Safe to Manual Handle**

When your assessment indicates that you can safely undertake the manual handling task, then proceed as detailed in section 3

Even when considered safe you should still use the correct mechanical means whenever and wherever possible and practicable.

**3** ***If there is no alternative way then:***

**Protect your back**

- If you must lift, carry and move an object yourself or with others, then you must do so in accordance with the correct techniques that you have learned in training. These correct techniques are summarised as follows:
- Lifting: Stand close to the load, bend the knees, not the back. Get a firm grip of the load and rise up straight.
- Carrying: Keep the load close to the body, with back straight, and turn by pivoting your feet.
- Lowering: Lower the entire body bending the knees, with back straight.

**Special Controls**
**Loading, transporting**
**& off-loading materials**

- Use mechanical means to load heavy and awkward loads
- Wear gloves and boots to protect body from getting trapped between the load and any other surface.
- Secure and store safely on the transport vehicle

**Checks & Inspections**

- Senior technician to monitor that correct manual handling technique is being used.
- Trolleys should be visually checked before use. Trolleys with damaged wheels should be taken out of service.

**Information, Instruction & Training**

- Manual Handling Training provided to relevant staff. Manual Handling activities are monitored and refresher training and /or reinstruction is an integral part of the safety management programme.

***Personal protective equipment required (last resort)***

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | **High Risk** |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **2** x Severity **1-2** = Risk Factor **2-4 Low-medium risk**

## Risk Assessment Review

*As and when process changes or yearly*

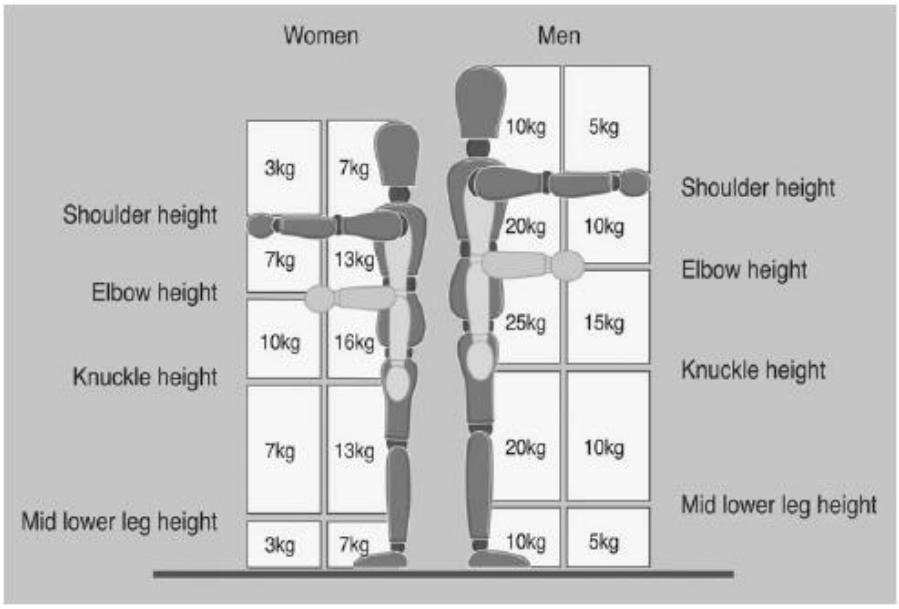


Figure 1. Guideline weights issued by the Health and Safety Authority.

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# Form 1 Manual handling risk assessment

**Section A – Preliminary** *** Circle as appropriate**

| | |
|---|---|
| Job Description<br><br>Factors beyond the limits of the guideline weights? (See SWPS Manual handling) | Is an assessment needed?<br>(i.e. Is there a potential risk for injury, and are the factors beyond the limits of the guidelines?)<br><br>Yes / No* |

If 'yes' continue. If 'no' the assessment need go no further.

| | |
|---|---|
| Operations covered by this assessment (detailed description):<br><br>Locations:<br>Personnel involved:<br>Date of assessment: | Diagrams or other information: |

**Section B** – See over for detailed analysis

**Section C** – Overall assessment of the risk of injury? Low/Med/High*

**Section D** – Remedial action to be taken:

| |
|---|
| Remedial steps that should be taken, in order of priority:<br>1.<br>2.<br>3.<br>4.<br>5.<br>6.<br>7.<br>8. |
| Date by which action should be taken: |
| Date for reassessment: |
| Assessor's name: Signature: |

| Section B – More detailed assessment, where necessary: | | | | | |
|---|---|---|---|---|---|
| Questions to consider: | If yes, tick appropriate level of risk | | | Problems occurring from the task (Make rough notes in this column in preparation for the possible remedial action to be taken). | Possible remedial action (Possible changes to be made to system/task, load, workplace/space, environment. Communication that is needed. |
| | Low | Med | High | | |
| **The tasks –** do they involve:<br>• holding loads away from trunk?<br>• twisting?<br>• stooping?<br>• reaching upwards?<br>• large vertical movements?<br>• long carrying distances?<br>• strenuous pushing or pulling?<br>• unpredictable movement of loads?<br>• repetitive handling?<br>• insufficient rest or recovery?<br>• a work rate imposed by a process? | | | | | |
| **The loads** – are they:<br>• heavy?<br>• bulky / unwieldy?<br>• difficult to grasp?<br>• unstable / unpredictable?<br>• intrinsically harmful (e.g. sharp / hot)? | | | | | |
| **The working environment –** are there:<br>• constraints on posture?<br>• poor floors?<br>• variations in levels?<br>• hot/cold humid conditions?<br>• strong air movements?<br>• poor lighting conditions? | | | | | |
| **Individual capability** – does the job:<br>• require unusual capability?<br>• hazard those with a health problem?<br>• hazard those who are pregnant?<br>• call for special information / training? | | | | | |
| **Other factors:**<br>Is movement or posture hindered by clothing or personal protective equipment? | YES / NO | | | | |

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| Safe Work Practice Sheet<br>Storage Areas | Ref: SWPS 019 |
|---|---|
| | Date: July 09 |
| | Assessed by: E.Roe |

**Hazards**

Slips, trips, falls
Cut
Back Injury
Sprains
Falling object
Fire

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Storage of hazardous and non-hazardous substances and materials

**Checks & Inspections**

- Keep all pathways clear
- Do not climb on shelves or storage racks
- Do not climb on shelves to reach heights – use stepladders only
- Keep aisleways clear
- Do not keep any hazardous materials and substances in general storage areas – they must be kept in designated protected store located in Maintenance Building.
- Store heavy items at low level.
- Store medium weight items on middle shelves.
- Store light items on high shelves.
- Store items on shelves in such a way that they can not fall off.
- Keep all hazardous materials and substances, papers, boxes, etc. away from electric heaters.
- Store material lengths or racking parallel to the aisle.
- Storage areas to be kept locked at all times.
- Only authorized personnel are allowed access to Storage Areas.
- Do not attempt to lift any loads unless you have received appropriate training in safe manual handling techniques.
- Smoking, eating and drinking is prohibited in all storage areas.

**Information, Instruction & Training**

Not applicable

***Personal protective equipment required (last resort)***

Not applicable

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 2 | = | Risk Factor | 4 |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 2 | = | Risk Factor | 2 |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>General Workshop Safety | Ref: SWPS 025 |
|---|---|
| | Date: Aug 09 |
| | Assessed by: E.Roe |

**Hazards**

Improper storage of items can lead to items falling on staff,
- obstruction of exit routes,
- manual handling injuries,
- fire,
- failure of shelving.
- Operation of diesel or petrol engines in unventilated space may lead to asphyxiation
- Use of cutting equipment without extraction can lead to respiratory problems

**Person Exposed to Risk**

☐ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

General activities in workshop

**Controls**

- The Workshop is fitted with fire detection and alarm system and emergency lighting which is serviced regularly.
- Exit routes must be kept clear of obstruction at all times.
- Adequate shelving is provided to allow safe storage of equipment.
- Heavier items should be stored on middle shelves with lighter items above shoulder height & floor height.
- Where heavy items are stored the condition of shelving should be checked every 6 months by the Supervisor.
- Diesel and petrol is stored in appropriate marked containers in small quantities (<20 litres).
- Diesel or petrol engines must not be operated indoors unless ventilation is operational.
- Extraction ventilation must be serviced annually.
- Cutting equipment should be used in conjunction with extraction.

**Checks & Inspections**

Extraction equipment must be serviced annually

**Information, Instruction & Training**

Staff must be shown the correct use of extraction equipment

***Personal protective equipment required (last resort)***

Safety boots

***Initial Risk Rating (without any control measures)***

| Probability : | 2 | x | Severity | 2 | = | Risk Factor | 4 Medium Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 2 | = | Risk Factor | 2 |
|---|---|---|---|---|---|---|---|

## Risk Assessment Review

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Use of hand tools | Ref: SWPS 026 |
|---|---|
| | Date: Aug 09 |
| | Assessed by: E.Roe |

**Hazards**

Cuts
Ejection of material
Eye damage
Stab injuries
Head injuries

**Person Exposed to Risk**

☐ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Using hand tools such as chisels, Stanley knives, hammers, drills etc.

**Controls**

- Only staff with appropriate training or experience may use hand tools.
- The tools should be checked before use for signs of wear and tear. Damaged items should be taken out of service for repair or replacement.
- No power tools or electrical equipment of greater voltage than 110 volts shall be used in external locations.
- Where power tools have to be used off the main supply the source of supply must be fitted with residual current devices (ELCB) rated at 30 mAmps at 30 msecs.
- All cable connections must be properly made; under no circumstances is insulation tape to be used for any repair or joint in extension.
- Power tools must be maintained in good condition with casing intact and label fitted showing voltage and other information. An annual formal documented inspection should be carried out by a competent person.
- Mains operated equipment must be electrically tested.
- Where there is a risk of particles hitting the eye, eye protection must be worn.
- Ear defenders will not normally be required as the duration of exposure is expected to be low and infrequent.
- Tools should not be left unattended in public areas when going for breaks.
- Staff should not repair tools unless they are trained to do so.
- Only use tools in the manner in which they were designed to be used.
- Return tools to the workshop at the end of each day.

**Checks & Inspections**

- Check all tools before each use.
- Annual electrical test for mains operated equipment.

**Information, Instruction & Training**

- Only trained staff may operate equipment. Training may be provided in house by another
- competent member of staff.

## *Personal protective equipment required (last resort)*

Personal protective equipment varies with tool being used. Where there is a risk of flying particles then eye protection should be worn.

### *Initial Risk Rating (without any control measures)*

| Probability : | 2 | x | Severity | 3 | = | Risk Factor | 6 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

### Risk Reduction Rating (after controls introduced)

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 Low Risk |
|---|---|---|---|---|---|---|---|

### Risk Assessment Review

*As and when process changes or yearly*

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| **Safe Work Practice Sheet**<br>**Use of Ladders / Stepladders** | Ref: SWPS 007<br>Date: 10/05/2011<br>Assessed by: P. Killeen<br>Approved by: E. Roe |
|---|---|

**Hazards**

- Physical injury due to fall of persons from ladder
- Objects dropped by ladder / stepladder user

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

## NOTE:

The use of Ladders / stepladders is restricted to activities where the risk is deemed to be low (that it would be unlikely to cause injury), the work is of short duration (30mins max) or brief periods at a time, and where the risk assessment shows the use of other work equipment ( e.g. working platforms ) is not justified.

**Low Risk is considered when:** where the operator can maintain a handhold / grip on stile whilst placing a box on a shelf and where the user's both feet are fully supported on the same step / rung.

Ladders/ stepladders are not suitable for strenuous or heavy work or where the work involves carrying awkward objects, tools or equipment.

## Work Description

The use of Ladders / Stepladders by staff is infrequent. As part of their work technicians on occasions access shelving and storage areas to gain access to materials or parts.

## Controls

- Ladder work is restricted to work which can be carried out using one hand only and of short duration.
- The base of the ladder must be on firm and level ground.
- For extension ladders they must be at the correct angle of rest 75 degrees or a base to height ratio of 1:4 ( 1 out to every 4 units up ) and made secured ( tying at the top or bottom )
- Stepladders must be fully opened out.
- There must be no sideways loading.
- Maintain 3 points of contact ( both feet on the same rung, firm grip on the stile or handrail )
- Over reaching from ladders / stepladders will be avoided.
- Do not work on the top 3 rungs of a ladder, or top 2 steps for stepladders (regardless of length)
- Do not straddle ( or sit at the top ) of an A frame ladder.

## Checks & Inspections

- Ladders will be checked for the correct type of equipment for the job at hand.

- Ladders / Stepladders must be visually inspected before use.
- Inspection of ladders must be recorded on form GA3 for every 7 day of use or used for the first time.

## Information, Instruction & Training

- Operatives will be instructed to the safe use of ladders and the hazards which are to be avoided.
- Operatives to follow the controls
- Operatives to report any defects
- A further risk assessment will be necessary where the work activity is deemed to be medium or a high risk.

## *Personal protective equipment required (last resort)*

- PPE may be a requirement dependant on the Risk Assessment

## *Initial Risk Rating (without any control measures)*

| Probability : | 2 | x | Severity | 2 | = | Risk Factor | 4 |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

## Risk Reduction Rating (after controls introduced)

| Probability : | 1 | x | Severity | 2 | = | Risk Factor | 2 |
|---|---|---|---|---|---|---|---|

## Risk Assessment Review

*Risk Assessment will be reviewed periodically*

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| **Safe Work Practice Sheet**<br>**Use of cutters, scalpel and stanley knives** | Ref: SWPS 027<br>Date: March 09<br>Assessed by: E. Bell |
|---|---|

**Hazards**

- Cuts when taking blades in and out of handle
- Cuts while using equipment
- Cleaning staff receiving cuts if blades disposed of to general waste
- Eye injury if blade breaks while used with force for tasks other than cutting

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

A range of cutting equipment is used in some areas by staff and students

**Controls**

- Where possible retractable blades or safety knives will be used.
- Blades must be disposed of to a designated sharps bin with a closable lid. Blades must never be disposed of to general waste.
- Users should use only sharp blades – blunt blades require more force and their use may result in injury
- Users should cut away from the body keeping the restraining hand well away from the blade.
- Unsheathed blades must never be carried in pockets or bags.
- Unsheathed blades must not be left in drawers or toolboxes.

**Checks & Inspections**

- Knives cutters used in classroom situations should be visually checked annually and damaged equipment removed from circulation.

**Information, Instruction & Training**

Students receive specific instruction on safe use of blades

***Personal protective equipment required (last resort)***

***Initial Risk Rating (without any control measures)***

| Probability : | **2** | x | Severity | **3** | = | Risk Factor | **6 High Risk** |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 2-3 | = | Risk Factor | 2-3 Low Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

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# Appendix III

# Specific Safe Work Practice Sheets

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| Safe Work Practice Sheet<br><br>Air Conditioning Test Unit | Ref: SWPS MEC 002 |
|---|---|
| | Date: 25/07/2014 |
| | Revision No. 001 |
| | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Electricity**
Incorrectly connected, damaged or poorly maintained electrical wiring damaged simulating room bulbs can result in Electrocution-Death. First second and or third degree burns.

**Manual Handling**
Pulling and pushing the machine in to the test location can result in lower back and musculoskeletal injuries.

**Mechanical**
Contact with air flow & refrigerator fan can result in loss of fingers, entanglement of hair and clothing minor cuts and bruises.

**Hot Surfaces**
Contact with hot pipes, compressor head can result in minor burns to the hands and fingers.

**Refrigerator Gas**
Inhalation of leaking gas can result in minor respiratory or eye irritation.

**Slips trips and falls**
Slipping as a result of leaking or spilled water, causing falls and head impact injuries, cuts and bruises. Tripping due to trailing power cable, poor housekeeping & personal belongings resulting in falls & head impact injuries, cuts and bruises.

**Falling Machine / Items**
Damaged wheels on the test equipment can result in falling test machinery & cause lower leg and feet crushing injuries and entrapment. Items stored on top of the machine fall off and cause impact leg and feet injuries.

**Glass Sharps**
Bulbs in simulating box get damaged from inadvertent knocking resulting in minor cuts to hands and fingers.

**Light**
Panel door on simulator room is removed or damaged can result in light exposure to the eyes and temporary blindness.

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Air conditioning test unit is used to carry out trial performance and efficiency tests on air handling systems for buildings.

**Controls**

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- The lecturer or technician must set up machine prior to use.

- Lecturer and technician are permitted to operate the machine.
- Students are only permitted to operate the machine controls panels under correct instruction and the supervision of the lecturer or technician.
- Follow the manufacturer's machine operating procedures at all times.
- Long hair must be tied back neatly or a well fitted cap worn when operating the machine.
- The wearing of loose clothing or jewellery is not permitted.
- Ensure that the electric power cable and plug is in good working order & free from defects prior to use.
- Do not use the machine if the power cable or plug is damaged in any way.
- Competent persons must carry out all electrical repairs or bulb replacements.
- Follow the manual handling training guidelines at all times when moving the machine & seek assistance if required.
- Ensure that the machine fan guards are in place and free from damage prior to operating the machine.
- Do not touch machine compressor or hot pipes when the machine is running, if required allow sufficient time to cool before handling.
- Ensure the machine is set up in a well-ventilated area, never use the machine if leaking refrigerator gas.
- Avoid the trailing of power cables by plugging in the machine from the back.
- Clean any water or spills up as soon as noticed.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that the wheels of the test equipment are free from defects and damage prior to use.
- Do not store test equipment or miscellaneous items on top of the machine.
- Do not handle broken glass with bare hands, use a dust pan and brush to clean up.
- Ensure that the simulator panel door is closed on the machine at all times and free from damage.

**Checks & Inspections**

- Regular maintenance to be carried out according to manufacturer's recommendations and records kept by the School
- Lecturers and technicians to monitor compliance with control measures.

**Information, Instruction & Training**

- Instruction is given on the safe use of the equipment.
- Lab instruction sheets are issued to all students prior to carrying out an exercise.
- Laboratory exercises are supervised by college staff.

***Personal protective equipment required (last resort)***

- Safety Boots

## *Initial Risk Rating (without any control measures)*

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | SEVERITY | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

## Risk Reduction Rating (after controls introduced)

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br><br>Internal Combustion Engine Test Bed | Ref: SWPS MEC 008 |
|---|---|
| | Date: 25/07/2014 |
| | Revision No. 001 |
| | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Explosion**
Incorrect wiring of the battery can result in explosions and puncture wounds from flying missiles.

**Manual Handling**
Applying and removing weights from the back of the machine, topping the machine up with fuel, can result in lower back and or musculoskeletal injuries

**Slips, Trips and Falls**
Poor housekeeping, personal belongings, leaking oil or petrol, spilled oil or petrol, leaking water onto the floor can result in tripping, slipping causing falls and major or minor head and body impact injuries.

**Temperature**
First and or second degree burns to the hands and fingers when in contact with the engine manifold or pipe.

**Chemicals**
Acute or chronic dermatitis on hands and fingers from topping up the engine with oil or petrol.

**Fumes**
Topping the machine up with petrol can result in acute or chronic respiratory illness, running the machine can result in exhaust emissions and carbon monoxide poisoning-death,

**Fire**
Petrol in contact with ignition sources can result in a fire causing death or first, second and or third degree burns.

**Falls from Height**
Climbing up on the machine to top up the petrol tank can result in a fall and major and minor head and body injuries

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The internal combustion engine test bed is used to carry our performance and efficiency tests.

**Controls**

- Ensure to connect the positive to the positive first (red cable) and negative to negative (black cable) second (make sure no sparks are allowed to be generated as this may result in battery exploding causing serious damage).
- When disconnecting the battery, disconnect the black cable first.
- Students are not permitted to set up the test bed.
- Students are only permitted to operate various functions of the machine as instructed by the lecturer or technician. Students must be supervised at all times during the test engine operation.
- Follow the manual handling training guidelines at all times when handling weights and fuel.
- Always use an approved petrol container for holding fuel and topping up the machine.
- Only use a small petrol container of 5 litres or less.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Inspect the floor space around the machine for oil, water and petrol prior to using the machine.
- Fluid on the floor must be cleaned up immediately, dispose of cleaning aids (paper towels etc) responsibly.
- Do not run the machine if leaking water, oil or petrol, competent persons must carry out repairs to the machine.
- Never touch the engine housing manifold or exhaust when the machine is running, allow for the machine to cool down after use prior to handling.
- Always wear safety gloves when handling petrol or oil for or from the machine.
- Ensure that the in-house extract system is turned on prior to operating the machine.
- Ensure that there is adequate ventilation when topping the machine up with petrol and running the machine.
- Ensure that all rotating parts are guarded
- Equipment may only be operated by technician or lecturer
- Only very small quantities of fuel to be used at any time, fuel must never be stored in the lab.
- Appropriate fire extinguisher to be located nearby when operating the machine.
- Naked flames or Ignition sources must not be used at or near the machine.
- Do not climb up on the machine to gain access to top up the petrol tank. Use and approved step ladder when topping up the petrol tank. See SWPS 007.
- Take heed of hazard warning notices.

**Checks & Inspections**

- Regular maintenance to be carried out according to manufacturers recommendations and records kept by the School
- Only lecturers and technicians are permitted to set up the equipment
- Lecturers and technicians to monitor compliance with control measures

**Information, Instruction & Training**

- Instruction is given on the safe use of the equipment
- Lab instruction sheets are issued to all students prior to carrying out an exercise
- Laboratory exercises are supervised by college staff
- Manual handling training
- PPE training

- Chemical handling training
- Petrol and oil MSDS

***Personal protective equipment required (last resort)***

- Safety glasses
- Heat resistant gloves when appropriate
- Safety gloves
- Safety Boots

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br><br>Parker Hydraulics Training Unit | Ref: SWPS MEC 018 |
|---|---|
| | Date: 25/07/2014 |
| | Revision No. 001 |
| | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Electricity**
Poorly fitted, not maintained, damaged or defected electrical cable or plug and socket can result in electrocution-death or first, second and or third degree burns.

**Manual Handling**
Pulling and pushing the machine to and from storage can result in lower back and or musculoskeletal injuries.

**Mechanical**
Contact with the machine rotating cog wheel can result in entanglement, contact with the moving piston can result in crushing injuries to fingers.

**Slips, Trips and Falls**
Poor housekeeping, personal belongings, trailing electric cable, leaking hydraulic oil or topping up with oil can cause tripping and slipping resulting in falls and major or minor head impact injuries.

**Whipping hydraulic hoses**
Damaged, defected or incorrectly set up hydraulic hose can result in an uncontrolled whipping hose causing blunt force blows to upper body parts.

**Chemicals**
Handling the hydraulic hoses and other machine parts can result in acute or chronic dermatitis of the hands and fingers when in contact with hydraulic oil.

**Ejected hydraulic fluid**
Damaged hydraulic hose or fitting or piping can result in hydraulic fluid being ejected under pressure causing permanent or temporary loss of sight and or major or minor skin irritation.

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Using hydraulics training unit to demonstrate and learn the practical application of pressurised oil driven devices to automate certain processes.

**Controls**

- Students are permitted the use of the machine under correct instruction and the lecturer or technicians

supervision.

- Inspect the machine electrical cable, plug or wall socket for damage or defects prior to using the machine.
- Do not use the machine if the cable or plugs are damaged in any way, competent person/s must carry out all electrical repairs.
- Follow the manual handling training guidelines when moving the machine to and from storage.
- Ensure that the machines castor wheels are in good working order when moving the machine.
- Ensure that the cog and piston machine guards are in place prior to operating the machine.
- Maintain good housekeeping and work area free from personal belonging at all times.
- Avoid the trailing of electrical power cables when setting up the machine, use the power sockets mounted above workbenches. Do not walk in behind the machine when it is set up.
- Spilled, splashed or leaking hydraulic oil on the floor must be cleaned up immediately.
- Inspect the hydraulic hoses prior to use. Do no not use if damaged in any way and hand to the technician or lecturer for removal, replacement or repair.
- Where hoses or fittings are leaking oil when running the machine, stop using the machine immediately.
- Use gloves when handling machine parts contaminated with hydraulic oil.
- Contaminated clothing must be removed immediately.
- Safety glasses must be worn at all times
- Take heed of hazard warning notices
- Wash hands thoroughly if one comes into contact with leaked oil or when testing is complete.
- Follow the manufacturer's safety check list on the front panel of the test unit prior to and when operating the test unit.

**Checks & Inspections**

- Regular maintenance to be carried out according to manufacturer's recommendations and records kept by the School
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

**Information, Instruction & Training**

- Students receive training and instruction before using this training unit.
- Students must be supervised when operating this equipment.
- Manual handling training.
- Chemical handling training.
- PPE training.
- Hydraulic oil MSDS

***Personal protective equipment required (last resort)***

- Safety glasses
- Safety gloves
- Safety Boots

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 Low Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br><br>Pneumatics Training Boards | Ref: SWPS MEC 025 |
|---|---|
| | Date: 25/07/2014 |
| | Revision No. 001 |
| | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Electricity**
Incorrectly connected, damaged or poorly maintained electrical wiring, damaged simulating room bulbs can result in Electrocution-Death. First second and or third degree burns.

**Pneumatics**
Incorrectly fitted, damaged airlines or connectors can cause whipping airlines resulting in loss of sight and or minor cuts and bruises.

**Mechanical**
Entanglement of long hair, loose clothing or jewellery with rotating shaft. Crushing of fingers when in contact with the moving piston rod.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, air hoses lying on the ground can cause tripping and slipping resulting fall head impact injuries and minor cuts and bruises.

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Using pneumatic training boards to demonstrate and learn the practical application of compressed air driven devices to automate certain processes.

**Controls**

- Students are permitted the use of the training boards under correct instruction and the lecturer or technicians supervision.
- Ensure that the electric power cable and plug of the training board is in good working order & free from defects prior to use.
- Loose clothing must no be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Do not use the training boards if the power cable or plug is damaged in any way.
- Competent persons must carry out all electrical repairs.
- Training exercise diagrams must be adhered to at all times.
- Airlines and connectors must be inspected for damage or defects prior to use.
- Do not use any damaged or defected airline or connector.
- Damaged or defected airline or connectors must be reported to the lecturer or technician for

removal and replacement.

- Competent persons must only carry out repairs to training boards and parts.
- The lecturer must inspect the students work prior to turning on the air supply.
- Never touch any of the rotating or moving parts of the training boards.
- Safety glasses must be worn at all times.
- Take heed of hazard warning notices.

**Checks & Inspections**

- Regular maintenance to be carried out according to manufacturers recommendations and records kept by the School
- Lecturers and technicians to monitor compliance with control measures
- Lecturers and technicians to monitor the wearing of PPE

**Information, Instruction & Training**

- Students to be provided with training and instruction before using these training boards

***Personal protective equipment required (last resort)***

- Safety glasses
- Safety Boots

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| **Safe Work Practice Sheet**<br>**Electric Reciprocating Water Pump Test Unit**<br>**(Serial No. TE83/1976)** | Ref: SWPS MEC 030<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged test unit electrical wiring can result in electrocution-death or first, second and or third degree burns.

**Mechanical**
Entanglement of long hair or loose clothing with rotating electric motors and shafts resulting in asphyxiation.

**Slips Trips and Falls**
Trailing power cable, poor housekeeping, personal belongings, leaking water from the machine can cause slips and trips resulting in falls and major or minor head impact injuries.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**
The test unit is used for carrying out performance tests on a reciprocating water pumping system.

**Controls**

- Students are permitted to use the machine under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged in any way.
- Competent person/s must carry out electrical repairs or work.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure all machine guards are in place prior to operating the machine.
- Maintain good housekeeping and work area free from personal belongings all times.
- Avoid the trailing of power cables.
- Check for water leaks on the floor prior to and when operating the machine. Leaking water must be cleaned up immediately.
- Safety Glasses must be worn when operating the machine.

**Checks & Inspections**

- Regular maintenance in accordance with manufacturer's recommendations and records maintained by the school.
- Water sump is emptied and replaced once per term.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.

***Personal protective equipment required (last resort)***

- Safety Glasses
- Safety Boots

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 Low Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

*As and when process changes or yearly*

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| **Safe Work Practice Sheet**<br>**Electric Piston Water Pump Test Unit**<br>**(Serial No. TE52/1943)** | Ref: SWPS MEC 064<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged test unit electrical wiring can result in electrocution-death or first, second and or third degree burns.

**Mechanical**
Crushing of fingers in between sliding piston plunger. Pinching and loss of fingers with rotating drive belt. Entanglement of long hair or loose clothing with rotating motor shaft or drive wheel resulting in asphyxiation.

**Manual Handling**
Dragging, pushing or pulling the machine to or from storage can result in acute or chronic lower back and or musculoskeletal injuries

**Slips Trips and Falls**
Trailing power cable, poor housekeeping, personal belongings, leaking water from the machine can cause slips and trips resulting in falls and major or minor head impact injuries.

**Falling machine**
Legs or wheel on the machine fail causing the machine to collapse to the ground resulting in lower leg and feet crushing injuries.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**
The test unit is used for carrying out performance tests on an electric water piston pumping system.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged in any way.
- Competent person/s must carry out electrical repairs or work.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure all machine guards are in place when operating the machine.
- Never place fingers in between the moving/sliding piston plunger.
- Follow the manual handling training guide lines when moving the machine to and from storage and seek assistance if required.

- Maintain good housekeeping and work area free from personal belongings all times.
- Avoid the trailing of power cables.
- Check for water leaks on the floor prior to and when operating the machine. Leaking water must be cleaned up immediately.
- Ensure the wheels and legs of the test equipment are in good working order prior to use. Do not use if damaged in any way and remove from use for repair.
- Safety Glasses must be worn when operating the machine.

**Checks & Inspections**

- Regular maintenance in accordance with manufacturer's recommendations and records maintained by the school.
- Water sump is emptied and replaced once per term.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.

***Personal protective equipment required (last resort)***

- Safety Glasses
- Safety Boots

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| **Safe Work Practice Sheet**<br>**Electric Oil Gear Pump Test Unit**<br>**(Serial No. TE74/1971)** | Ref: SWPS MEC 065<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged test unit electrical wiring can result in electrocution-death or first, second and or third degree burns.

**Mechanical**
Entanglement of long hair or loose clothing with rotating motor shaft or drive wheel resulting in asphyxiation.

**Slips Trips and Falls**
Trailing power cable, poor housekeeping, personal belongings, leaking oil from the machine can cause slips and trips resulting in falls and major or minor head impact injuries.

**Splashing Oil**
Filling the machine up with oil, not running the machine as intended can result in oil splashes causing major or minor eye and skin irritation or clothing contamination.

**Collapsing Machine**
Frame of the machine fails resulting in a collapsing machine causing lower leg and feet crush injuries.

**Fire**
Oil is exposed to an ignition source resulting in a fire causing first second and or third degree burns.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The test unit is used for carrying out performance tests on an electric water piston pumping system.

**Controls**

- Students are permitted to use the machine under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged in any way.
- Competent person/s must carry out electrical repairs or work.
- Loose clothing must not be worn when operating the machine.
- Long hair must be neatly tied back or a well fitted cap worn.
- Ensure all machine guards are in place when operating the machine.

- Maintain good housekeeping and work area free from personal belongings all times.
- Avoid the trailing of power cables.
- Check for oil leaks on the floor prior to and when operating the machine. Leaking oil must be cleaned up immediately. Wear safety gloves if in contact with oil.
- Safety Glasses must be worn when operating or maintaining the machine
- Clothing contaminated with machine oil must be removed immediately.
- Ensure machine oil guards are in place prior to operating the machine.
- Ensure that the resting frame of the machine is of sound structure and free from defects prior to operating the machine.
- Never expose the oil in the machine to ignition sources (lighters, hot sources etc.).

**Checks & Inspections**

- Regular maintenance in accordance with manufacturer's recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.
- MSDS
- Chemical training

***Personal protective equipment required (last resort)***

- Safety Glasses
- Safety Boots
- Safety Gloves

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 High Risk**

**Risk Assessment Review**

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| Safe Work Practice Sheet<br><br>Portable Solar Panel | Ref: SWPS MEC 067<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The solar panel is used externally to capture heat from the sun to heat water in an enclosed system.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug and external power supply for damage or defects prior to use.
- Do not use the machine if the power cable, plug, external power supply unit is damaged or defected in any way.
- All electrical repairs must be carried out by a competent person.
- Follow the manual handling training guidelines when moving the test unit to and from the lab.
- Seek assistance when required to move and transport the solar panel unit.
- Use the wooden sheet ramps provided to wheel the unit to and from the lab floor and ground level.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Use the rubber mat supplied to cover exposed trailing cables.
- Always walk around the unit steadying legs and never step over them.
- Ensure that the unit angle locking pin is locked when transporting the unit and in final testing location.
- Ensure that the copper cylinder heat jacket is in place prior to using the machine.
- Do not touch pipe work on the back of the unit during and after testing, allow for adequate cooling time if required to handle.
- Where possible, use the test unit at a time of year where the UV index is low.
- Wear adequate sun factor if UV index is high.
- Ensure to remain hydrated if outside for extended periods of times.
- Wear safety boots when moving the unit to and from storage.
- Inspect the wheels of the unit for damage or defects prior to transporting it, do no use the unit if wheels are damaged or defected in any way and remove form use for repair by a competent person.
- Observe for pedestrians and vehicular traffic when transporting the unit externally.
- Give way to pedestrians at all times when pushing the unit to and from the external test location.
- Obey the rules of the road when utilising the road to test location.
- Exercise caution when passing through the road barrier.
- Ensure that the unit is set up on level flat ground and that the wheels are locked into place.

**Checks & Inspections**

- Regular maintenance carried out on the unit and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.
- Manual Handling Training

***Personal protective equipment required (last resort)***

- Safety Boots

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 High Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

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| Safe Work Practice Sheet<br><br>Concentric Tube Heat Exchanger | Ref: SWPS MEC 068<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged test unit electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, trailing water hoses, leaking water, can result in slipping and tripping causing falls and head and body impact injuries.

**Temperature**
The pipes on the back of the unit heat up and cause minor burns to the hands and fingers.

**Falling Apparatus**
The apparatus falls from the work table causing lower leg and feet impact and crushing injuries.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The apparatus is used to demonstrate the flow of a hot and cold water system.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable, plug, is damaged or defected in any way and remove from use for repair.
- All electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that the electrical cables and water hoses are connected to the back of the machine.
- Clean up any leaking water immediately when noticed.
- Do not touch pipe work on the back of the unit during and after testing, allow for adequate cooling time if required to handle.
- Ensure that the thermostat is set at and maintained at the required testing temperature.
- Wear safety boots when moving the unit to and from storage.
- Ensure that the apparatus is fixed bolted to the work bench.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturer's recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.

***Personal protective equipment required (last resort)***

- Safety Boots

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 High Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>Cussons (P6112/223/224) Water Flow Measuring Apparatuses | Ref: SWPS MEC 072 |
|---|---|
| | Date: 25/07/2014 |
| | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Electricity**
Poorly fitted, loose or damaged apparatus unit electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, trailing water hoses or electrical cables, leaking water can result in slipping and tripping causing falls and head and body impact injuries.

**Falling Apparatus**
The apparatus falls from the work table causing lower leg and feet impact and crushing injuries. The frame of the apparatus falls to the ground due to a damaged wheel and causes crush injuries to the feet.

**Manual Handling**
Moving the apparatus to and from location, placing and removing weights to and from the apparatus can result in acute or chronic lower back and or musculoskeletal injuries.

**Falling Weights**
Free weights fall from the apparatus and result in impact injuries to the feet.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The apparatus are used to demonstrate and measure the flow of water and.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable, plug, is damaged or defected in any way and remove from use.
- All electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Ensure that the electrical cables and water hoses are connected to the back of the machine.

- Clean up any leaking water immediately when noticed.
- Wear safety boots.
- Ensure that the measuring apparatus is placed firm, flat and in from the edge of top of the work table.
- Inspect the wheels of the apparatus for damage or defects prior to use. Do not use if damaged in any way.
- Follow the manual handling training guide lines at all times when working with the apparatus.
- Ensure that the apparatus is not over loaded with weights.
- Ensure to place weights at right angles to one another.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturers recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.
- Manual handling Training

***Personal protective equipment required (last resort)***

- Safety Boots

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 High Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

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| Safe Work Practice Sheet | Ref: SWPS MEC 073 |
|---|---|
| | Date: 25/07/2014 |
| **Photovoltaic Energy Stand** | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Manual Handling**
Dragging and pushing the test apparatus to and from lab and external test area, lifting the unit off and up on to the lab floor level can result in acute or chronic lower back and muscular skeletal injuries.

**Slips Trips and Falls**
Poor housekeeping, personal belongings can result in slipping and tripping causing falls and head and body impact injuries.

**Mechanical**
The unit rotates on its hinges by the force of the wind or when been transported and strikes an individual causing head and or body impact injuries.

**External Environment**
Testing the unit in the external environment can result in exposure to the UV light and first second and or third degree burns dehydration and or sun stroke.

**Collapsing Apparatus**
The castor wheels of the apparatus fail and collapse causing feet crushing injuries.

**Traffic**
Transporting the test unit outside can result in coming in contact with vehicular and pedestrian traffic and cause bystanders being struck by the unit resulting in body impact injuries or being struck by a vehicle resulting in major bodily injury.

**Moving Unit**
Setting the unit up in the test location can result in the unit rolling out of control and causing major impact injuries to bystanders.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The photovoltaic apparatus is used to harness sunlight to generate a low electrical current.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians

supervision.

- Follow the manual handling training guidelines when moving the test unit to and from the lab.
- Seek assistance when required to move and transport the photovoltaic panel unit.
- Use the wooden sheet ramps provided to wheel the unit to and from the lab floor and ground level.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Always walk around the unit steadying legs and never step over them.
- Ensure that the unit hinge is locked (hand tightening bolt) in place when transporting and in testing location.
- Ensure to stay well hydrated if working outside for extended periods of time.
- Where possible, use the test unit at a time of year where the UV index is low.
- Wear adequate sun factor if UV index is high.
- Wear safety boots when moving the unit to and from storage.
- Inspect the wheels of the unit for damage or defects prior to transporting it, do no use the unit if wheels are damaged or defected in any way and remove from use for repair by a competent person.
- Observe for pedestrians and vehicular traffic at all times of transporting the unit.
- Give way to pedestrians at all times when pushing the unit to and from the external test location.
- Obey the rules of the road when utilising the road to test location.
- Exercise caution when transporting the unit under the road barrier.
- Ensure that the unit is set up on level flat ground.

**Checks & Inspections**

- Regular maintenance carried out on the unit and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.
- Manual Handling Training.

***Personal protective equipment required (last resort)***

- Safety Boots

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

| Risk Reduction Rating (after controls introduced) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 High Risk |

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| Safe Work Practice Sheet<br><br>Air Flow Test Unit | Ref: SWPS MEC 074<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged unit electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Mechanical**
Severing of finger tips, entanglement of long hair with rotating fan.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, unit trailing power cable can result in slipping and or tripping and fall head and body impact injuries.

**Falling test unit**
The brackets holding the test unit in place on the wall fail or are loose and the unit falls causing impact and crush injuries to the upper and lower body.

**Flying debris**
Operating the air restriction device on the test unit, standing beside the air restriction device can result in dusty debris being blow into the eyes and causing minor eye irritation and discomfort.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The unit is used to carry out test on air flow.

**Controls**

- Students are permitted to use the machine, under correct instruction and the lecturer or technicians supervision.
- Inspect the machine electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged or defected in any way and remove from use for repair.
- All electrical repairs must be carried out by a competent person.
- Ensure that the fan metal guard is in place prior to operating the machine.
- Long hair must be neatly tied back or a cap worn when the machine is in use.
- Maintain good housekeeping and work area free from personal belongings at all times.

- Avoid the trailing of electrical power cables by using the socket mounted on the wall beside the test unit.
- Ensure that the brackets mounted on the wall are tight and secure around the test unit prior to operating it.
- Safety glasses must be worn at all times when operating or observing the air flow test unit.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturer's recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Students are provided with training and instruction in the use of the equipment prior to using it.

***Personal protective equipment required (last resort)***

- Safety Boots
- Safety glasses.

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 High Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

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| Safe Work Practice Sheet<br><br>Hot Box Oven | Ref: SWPS MEC 075<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

## Hazards

**Electricity**
Poorly fitted, loose or damaged unit electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, oven trailing power cable can result in slipping and or tripping and fall head and body impact injuries.

**Falling Oven**
Transporting the oven to and from storage location can result in the oven falling from personal grip or trolley and causing lower leg impact and feet crushing injuries.

**Temperature**
Handling materials that have been heated in the oven can result in burns to the hands and fingers.

**Chemicals**
Handling various materials, coal etc, can result in minor skin irritation.

**Manual Handling**
Lifting or carrying the oven to and from storage, wheeling the trolley to and from storage can result in lower back and or musculoskeletal injuries.

**Fire**
Flammable materials stored at or near the oven, nylon clothing can catch fire and result in first second and or third degree burns.

## Person Exposed to Risk

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

## Work Description

The oven is used to heat various materials.

## Controls

- Students are not permitted to operate the oven.
- Lectures or technicians are only permitted to operate the oven.
- Inspect the oven electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged or defected in any way and remove from use for repair.

- All electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of electrical power cables by using the socket mounted on the wall beside the test unit.
- Safety glasses must be worn at all times when operating or observing the oven.
- Follow the manual handling training guidelines at all times.
- Ensure to use the trolley that the oven is mounted on for transporting to and from storage.
- Ensure that the oven is placed firm, level and secure on the trolley.
- When required seek assistance when moving the oven.
- Ensure that the thermostat of the oven is set at the required temperature prior to use.
- Wear heat resistant gloves and or use a pair of metal tongs to remove heated materials from the oven.
- Wear safety gloves when handling materials prior to placing in the oven.
- Wear safety glasses at all times.
- Nylon clothing must not be worn when using the oven.
- Flammable materials must not be stored at or near the oven.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturer's recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Manual handling Training
- Chemical Handling Training
- PPE Training
- MSDS

***Personal protective equipment required (last resort)***

- Safety Boots
- Safety glasses
- Heat Resistant Gloves
- Safety Gloves

***Initial Risk Rating (without any control measures)***

| Probability : | 3 | x | Severity | 3 | = | Risk Factor | 9 High Risk |
|---|---|---|---|---|---|---|---|

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

| Probability : | 1 | x | Severity | 3 | = | Risk Factor | 3 High Risk |
|---|---|---|---|---|---|---|---|

**Risk Assessment Review**

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| Safe Work Practice Sheet<br><br>Carbolite Furnace | Ref: SWPS MEC 076<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

## Hazards

**Electricity**
Poorly fitted, loose or damaged unit electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, oven trailing power cable can result in slipping and or tripping and fall head and body impact injuries.

**Falling Oven**
Transporting the oven to and from storage location can result in the oven falling from personal grip or trolley and causing lower leg impact and feet crushing injuries.

**Temperature**
Handling materials that have been heated in the furnace can result in first second and third degree burns to the hands and fingers.

**Chemicals**
Handling various materials, coal etc, can result in minor skin irritation.

**Smoke**
Heating materials, coal etc. can result in the production of smoke and if inhaled can cause acute respiratory illness.

**Fire**
Flammable materials stored at or near the oven, nylon clothing can catch fire and result in first second and or third degree burns.

**Manual Handling**
Lifting or carrying the oven to and from storage, wheeling the trolley to and from storage can result in lower back and or musculoskeletal injuries.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The furnace is used to heat various materials (coal, coke etc.) up to 1200 C

**Controls**

- Students are not permitted to operate the furnace.
- Lectures or technicians are only permitted to operate the furnace.
- Inspect the oven electrical power cable and plug for damage or defects prior to use.

- Do not use the machine if the power cable or plug is damaged or defected in any way and remove from use for repair.
- All electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of electrical power cables by using the socket mounted on the wall beside the test unit.
- Safety glasses must be worn at all times when operating or observing the furnace.
- Ensure to use the trolley that the oven is mounted on for transporting to and from storage.
- Ensure that the furnace is placed firm, level and secure on the trolley.
- When required seek assistance when moving the oven.
- Ensure that the thermostat of the oven is set at the required temperature prior to use.
- Wear heat resistant gloves and or use a pair of metal tongs of adequate length to remove heated materials from the furnace.
- Wear safety gloves when handling materials prior to placing in the oven.
- Ensure that there is good ventilation and turn on the extract system prior to operating the furnace.
- Nylon clothing must not be worn when operating the furnace.
- Flammable materials must not be stored at or near the furnace.
- Follow the manual handling training guidelines at all times.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturers recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Manual handling Training
- Chemical Handling Training
- PPE Training
- MSDS

***Personal protective equipment required (last resort)***

- Safety Boots
- Safety glasses
- Heat Resistant Gloves
- Safety Gloves

## *Initial Risk Rating (without any control measures)*

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

## Risk Reduction Rating (after controls introduced)

Probability : **1** x Severity **3** = Risk Factor **3 High Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br><br>Osborne Reynolds Apparatus | Ref: SWPS MEC 078<br>Date: 25/07/2014<br>Assessed by: G. Caffrey<br>Approved by: E. Roe |
|---|---|

**Hazards**

**Electricity**
Poorly fitted, loose or damaged electrical wiring or plug can result in electrocution-death or first, second and or third degree burns.

**Slips Trips and Falls**
Poor housekeeping, personal belongings, trailing power cable, water on the ground can result in slipping and or tripping and fall head and body impact injuries.

**Manual Handling**
Lifting or carrying the apparatus, wheeling the apparatus on a trolley to and from storage, placing or removing weights on the apparatus can result in acute lower back and or musculoskeletal injuries.

**Falling Apparatus / Weights**
The apparatus falls when being wheeled to or from storage, carrying to many weights or incorrectly placed on the apparatus resulting in lower leg or feet impact injuries.

**Collapsing Trolley**
The wheels of the trolley fail sue to damage or defects resulting in crush injuries to the feet.

**Person Exposed to Risk**

☑ Students ☑Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

The apparatus id used to investigate the characteristic of the flow of the liquid in a pipe.

**Controls**

- Students are permitted use of the apparatus, under correct instruction and the lecture or technicians supervision.
- Inspect the apparatus electrical power cable and plug for damage or defects prior to use.
- Do not use the machine if the power cable or plug is damaged or defected in any way and remove from use for repair.
- All electrical repairs must be carried out by a competent person.
- Maintain good housekeeping and work area free from personal belongings at all times.
- Avoid the trailing of electrical power cables by using sockets mounted on the wall.
- Safety glasses must be worn at all times when operating or observing the apparatus.
- Immediately clean up any water lying on the ground

- Follow the manual handling training guidelines at all times.
- Seek assistance if required to lift or move the apparatus.
- Ensure that all four feet of the apparatus are level and flat when mounted on the work top and trolley.
- Ensure that weights are placed at right angles to one another on the apparatus.
- Inspect the wheels of the trolley for damage or defects prior to use, do not use if damaged or defected in any way and remove from use for repair.

**Checks & Inspections**

- Regular maintenance carried out on in accordance with the manufacturers recommendations and records maintained by the school.
- Lecturer and technicians to monitor compliance with control measures.
- Lecturer and technician to monitor the wearing of PPE.

**Information, Instruction & Training**

- Manual handling Training

***Personal protective equipment required (last resort)***

- Safety Boots
- Safety glasses

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 High Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet | Ref: SWPS MEC 082 |
|---|---|
| | Date: 20/07/2014 |
| **Workshop Floor Cleaning** | Assessed by: G. Caffrey<br>Approved by: E. Roe |

**Hazards**

**Electricity**
Contact with damaged, loose or poorly maintained electrical cables can result in electrocution-death or minor injuries, first, second and or third degree burns.

**Manual Handling**
Pushing and pulling hoover/buffer, cleaner, moving furniture, machinery etc. can result in acute or chronic lower back and or musculoskeletal injuries.

**Chemicals**
Applying cleaning chemicals and emptying machinery can result in chemical burns to the eyes, hands, face and other body parts and contamination of clothing. Damage to the lungs by acute wheezing or chronic asthma from the inhalation of fumes.

**Slips Trips and Falls**
Poor Housekeeping, wet floors, oil and dirt on the floors, trailing cables can cause slips trips and falls resulting in broken limbs, musculoskeletal injuries, broken fingers, cuts and bruises.

**Mechanical**
Contact with rotating buffer can result in entanglement of long hair, loose clothing causing asphyxiation, cuts and bruises.

**Person Exposed to Risk**

☑ Students ☑ Employees ☐ Public ☑ Contractors ☑ Visitors

**Work Description**

Class aid is required to clean the floors of the lab shop by means of electrical hoover, buffer, Taski vacuum liquid sucker and liquid chemicals.

**Controls**

- Floor Cleaning must be carried out when students, contractors, visitors or other staff are not present.
- Food and drink are not permitted in the work shop/ lab at any time.
- Safety signage must be used when cleaning in progress.
- Inspect the electrical cable and plug of the cleaning equipment for damage or defects prior to use. Do not use if damaged or defected in any way and remove from use for repair or replacement.
- Class Assistant must not carry out repairs on cables, plugs or damaged cleaning equipment.
- All electrical repairs must be carried out by a competent person.
- Never transport cleaning equipment by pulling on the electrical cables.

- Chemicals must be stored (under lock and key controlled by class assistant) away in a designated area.
- Chemicals must remain in original containers with original Identification label description.
- Ensure that there is adequate ventilation prior to commencing cleaning and turn on the extract system where available.
- Liquid waste (Taski liquid vac hoover, bucket etc.) must be disposed of to external drains.
- Care must be taken when moving or lifting class furniture (seek assistance if required). Follow manual handling training at all time and seek assistance when required.
- Use a pallet truck for moving work benches or other items of furniture and repeat the process when returning to their original position.
- When cleaning machinery is in use, trailing electrical cables must be draped over shoulder of class assistance.
- Remove and replace any clothing contaminated by chemicals.
- When using a mop bucket do not over fill with water.
- When chemicals are required for cleaning ensure to apply them sparingly.
- On completion of cleaning, all cleaning machinery must be returned to storage.
- Observe where cleaning machinery cables are at all times, avoid walking over cables where possible.
- Always use cleaning equipment and chemicals as intended by their manufacturer.
- Never touch the rotating parts of cleaning machinery with any body part.
- Never wear loose clothing when operating cleaning machinery.
- Long hair must be neatly tied back or a well fitted cap worn.

**Checks & Inspections**

- Cables and Plugs on electrical machines must be checked before use.

**Information, Instruction & Training**

- Manual handling training.
- Chemical Handling training.
- PPE training.
- MSDS

***Personal protective equipment required (last resort)***

- Wear safety glasses, boots and gloves when cleaning in operation

***Initial Risk Rating (without any control measures)***

Probability : **3** x Severity **3** = Risk Factor **9 High Risk**

| KEY | | |
|---|---|---|
| **PROBABILITY** | **SEVERITY** | **RISK FACTOR** |
| Probable 3 | Critical 3 | 1-3 Low Risk |
| Possible 2 | Serious 2 | 4 Medium Risk |
| Unlikely 1 | Minor 1 | 6-9 High Risk |
| Risk Factor = Probability x Severity | | |

**Risk Reduction Rating (after controls introduced)**

Probability : **1** x Severity **3** = Risk Factor **3 Low Risk**

**Risk Assessment Review**

*As and when process changes or yearly*

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| Safe Work Practice Sheet<br>General Health and Welfare Provisions | Ref: SWPS 015<br>Date: 2/02/2011<br>Assessed by: P. Killeen<br>Approved by: E. Roe |
|---|---|

The workplace regulations ( general application ) regulations 2007 S.I. No. 299 in particular regulation 18 and 19 gives specific standards to be maintained in the place of work.

These regulations refer to adequate facilities for "taking meals / consumption of food" "cleanliness," also that rest areas are "large enough". These facilities must be kept in a state that is free from accumulations of any dirt, dust etc..

Regulation 18 states:

*(f) "the taking of meals by employees is prohibited at any location in the place of work where there is likely to be a risk to safety, health or welfare."*

The Thermo – Fluids Lab and store would not be deemed suitable as a place for taking meals ( which includes beverages ) for a number of reasons including the space limitations, the location of items stored at height, the lack of hygiene facilities and the fact that it is deemed a work area for a member of staff.

Regulation 19 states:

*An employer shall ensure that—*
*"(a) where, because of—*
*(i) the type of activity carried out, or*
*(ii) the presence of more than a certain number of employees, and*
*(iii) the safety, health and welfare of employees so requires,*
*employees are provided with an easily accessible rest room or appropriate rest area,"*

*providing relaxation during breaks,*
*(b) rest rooms are large enough and equipped with tables with easily cleaned surfaces and seats with backs, adequate for the number of employees,*

The Thermo – Fluids Lab and store would not meet the criteria set out in section 19 above, because of the work activity carried out (where there is a presence of dirt and dust ) and ( it is deemed a work area ) and ( Insufficient space ). Therefore under both sections of the Safety, Health and Welfare at Work ( general application) regulations 2007 DkIT would be breaching the requirements.

**Washing, food preparation and eating areas are made available at various locations:**
**The Well, The Coffee Dock, The Main Canteen, The Staff Room.**

**Information, Instruction**

To meet the requirements of Health and Safety Legislation and to ensure that good hygiene practices are employed at all times, it is prohibited to consume or bring into laboratories or workshops any drinks or beverages.

**Signed:** _____

Head of School of Engineering

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| EMERGENCY RESPONSE | Ref: SWPS 016<br>Date: 26/01/2011<br>Assessed by: P. Killeen<br>Approved by: E. Roe |
|---|---|

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Emergency protocol for everyday working environment.

## Emergency Contacts

- Dial 9 for an outside line, then 999 or 112 and you will be connected directly to the emergency services.
- Be prepared to give the following information:
- Information on the condition of the victim, if there is a casualty.
- Details of any hazards, i.e. fire/chemical/gas/structural collapse etc.
- Exact location of the accident (room number and building).
- Call the Estates Office (2671/2670) and give the above details.
- If deemed necessary, contact the Nurse (2777) and trained Department first aiders.
- Call Reception (500), ask them to alert the caretaker on duty and give them the above details.
- Report to the Head of Department, Head of School, and your Supervisor (where relevant).
- As soon as practically possible, report the accident on an accident/incident report form and submit to the Head of Department/ Head of School of Engineering

- Emergency contact numbers are strategically located throughout the School of Engineering

**Fire Fighting Equipment**

The majority of fire-fighting equipment points are located in workshops, laboratories and on each floor in the School of Engineering building. There are a number of trained fire wardens in the School. Fire warden courses are run on a regular basis and are available through the
Estates Office. The School abides by the Institute Policy and Procedures on fire safety.

**Information, Instruction & Training**

All training in First Aid, Emergency Response, and Fire Safety/Wardens is available through consultation with your Head of Dept and HR Office. The School abides by the Institute Policy on first aid safety.

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| EMERGENCY CONTACT NUMBERS | Ref: SWPS 017 |
|---|---|
| | Date: 26/01/2011 |
| | Assessed by: P. Killeen<br>Approved by: Eugene Roe |

**Person Exposed to Risk**

✓ Students ✓ Employees ☐ Public ☐ Contractors ☐ Visitors

**Work Description**

Important contact details which are available throughout all Departments in case of emergency

**General**

- Ambulance/Fire Brigade: 112 or 999
- Health Centre/Campus Nurse: 2777
- Doctor: Dr. Shane Gleeson: 2702/ 042 9320038
- Hospital: Louth Hospital: (042) 933 4701

**A List of First Aiders is prominently displayed in all workshops and Lab Locations**

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# Appendix IV

# Accident / Incident, Near Miss and Dangerous Occurrence Reporting Procedures

# ACCIDENT, INCIDENT, NEAR MISS AND DANGEROUS OCCURRENCE REPORTING PROCEDURES

Dundalk Institute of Technology is committed to reducing accidents and ill-health to staff and students of the Institute. Procedures are in place in the Institute to ensure that all Accidents, Near Misses and Dangerous Occurrences are recorded. These procedures not only ensure compliance with the law, but are also used as a basis for analysing trends throughout the Institute, in an effort to reduce accidents and ill-health to staff and students. All reports are reviewed at each meeting of the Institute Safety Monitoring Committee.

The purpose of an investigation is to establish all the facts relating to the incident, to draw conclusions from the facts and to make recommendations to prevent reoccurrence. Each incident will be looked at from the point of view of place, plant, procedures and people, to see where the safety system has failed and to tighten controls. It is important to note the definitions of all incidents (Accidents, Near Misses & Dangerous Occurrences) in order to take the correct action.

## DEFINITIONS

An **Accident** is defined as an unplanned event resulting in personal injury or property damage. This could include, but is not limited to:

- Sprain
- Laceration
- Broken bone
- Concussion
- Unconsciousness
- Ill-health
- Sickness due to exposure to a dangerous substance, fumes or gases, fire or explosion
- Sickness due to a chemical spill or environmental pollution
- Damage to building
- Damage to property

A **Near Miss** is defined as an incident in which there was no injury or property damage but where the potential for serious consequences existed.

A **Dangerous Occurrence** is one of a number of specific, reportable adverse events, which are defined within the Twelfth Schedule of the General Application Regulations 2007. Dangerous Occurrences are reportable to the Health & Safety Authority (HSA) using Form lR3 or via the HSA online notification process. Any Dangerous Occurrences which are notifiable to the HSA will be forwarded by the Health & Safety Co-ordinator.

These are incidents with a high potential to cause death or serious injury, but which happen relatively infrequently. Dangerous occurrences usually include incidents involving:

- Lifting equipment
- Pressure systems
- Overhead electric lines
- Electrical incidents causing explosion or fire
- Explosions, biological agents
- Radiation generators and radiography
- Breathing apparatus
- Diving operations
- Collapse of scaffolding
- Train collisions
- Wells
- Pipelines or pipeline works

**All Accidents are 'Incidents'. However, the definition of an Incident is wider in that it includes Dangerous Occurrences and Near Misses.**

## REPORTING PROCEDURES

All incidents must be reported immediately using the DkIT relevant incident report forms. These are located in the Parent Safety Statement and also on the DkIT website at https://www.dkit.ie/safety/incidents-accidents-reporting-procedures. All sections of the form must be completed with as much accurate information as possible.

The immediate supervisor must investigate the cause of the incident, and complete the Institute Accident/Incident Report Form or Near Miss Form. A copy of this form must then be made available to the Head of Department/School/Function for review and final sign off. Copies of the completed form should be forwarded to the Health & Safety Co-ordinator, Secretary/Financial Controller and the Estate's Office. Copies of these forms are contained within this document.

Accidents involving visitors and contractors must be investigated by the staff member to whom the injury was reported, in conjunction with the staff member they are visiting or working with.

Accidents, which involve serious or fatal injuries to an employee, student or any third party must be notified to the Health and Safety Co-ordinator and the HSA without delay.

Any accidents at work that involve an employee being unable to carry out his/her duties for three or more consecutive days, or that involve a third party being injured and requiring treatment from a medical practitioner, are reportable to the HSA and must be notified using Form lR1 or via the HSA online process, as soon as practicable. Dangerous Occurrences are reportable to the HSA using Form lR3 or via the HSA online notification process. Any incidents, which are notifiable to the HSA, will be forwarded to the HSA by the Health & Safety Co-ordinator.

**Internal Reporting Procedure**

It is the responsibility of each Head of Department/School/Function to ensure that the appropriate investigation procedures take place in the event of an Accident, Near Miss or Dangerous occurrence arising in their area. Heads of Department/School/Function must also ensure that the appropriate forms are completed and forwarded to **each** of the relevant parties (i.e. Estates Office, Secretary/Financial Controller, Health & Safety Co-ordinator).

It is the responsibility of the Health & Safety Co-ordinator to ensure that all reported incidents are tabled and discussed at each ISMC meeting.

**External Reporting Procedure**

Arising from the internal reporting procedure, any incidents, which are notifiable to the HSA, will be forwarded to that body by the Health & Safety Co-ordinator.

# ACCIDENT / INCIDENT REPORT FORM

Note:
This form should be completed whenever an accident or incident occurs which results in injury or damage to personnel or property.
If personnel or property WERE NOT injured or damaged during the Accident/ Incident, do not use this form. Use the NEAR MISS REPORT FORM.

| Accident / Incident Report Form | | | |
|---|---|---|---|
| i | **Name of person involved in Accident/Incident:** | | |
| ii | **Address:** | | |
| | **Phone:** | | |
| iii | **Who was involved in the Accident/Incident:**<br>☐ **Student** ☐ **Employee** ☐ **Public** ☐ **Contractor** ☐**Visitor** | | |
| iv | **Occupation:** | | |
| v | **If an employee of the Institute please state Department:** | | |
| vi | **If no, please elaborate:** | | |
| vii | **Particulars of Accident/Incident & circumstances under which the Accident/Incident occurred:**<br>*Use additional pages and/or photos if necessary.* | | |
| viii | **Place:** | | |
| ix | **Time:** | **Date:** | |
| x | **Witness Phone No & Address:** | | |
| | **Witness Phone No & Address:** | | |
| xi | **When and to whom was the Accident/Incident initially reported?** | | |

| | |
|---|---|
| **xii** | **Details of injury/damage:**<br>Indicate type of injury (put an 'x' in one box only)<br><br>☐ Bruising, contusion<br>☐ Concussion<br>☐ Internal injuries<br>☐ Open wound<br>☐ Abrasion, graze<br>☐ Amputation<br>☐ Open fracture (i.e. bone exposed)<br>☐ Closed fracture<br>☐ Dislocation<br>☐ Sprain, torn ligaments<br>☐ Suffocation, asphyxiation<br>☐ Gassing<br>☐ Drowning<br>☐ Poisoning<br>☐ Infection<br>☐ Burns, scalds and frostbite<br>☐ Effects of radiation<br>☐ Electrical injury<br>☐ Property damage, Specify_____<br>☐ Other, Specify_____ |
| **xiii** | **Indicate part of body most seriously injured (put an 'x' in one box only):**<br>☐ Head, except eyes<br>☐ Eyes<br>☐ Neck<br>☐ Back, spine<br>☐ Chest<br>☐ Abdomen<br>☐ Shoulder, upper arm, elbow<br>☐ Lower arm, wrist, hand<br>☐ Fingers, one or more<br>☐ Hip joint, thigh, knee cap<br>☐ Knee joint, lower leg, ankle<br>☐ Foot<br>☐ Toes, one or more<br>☐ Extensive parts of the body<br>☐ Multiple injuries<br>☐ Other, Specify_____ |
| **xiv** | **Consequences of the Accident/Incident:**<br><br>Fatal ☐<br>Non Fatal ☐<br><br>Date of resumption of work if back<br>Year ____ Month _____ Day ___<br><br>Anticipated absence if not back<br>4-7 days ☐<br>8-14 days ☐<br>More than 14 days ☐ |
| **xv** | **Treatment:** |
| **xvi** | **Doctor's report and recommendation:** |
| **xvii** | **Steps taken to prevent reoccurrence of this type of Accident/Incident:** |
| | **Signature of person completing report:** / **Date:** |
| | **Print Name & Job Title:** |
| | **Signature of Head of Department/School/Function:** / **Date:** |
| | **Print name:** |

**(Copies of the completed Institute Accident Report are to be sent <u>separately</u> to the Institute Health & Safety Co-ordinator, the Secretary/Financial Controller and the Estates Office)**

# NEAR MISS REPORT FORM

Note:
This form should be completed whenever a Near Miss occurs - that is an incident WITHOUT injury to person or damage to property.
If personnel or property were injured or damaged during the incident, do no use this form. Use the 'ACCIDENT / INCIDENT REPORT FORM'.

| NEAR MISS REPORT FORM | | | |
|---|---|---|---|
| i | **Date of Near Miss:** | **Time of Near Miss:** | |
| ii | **Location of Near Miss:** | | |
| iii | **Who was involved in the Near Miss:**<br>☐ **Student** ☐ **Employee** ☐ **Public** ☐ **Contractor** ☐**Visitors** | | |
| iv | **Name of person(s) involved in Near Miss:** | | |
| v | **Name, Address & Contact details of any witnesses to Near Miss:** | | |
| vi | **Description of Near Miss:** | | |
| | | | |
| vii | **Steps taken to prevent a reoccurrence of this type of Near Miss incident:** | | |
| | **Signature of person completing report:** | | **Date:** |
| | **Print Name & Job Title:** | | |
| | **Signature of Head of Department/School/Function:** | | **Date:** |
| | **Print name:** | | |

**(Copies of the completed Near Miss Report Form are to be sent to the Health & Safety Co-ordinator, the Secretary/Financial Controller and the Estates Office)**

## First Aid and Emergency Contacts

| | Location | |
|---|---|---|
| Jim Connolly | Mechanical Engineering Workshop | Ext 2966 |
| Phil Dillon | Engineering Administration | Ext 2754 |
| Simon O' Neill | Plumbing Workshop | Ext. 2847 |
| Larry Quigley | Plumbing Workshop | Ext. 2594 |
| Nick O'Rourke | Plumbing Workshop | Ext. 2593 |
| Alan Gorham | Plumbing Workshop | 042 9396510 |

- Ambulance/Fire Brigade: 112 or 999
- Health Centre/Campus Nurse: 2777
- Doctor: Dr. Shane Gleeson: 2702/ 042 9320038
- Hospital: Louth Hospital: (042) 933 4701

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