

**A GENERAL GUIDE TO THE HEALTH AND SAFETY IN EMPLOYMENT  
(PRESSURE EQUIPMENT, CRANES, AND PASSENGER ROPEWAYS)  
REGULATIONS 1999**

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## **ABOUT THIS GUIDE**

This is a general guide to the Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations (PECPR Regulations) promulgated under the Health and Safety in Employment Act 1992. These regulations came into effect in June 1999.

This guide is a summary of the main features of the regulations and is not a substitute for the regulations themselves.

## **EQUIPMENT COVERED BY THE PECPR REGULATIONS 1999**

The equipment categories covered by the PECPR Regulations are:

### **Pressure equipment**

Pressure equipment, including steam boilers, fired heaters, boiler piping, pressure vessels and pressure piping, which contain any of:

- gases at pressures exceeding 50 kPa
- liquids at pressures exceeding 50 kPa
- steam

and also includes hot water boilers, the purpose of which is to heat water at pressures exceeding 200 kPa and temperatures exceeding 100°C.

### **Cranes**

All powered cranes, including those attached to a vehicle and used for loading and unloading that vehicle.

### **Passenger ropeways**

Equipment that conveys passengers in a horizontal or inclined plane, whether on skis or other similar device, supported by a chair, or in an enclosed car.

## **WHO HAS DUTIES UNDER THE REGULATIONS?**

The PECPR Regulations place particular duties, in relation to equipment that is used or intended for use in a place of work in New Zealand, on:

- controllers of the equipment
- employees
- designers
- manufacturers
- suppliers.

The PECPR Regulations also identify the following organisations and individuals and define the conditions under which they function:

- inspection bodies
- design verifiers
- equipment inspectors
- agencies issuing qualifications.

The specific duties are covered in more detail later in this guide.

## REQUIREMENTS OF THE REGULATIONS ON EQUIPMENT

Equipment covered by the PECPR Regulations must be:

- designed and manufactured to a recognised standard
- designed to be safe in use
- design verified
- manufactured to a verified design
- inspected during manufacture
- periodically inspected in service by an accredited inspection body
- operated safely and not operated at all without a current certificate of inspection issued by a recognised accredited inspection body
- maintained in a safe condition
- if found to be unsafe, withdrawn from service and controlled.

## EXEMPTIONS FROM THE REQUIREMENTS OF THE REGULATIONS

The equipment listed in Schedule 2 to the PECPR Regulations is excluded from these regulations.

There are further provisions within the regulations for exemptions for controllers, designers, manufacturers, suppliers or for the equipment itself. Application for an exemption should be made to:

Engineering Safety  
Department of Labour  
PO Box 3705  
Wellington

Such exemption, if granted, will be notified in the *New Zealand Gazette*.

In addition, detailed requirements on conformity assessment procedures for particular groups of equipment can be found in the following publications, published by the Department of Labour, which support the PECPR Regulations:

- *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers*
- *Approved Code of Practice for the Design, Operation, Maintenance and Servicing of Pressure Equipment*
- *Approved Code of Practice for Cranes*
- *Approved Code of Practice for Passenger Ropeways in New Zealand.*

## LEGAL BACKGROUND

Pressure equipment, cranes and passenger ropeways are subject to regulation to ensure the safety of people using this equipment in New Zealand.

Some of this equipment was formerly regulated by the Boilers, Lifts and Cranes Act 1950, which is now repealed. The PECPR Regulations also cover some equipment not covered by the previous Act; in particular, fired heaters, hot water boilers and passenger ropeways.

The qualification of land engine drivers and boiler attendants is now under the jurisdiction of a qualification-issuing agency – the Dairy Industry Training Organisation. Requirements for boiler staffing levels and operators' qualifications are given in the *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers*.

The PECPR Regulations are administered by the Department of Labour.

## **The health and safety in employment legislation**

The PECPR Regulations are promulgated under the Health and Safety in Employment (HSE) Act 1992 and the Health and Safety in Employment Amendment Act 1998. These Acts place a number of duties on employers and persons who own or lease equipment.

Section 6(c) of the HSE Act requires employers to take “all practicable steps” to ensure that equipment is so arranged, designed, made and maintained that it is safe for employees to use.

Sections 7 to 10 of the HSE Act require an employer to have in place effective systems for identifying hazards and to take “all practicable steps” to ensure that employees are adequately protected from significant hazards.

Sections 12 and 13 of the HSE Act require employers to take “all practicable steps” to ensure that every employee is appropriately supervised and given information and adequate training in the safe use of equipment.

Section 16 of the HSE Act, as amended by the HSE Amendment Act 1998, requires owners and lessees of equipment (persons who control places of work) to take “all practicable steps” to ensure that people at work and people in the vicinity of the place of work are not harmed by the operation of equipment.

The key words here are “all practicable steps”. This term is defined in the Act and means that consideration must be given to the likelihood that harm will result from the operation of the equipment, the likely severity of such harm, the current safety standards and methods available to prevent harm, the effectiveness of those standards and methods, and the cost of applying them.

Some minimum standards that employers and others in control of workplaces must meet to be certain they have taken “all practicable steps” are set out in the Health and Safety in Employment Regulations 1995. These regulations also include general duties of people designing, manufacturing or supplying plant or protective equipment. The duties imposed on designers, manufacturers and suppliers under Part 3 of the PECPR Regulations complement the duties imposed on those persons under Part VII of the HSE Regulations 1995.

The approved codes of practice under the HSE Act, and standards for the design, manufacturing and operation of plant recognised under the PECPR Regulations, reflect the current state of knowledge about safe use of the equipment. The Engineering Safety Group will expect the equipment designers, manufacturers, suppliers and controllers to take all practicable steps to comply with these approved codes of practice and recognised standards.

## **QUALITY MANAGEMENT SYSTEM**

A management system is a fundamental concept for ensuring the safety of certain equipment covered by the PECPR Regulations. This involves a clear management structure with well defined responsibilities, staffed by appropriately qualified people. It also requires the use of appropriate procedures, codes of practice and recognised standards in the design, manufacturing and operation of the plant. It provides for the identification, assessment and control of hazards throughout all stages of equipment life, from its design through to operation and disposal.

The ISO 9001 quality management system standard has been recognised and is assessed by JAS-ANZ accredited certification bodies. Surveillance audits are performed subsequently to ensure that the quality management system continues to comply.

The Department of Labour's Engineering Safety Group must participate in the audits of quality management systems before being able to recognise a quality management system as meeting the requirements of the PECPR Regulations. This also applies to the limited attendance boiler and unattended boiler installations, which are operated within a certified quality management system.

## **DUTIES OF EQUIPMENT CONTROLLERS IN RELATION TO THE EQUIPMENT**

A controller is a person who is the owner, lessee, sublessee, or bailee, or who is responsible for equipment covered by the regulations in a place of work.

Some of the controller's duties in relation to equipment operation are to take all practicable steps to ensure that:

- equipment has been designed, design verified, inspected during fabrication and installed in accordance with the regulations
- equipment is safe, operated safely within its design limits and maintained in a safe condition
- equipment is not operated unless it has a current certificate of inspection
- all necessary information relating to the equipment is kept at the place of work where the equipment is located and that this information is readily accessible
- the Department of Labour (Engineering Safety) is notified prior to operating a limited attendance boiler or unattended boiler for the first time
- no limited attendance boiler or unattended boiler is operated unless an appropriate management system relating to it is in place
- supervision of any equipment or activity is performed by a suitably qualified and experienced person.

Some of the controller's duties in relation to equipment inspection are to take all practicable steps to ensure that:

- any inspection body engaged to inspect equipment is recognised as such by the Department of Labour
- equipment inspectors are provided with safe and adequate means of access
- equipment is inspected at specific intervals or when certain circumstances exist
- equipment, if adjusted, altered or repaired, is subject to equipment inspection and, if necessary, issued with a new certificate of inspection.

Some of the controller's duties in relation to unsafe equipment are to take all practicable steps to ensure that:

- all potentially unsafe equipment is investigated in an appropriate manner and to an appropriate extent
- appropriate action is taken where any equipment or process is identified as unsafe

- instructions issued by an equipment inspector upon identifying any unsafe equipment or process are followed, for example, withdrawal of equipment from service or repairing the equipment within a specified time
- the manufacturer and/or supplier of the equipment is given a detailed written notice if the controller believes that equipment has a type fault
- the Department of Labour is notified following an accident, with a view to prevent further similar accidents occurring (see **Incident investigation** below).

Controllers of the equipment must have it inspected by an accredited inspection body to determine whether it is in a safe condition for the issue of a certificate of inspection. Options to enable a controller of pressure equipment to extend the period between inspections, and hence reduce costs through the less frequent outages, are also available in certain cases. The application of extended inspection periods is detailed in the relevant approved code of practice.

Owners wishing to operate unattended boiler or limited attendance boiler installations are required to have a management system covering the operation and maintenance of the boiler. Controllers of limited attendance or unattended boilers must notify the Department of Labour (Engineering Safety) prior to operating the boiler for the first time.

## **DUTIES OF EMPLOYEES IN RELATION TO THE EQUIPMENT**

An employee is a person who is employed by a controller on duties or activities in relation to the equipment in a place of work.

Under the HSE Act, employees must take all practicable steps to ensure that they are safe while at work and that no action or inaction on their part while at work causes harm to any other person.

Some of the duties of employees operating the equipment are:

- to understand and comply with the written instructions relating to the safe operation of the equipment
- to exercise the required level of care when operating the equipment
- to notify the controller of any unsafe equipment or process as soon as practicable.

Employees shall not:

- wilfully damage any equipment or interfere with any equipment's safety system
- increase the pressure in any pressure equipment above its safe working pressure, except for an authorised, controlled and monitored pressure test or pressure relief valve test
- load a crane or passenger ropeway above the designated safe working load, except for an authorised, controlled and monitored overload test
- operate a passenger ropeway at a speed exceeding the maximum transportation speed.

### **Incident investigation**

Incidents which:

- occur in a place of work
- cause damage to any equipment such that its safety and condition are affected, or cause damage to other property that could affect the safety of the equipment
- in different circumstances might have caused any person to be seriously harmed

are subject to the following requirements.

Where serious harm occurs, the controller is required to notify their local Department of Labour office as soon as possible after its occurrence. As well as giving this notification, the controller must provide written notice, describing the circumstances, within seven days of the occurrence.

The controller is also required to notify and provide written notice to the Department of Labour of the accident types listed above, which include non-injury accidents.

## **DUTIES OF EQUIPMENT DESIGNERS**

Designers are required to ensure that equipment covered by the regulations is designed in accordance with recognised industry standards.

All equipment shall be design verified unless it is specifically excluded by Schedule 2 of the regulations.

Designers of pressure equipment shall design it to be safe. They shall also determine its hazard rating and specify its design life and its design verification, manufacturing and inspection requirements in accordance with the appropriate standards.

Equipment subject to design verification must, depending on its hazard rating:

- be designed and design verified within a quality management system of an appropriate scope, or
- be design verified by an accredited inspection body.

Designers are also required to consider the conditions expected to arise with the equipment "in service" or "out of service" and to ensure that, when the equipment is properly maintained, it remains in a safe condition. Designers shall consider maintenance and operation requirements to ensure the design meets the need for the equipment to be accessed safely. In particular, critical parts shall be able to be accessed, by reasonable means, for the purpose of carrying out inspections to verify the condition of those parts.

Designers of equipment shall take all practicable steps to ensure that the information establishing compliance with the PECPR Regulations and the information necessary for the equipment's safe operation is provided to equipment manufacturers.

### **Information to be supplied to equipment manufacturers**

Designers of equipment covered by the regulations shall ensure that the following information is prepared and passed on to the manufacturer of that equipment:

- Evidence that the equipment has been design verified where required.
- Details of any special manufacturing hold points and construction requirements specified in the design standard.
- For pressure equipment, the hazard level classification and fabrication inspection requirements.
- How the equipment is to be safely transported, erected or installed, operated, serviced and maintained.
- Any special use conditions.
- Where the equipment is designated to have a finite life, how that finite life is to be calculated, and the actions to be taken when that finite life is reached.

Items of equipment excluded from the requirement for design verification by a recognised inspection body, which may be either cranes or passenger ropeways listed in Schedule 2, or

pressure equipment classified as low hazard, are to be designed and checked by a competent person to recognised standards for the equipment and its intended duty.

## **DUTIES OF EQUIPMENT MANUFACTURERS**

Manufacturers of equipment covered by the PECPR Regulations are required to manufacture equipment with regard to the inspection requirements, which are identified in the equipment design, recognised industry standards or specified by an accredited inspection body as the situation requires.

Every manufacturer of equipment must take all practicable steps to ensure that:

- the equipment has been designed to a recognised standard and that it has been design verified
- the equipment is manufactured in accordance to the verified design
- any alterations to the equipment are approved by the designer and design verified
- fabrication inspection is carried out by an appropriately qualified equipment inspector at the manufacturing hold points specified by the designer
- the equipment is permanently marked with all necessary information in relation to its safe operation
- the information establishing compliance to the PECPR Regulations and the information necessary for the equipment's safe operation is provided to equipment suppliers and controllers.

In addition to any fabrication inspection requirements dictated by the relevant design code or standard, fabrication inspection requirements for pressure equipment will depend on the hazard level of that equipment. The hazard level is determined by the designer in accordance with the recognised industry standard.

All welding is to be carried out by persons holding the appropriate welding qualifications and using approved welding procedures.

## **DUTIES OF EQUIPMENT SUPPLIERS**

Suppliers of equipment manufactured in New Zealand must take all practicable steps to ensure that the equipment manufacturers have complied with their duties.

Suppliers of equipment manufactured in another country must take all practicable steps to ensure that equipment manufactured overseas and sold in New Zealand is in compliance with the PECPR Regulations. Such equipment should have undergone an equivalent conformity assessment procedure, i.e. it has been designed, design verified, manufactured and inspected to the standards that are at least equivalent to the standards applicable to the New Zealand-made equipment.

Suppliers, when importing equipment for use in New Zealand, must take all practicable steps to ensure that such equipment has not already exceeded its designated design life.

Suppliers of equipment must take all practicable steps to ensure that the information establishing compliance with the PECPR Regulations, and the information necessary for the equipment's safe operation, is provided to the equipment controllers.

## INSPECTION BODIES

Inspection bodies must be currently accredited to a recognised industry standard (i.e. AS/NZS ISO/IEC 17020:2000 *General criteria for the operation of various types of bodies performing inspection*) by a recognised accreditation body. A representative from the Department of Labour's Engineering Safety Group will attend these audits in a technical assessor's capacity.

In-house inspection bodies shall also be accredited as a Type B or C inspection body.

All inspection bodies are required to be recognised and registered by the Engineering Safety Group of the Department of Labour. Detailed conditions of recognition are given in the PECPR Regulations.

An accredited inspection body, depending on the scope of their accreditation in relation to the equipment, may:

- perform design verification
- issue/cancel certificates of design verification – equipment inspection
- allocate unique identifiers to the equipment
- issue, renew, suspend or cancel certificates of inspection
- suspend or cancel certificates of inspection issued by other inspection bodies
- advise the Engineering Safety Group of any certificate of inspection suspended, cancelled or refused issue on safety grounds.

Inspection bodies fulfil these duties through their design verifiers and equipment inspectors.

### Design verifiers

A design verifier is a person employed or engaged by an accredited inspection body to carry out equipment design verification and who is the holder of the relevant certificate of competence from the Institution of Professional Engineers New Zealand (IPENZ). Some of the duties of design verifiers are to:

- carry out design verification on behalf of their inspection body
- make recommendations to the inspection body relating to the issue or cancellation of a certificate of design verification.

### Equipment inspectors

An equipment inspector is a person employed or engaged by an accredited inspection body to carry out equipment inspection and who is the holder of the relevant certificate of competence from the Certification Board for Inspection Personnel (CBIP). Some of the duties of equipment inspectors are to:

- inspect equipment, on behalf of their inspection body, in the categories for which they are qualified
- determine if the equipment inspected is in a safe and satisfactory condition, and if the equipment will remain safe for the duration of the certificate of inspection
- report the findings of inspections to the controller or manufacturer, as appropriate
- examine the inspection and maintenance records of equipment, to ensure that it is receiving proper on-going care and attention
- examine boilers requiring a certificate of inspection by inspecting their interior and testing the boiler while in operation at safe working pressure

- advise controllers and manufacturers on safety issues relating to their equipment and any action necessary to make it safe
- carry out follow-up inspections where necessary to ensure that specified work has been carried out within the stated time and to notify the inspection body of the details if such work has not been completed in a safe and satisfactory manner
- make recommendations to the inspection body relating to issue, renewal, suspension or cancellation of a certificate of inspection.

## **QUALIFICATION ISSUING AGENCIES**

Qualification issuing agencies are responsible for determining the competency of persons intending to carry out specified activities covered by the regulations.

Specified activities for the purpose of the PECPR Regulations are:

- design verification
- equipment inspection
- operation of an attended boiler or limited attendance boiler.

This determination is achieved by means of assessment or examinations to ensure that the people they certify have knowledge, training, skills and experience to perform competently the specified activities. Qualification issuing agencies also evaluate the equivalence of the qualifications obtained outside New Zealand to local certificates of competence.

Qualification issuing agencies must be recognised as such by the Department of Labour's Engineering Safety Group.

Examples of qualification issuing agencies and their areas of responsibility:

- Institution of Professional Engineers New Zealand (IPENZ) – issues certification for design verifiers.
- Certification Board for Inspection Personnel (CBIP) – issues certification for equipment inspectors, welding inspectors and NDT (non-destructive testing) operators.
- Dairy Industry Training Organisation (DITO) – issues certification for boiler operators.

## **WANT TO KNOW MORE?**

The Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 and the supporting approved codes of practice contain more comprehensive details and requirements on different equipment categories. Advice is also available from the Engineering Safety Group situated in the Department of Labour's head office, telephone (04) 915 4000, PO Box 3705, Wellington.