## WHS DESIGN AND MODIFICATION GUIDELINES

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1 Introduction

The University of Wollongong is committed to providing a safe and healthy workplace for all staff, visitors, contractors and students. To meet this commitment, the University shall endeavour to control any risk to workplace health and safety through the implementation of an effective risk management system. This includes risks that are introduced to the workplace as a result of design or modification of plant, products, buildings or processes.

The purpose of this guideline is to ensure that hazards introduced to the workplace as a result of design and modification activities can be systematically identified and the risk associated with those hazards controlled. This is applicable for any design and modification process that is undertaken at the University including plant, products, buildings or processes.

2 Scope

This document has been developed to provide guidance on WHS requirements surrounding the design and modifications of plant, products, buildings or processes.

3 Responsibility

Certain WHS responsibilities apply to University personnel regarding design and modification activities as can be seen below.

3.1 Employees

Employees involved in the design or modification activities must be suitably qualified or competent and must apply the University’s WHS risk management processes to ensure workplace safety risks are eliminated or suitable managed.

3.2 Supervisors and Managers

Supervisors and Managers are to ensure that where applicable these guidelines are implemented throughout the design and modification of plant, products, buildings or processes.

3.3 WHS Unit

The WHS Unit is responsible for the development of these guidelines in line with WHS legislative requirements. The Unit can also provide technical advice and support on the implementation of these guidelines during design and modification of plant, products, buildings or processes.

4 Design Requirements

The NSW WHS Act 2011 sets out the duties of a person conducting businesses or undertakings that design plant, products, buildings or processes. A designer must ensure, so far as is reasonably practicable, that these items are designed without risk to the health and safety of persons who use, store or are in the vicinity of them. To achieve this, a designer of plant, products, buildings or processes must ensure that risk is managed in the design phase where practicable.

The UOW WHS Risk Management Guidelines are to be applied to design processes undertaken at the University of Wollongong. Staff or students responsible for designing plant or substances must complete a Risk Assessment prior to development. The risk assessment must be approved or certified by a competent person to ensure that all risks from identified hazards are controlled in accordance with the UOW WHS Risk Management Guidelines. Any person responsible for
designing building or structures needs to refer to UOW WHS Risk Management for the Design of Buildings and Structures Guidelines.

Legislative or additional requirements pertaining to WHS requirements including national standards and Codes of Practice shall be identified in writing within the risk assessment. For example any design of electrical equipment needs to be completed by a qualified electrician and meet specifications set out in AS3000. For more information on the design or modification work with electrical equipment visit the UOW Electrical Safety Guidelines.

5 Modification Requirements

When plant, substances or structures are modified the person responsible for the modification must ensure, so far as is reasonably practicable, that the modification does not introduce risks to work health and safety risks. The principles applied to the design requirement are to be adopted to the modification process.

6 Related Documentation

- Work Health and Safety Act, 2011
- Work Health and Safety Regulation 2011
- WHS Risk Management for the Design of Buildings and Structures Guidelines
- UOW WHS Risk Management Guidelines
- UOW Electrical Safety Guidelines
- Project Management Guidelines [Facilities Management Division]
- Design Standard & Procedures Manual [Facilities Management Division].

7 Version Control Table

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8 Appendix 1 Design Flow Chart

The following flowchart represents a useful guide for personnel involved in design processes.

Identification of purpose for plant & equipment

Identification and assessment of risks and controls required

Design with controls in place

Is design functional?

Consult lab manager / technical officer

MODIFY

Identify and address any issues

Consult lab manager / technical officer

Lab manager reviews

MODIFY

Has location issues been addressed?

Equipment approved for manufacture

Is the equipment still safe and functional?

Complete documentation

Identification of machine specifications

- Involvement of:
  - Specialist personnel
  - End user/operator

Identification of risks:

- Mechanical, physical, chemical etc.
- Use of specialist personnel
- Involve end user/operator

Consult:

- UOW risk management process
- Relevant regulations & standards

Use intrinsic safety principles

Use hierarchy of control to eliminate or reduce risk

Design with multiple hazard controls to provide the highest level of protection

Review practicality of controls in place:

- Ensure machine function is not impeded by controls
- Ensure safety of operators & those in the local environment

Lab manager reviews:

- Design and location considerations
- Risk assessment process
- Technical officer must be consulted on design and final location

Adequate intrinsic safety in design:

- Interlocks & isolation devices
- Guarding
- Ergonomic design
- Emergency stop & warning devices

Risk assessments completed

Operational limitations:

- Services required
- Space availability & location
- WHS and environmental concerns i.e. waste, access, security, noise, vibration

Delivery & commissioning details:

- Resource
- Mechanical aids

Manager or equipment / project

Lab manager

Technical officer

MODIFY

Operational limitations:

- Services required
- Space availability & location
- WHS and environmental concerns i.e. waste, access, security, noise, vibration

Delivery & commissioning details:

- Resource
- Mechanical aids

Documents & risk assessments for:

- Installation & commissioning
- Operation & emergency procedures
- Decommissioning of equipment / machine

Follow installation, commissioning and operational guidelines

Hardcopies of this document are considered uncontrolled, please refer to the intranet for the latest version.
9 Appendix 2: Example Design Checklist

The following checklist can be used by the person supervising the design of plant, substances or structures to verify that the requirements of this guideline have been met.

Item being designed: __________________________________________________________

Design:

☐ Ensure design specifications have been documented via a risk assessment or other agreed method.

☐ Ensure relevant Australian Standards relevant to the design of the plant, substance or structure has been reviewed and applied to the design specifications.

☐ Ensure a standard risk assessment is developed to document all the potential hazards that are identified during design as well as controls that need to be implemented to manage the risk associated with the identified hazards.

Person responsible for process or equipment

Name: __________________________________________________________

Unit/Entity: __________________________________________________________