

**Occupational Safety and Health (Ship Construction and Ship Repairs)
Regulations 2013**

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THE OCCUPATIONAL SAFETY AND HEALTH ACT

**Regulations made by the Minister under section 100(1) of the Occupational Safety and
Health Act**

1. Short title

These regulations may be cited as the **Occupational Safety and Health (Ship Construction and Ship Repairs) Regulations 2013**.

2. Interpretation

In these regulations, unless the context otherwise requires —

“employer” means an employer who is engaged in the carrying out of—

(a) ship construction;

(b) ship repairs in a —

(i) dry dock;

(ii) ship on board such ship whilst same is in a dry dock;

(iii) shipyard;

(iv) repair shed; or

(v) repair wharf;

“hazardous work” —

(a) means any work that is likely to endanger the safety and health of any person involved in —

(i) ship construction;

(ii) ship repairs in a —

(A) dry dock;

(B) ship on board such ship whilst same is in a dry dock;

(C) shipyard;

(D) repair shed; or

(E) repair wharf;

(b) includes hot-work and spray painting work;

“high-risk works” means works set out in the First Schedule;

“hot-work” —

(a) means riveting, welding, flame cutting or burning;

(b) includes any other work involving the use or generation of heat or the production of sparks;

“work” means —

- (a) ship construction;
- (b) ship repairs in a —
 - (i) dry dock or on board a ship in a dry dock;
 - (ii) shipyard;
 - (iii) repair shed; or
 - (iv) repair wharf

3. Application

These regulations shall apply to —

- (a) ship construction;
- (b) ship repairs in a —
 - (i) dry dock or on board a ship in a dry dock;
 - (ii) shipyard;
 - (iii) repair shed; or
 - (iv) repair wharf

4. Risk assessment

Every employer shall conduct a suitable and sufficient assessment of risk before work is carried out.

5. Safety and health training

- (1) Every employer shall ensure that —
 - (a) the employees who carry out hazardous work have received adequate safety and health training in such work;

(b) any person who is required to supervise hazardous work has received adequate safety and health training to enable him to ascertain that the work which he supervises can be carried out safely.

(2) Every employee or person referred to in paragraph (1) shall not carry out or supervise hazardous work, as the case may be, unless he has received adequate safety and health training.

(3) Every employer shall ensure that an employee involved in ship construction and ship repairs has received adequate information, instruction and training and that such work is adequately supervised and coordinated to ensure the safety and health of persons working at the workplace.

(4) Every employer shall establish appropriate procedures to be followed during ship construction and ship repairs in the event of a fire, explosion, or accidental release of any substance hazardous to health or a dangerous occurrence.

(5) Every employer shall ensure that any person who is required to implement the procedures established under paragraph (4) has received adequate safety and health training on the established procedures.

6. High-risk works

(1) Every employer who carries out any of the high-risk works set out in the First Schedule shall ensure that a safe system of work, including a permit-to-work system, is implemented during such work.

(2) The permit-to-work shall —

(a) be issued by the employer; and

(b) contain the particulars set out in the Second Schedule.

(3) Every employer shall ensure that no person is allowed to undertake any high-risk

work requiring a permit-to-work system unless there is a valid permit-to-work in respect of the work.

(4) Every employer shall ensure that any person carrying out the high-risk work is informed —

- (a) that a valid permit-to-work is in force in respect of the high-risk work; and
- (b) of the hazards associated with the high-risk work and the precautions they have to take in accordance with the permit-to-work.

7. Posting of permit-to-work

(1) Every employer shall —

- (a) post, in a conspicuous place in the work area where high-risk work is carried out, a copy of the permit to-work in respect of that high-risk work, including where reasonably practicable, a sketch of any area where the high-risk work is permitted; and
- (b) ensure that the copy is not removed until the date of expiry or date of revocation of the permit-to-work or the completion of the high-risk work, whichever is the latest.

(2) Where any high-risk work is carried out the employer shall ensure that the site where the high-risk work is to be carried out is clearly marked for easy identification.

8. Safety of equipment

Where a worker uses any equipment for the purpose of any work to which these regulations apply, his employer shall ensure that the equipment is —

- (a) of good construction, sound material and adequate strength;

- (b) free from defects;
- (c) appropriate for the work for which it is to be used.

9. Storage of hazardous substances

Every employer shall ensure that whenever the hazardous substances listed in the Third Schedule are used, handled or stored, adequate precautions are taken to ensure the safety and health of persons at work.

10. Safety of workplace

Every employer shall ensure that —

- (a) any open side, or opening into or through which a worker is liable to fall more than 2 metres, is covered or guarded by effective guard-rails, barriers or other means to prevent fall;
- (b) any passageway, scaffold, platform or other elevated working surface is kept free from slipping hazard;
- (c) all passageways, stairs, platforms and other means of access or places of work are kept free from *debris* or protruding objects or any other obstructions that may cause tripping;
- (d) any sharp projection which —
 - (i) is present in any passageway, stair, platform and other means of access or place of work; and
 - (ii) may injure any person,is removed or otherwise made safe; and

- (e) if any cover of a hatch opening is in the open position, effective means is provided to prevent accidental closure of the cover.

11. Spraying work and spray painting work

(1) Every employer shall ensure that —

- (a) spraying or spray painting work using inflammable liquids are carried out in compliance with the provisions of the Inflammable Liquids and Substances Regulations 1953;
- (b) suitable and appropriate respiratory protective equipment is provided to an employee who carries out spraying or spray painting work;
- (c) proper training is provided to employees in the use of respiratory protective equipment, air-line equipment and necessary safety procedures;
- (d) any area or place where spraying works or spray painting works is being carried out is adequately ventilated.

(2) Every person undertaking spraying or spray painting work in any tank, compartment or confined space shall use a respiratory protective equipment in which fresh air is constantly supplied by an air-line.

12. Lighting

Every employer shall ensure that there is —

- (a) sufficient and suitable general lighting, whether natural or artificial, whenever any person is at work; and
- (b) in the event of a power failure affecting the general lighting, emergency lighting which is sufficient in intensity and distribution to allow for the safe evacuation or rescue of persons.

13. Handling of *debris*

Every employer shall ensure that —

- (a) the handling and disposal of any *debris* or other article is done in a manner which will not endanger human life;
- (b) no debris is—
 - (i) allowed to accumulate to constitute a hazard; and (ii) thrown from heights.

14. Safety signs and emergency exits

Every employer shall ensure that —

- (a) appropriate safety signs are placed at appropriate and suitable locations; and
- (b) every worker is given a briefing by his supervisor on the safe conduct of work and the means of escape and exits in the area of his work.

15. Personal protective equipment

(1) Where work requiring any protection referred to in paragraph (2) is carried out, the employer shall provide and maintain, so far as is reasonably practicable, suitable and appropriate personal protective equipment to the workers.

(2) The protection referred to in paragraph (1) includes —

- (a) eye, foot, hand and head protection; and (b) respiratory, hearing and fall protection.

(3) Every employee shall wear or use any personal protective equipment provided to him by his employer;

16. Electrical installations, equipment and connections

Where any work is carried out in the course of which a worker may come into contact with any part of an electrical installation or equipment, including motor generators, rectifiers, welding machines or welding sets, the employer shall ensure that —

- (a) all electrical installations and equipment, including motor generators, rectifiers, welding machines or welding sets, are —
 - (i) of good construction and sound material;
 - (ii) free from defects; and
 - (iii) installed, protected and maintained so as to prevent danger at all times;
- (b) all practical measures are taken to protect any person against the risk of electric shock arising from or in connection with the use of any electrical installation or equipment;
- (c) all electrical connections are mechanically and electrically suitable for the purpose for which it is used so as to prevent danger;
- (d) plugs and socket outlets used for connecting any electrical equipment are of heavy duty industrial types;
- (e) any portable hand-held electrical equipment used in any confined space is operated at a voltage not exceeding alternating current (AC) 50 volts between the conductor and earth or direct current (DC) 120 volts;
- (f) every electrical installation supplying electricity to any portable electrical equipment is protected by effective residual current circuit breakers having a rated residual operating electrical current not exceeding 30 mA; and
- (g) any portable electrical equipment and its accessories is kept in good working

conditions all the time.

17. Gas cylinders

Where any welding or cutting work is carried out, the employer shall ensure that no cylinder which contains or has contained oxygen or any inflammable gas or vapour is taken below the weather deck of a ship under construction or repair, or both, unless the cylinder is installed or placed in a part of the ship which is adequately ventilated to prevent any dangerous accumulation of gases.

18. Pipe lines and gas hoses

Where any work involving the cutting, welding or heating of metal is carried out, the employer shall ensure that all pipes and hoses for the supply of oxygen, or any inflammable gas or vapour to any apparatus used for cutting, welding or heating of metal is —

- (a) of good construction and sound material;
- (b) free from defects; and
- (c) properly maintained.

19. Measures for welding and cutting works

(1) Where any work involving welding or cutting is carried out, the employer shall ensure that when the welding and cutting operations cease for the day or for a substantial period or during a meal interval —

- (a) the supply valves of every gas cylinder and manifold are securely closed; and
- (b) in the case of a ship undergoing repair, each gas torch, manifold and hose for inflammable gases and oxidising gases are taken to the weather deck or to a safe place that is adequately ventilated to prevent any dangerous accumulation of gases or vapours; or

(c) in the case of a ship under construction, each gas torch, manifold and hose for inflammable gases and oxidising gases are taken to the topmost completed deck or to a safe place that is adequately ventilated to prevent any dangerous accumulation of gases or vapours.

(2) (a) Where it is not practical to comply with the requirements in paragraphs (1)(b) and (c) during a meal interval, the employer shall take measures to ensure that the work area is safe before work resumes.

(b) The measures referred to in paragraph (2) shall include —

- (i) the provision of effective ventilation to prevent the accumulation of gases;
and
- (ii) the testing of the atmosphere for the presence of inflammable gases.

20. Measures for electric arc welding work

(1) Every employer shall ensure that no electric arc welding work is carried out under wet conditions where there is risk of electrocution.

(2) No person shall carry out any electric arc welding in wet conditions where there is risk of electrocution.

(3) No person shall require, permit or direct any other person to carry out electric arc welding in wet conditions where there is a risk of electrocution.

21. Measures for work involving application of heat

(1) Where any heating, welding, cutting or any other work involving the application of heat is carried out the employer shall ensure that —

- (a) (i) the work is carried out in open air or in areas with good ventilation; or

- (ii) effective local exhaust ventilation is provided to remove any toxic or harmful fumes or other air impurities at the source of the emission; or
 - (iii) where the provision of local exhaust ventilation is not practicable, forced ventilation is used to dilute any toxic or harmful fumes or other air impurities; and
 - (iv) respiratory protective equipment of the type where fresh air is being constantly supplied by an air-line or other equally suitable and appropriate respiratory protective equipment is provided to and used by the person carrying out the work;
- (b) where the work is carried out in a confined space, there is adequate ventilation;
- (c) where the work is carried out on materials containing lead, cadmium, beryllium, copper or other toxic or harmful substances, effective local exhaust ventilation is provided to remove any toxic or harmful fumes or other air impurities at the source of emission; or
- (d) where the provision of ventilation under paragraphs (b) and (c) is not practicable, suitable and appropriate respiratory protective equipment of the type where fresh air is being constantly supplied by an air-line or other suitable and appropriate respiratory protective equipment are provided to the person carrying out the work.

22. Measures for welding and cutting on containers that have held inflammable substances

Where any operation involving welding or cutting is carried out on any container that has held any explosive or inflammable substance or in which inflammable gases may have been generated, the employer shall ensure that no person carries out such operation on the container unless —

- (a) the container has been thoroughly cleaned by steam or other effective means and is

completely free from combustible gases or vapours;

- (b) the atmosphere in the container has been tested and certified non-flammable or non-explosive.

23. Measures for hot-works

- (1) Where any hot-work is carried out, the employer shall ensure that —

- (a) all equipment used for the purpose of carrying out hot-works, including any apparatus, gas torch, blowpipe, pressure regulator, nozzle and connection, are —

- (i) of a design that is suitable for the gas or vapour being used;

- (ii) of good construction and sound and suitable material;

- (iii) free from defects; and

- (iv) properly maintained;

- (b) all electrode holders, welding cables, cable connectors and other arc welding equipment are inspected by a competent person once every 30 days;

- (c) all equipment and fittings used for the purpose of carrying out the hot-work, including gas hoses, torches, blowpipes, pressure regulators, nozzles and connections, are inspected and tested by a competent person once every 14 days to ensure that they are free from defects and leaks;

- (d) all safety devices referred to in regulation 24 are inspected and tested by a competent person once every 12 months to ensure that they are effective.

- (2) The competent person shall make and sign a report of the result of every inspection and test carried out under paragraph (1).

(3) The report referred to in paragraph (2) shall be made in a register provided by the employer and kept available for inspection at the site of work.

24. Safety devices for oxy-fuel and air-fuel gas equipment

Where any work involving oxy-fuel and air-fuel gas equipment is carried out, the employer shall ensure that —

- (a) a suitable non-return valve or any other effective means which prevents the backflow of gas is fitted in accordance with the instructions of the manufacturer between each gas torch inlet and gas hose of every oxy-fuel and air-fuel gas equipment; and
- (b) a flashback arrestor or any other effective means which stops flashbacks is fitted in accordance with the manufacturer's instructions at each —
 - (i) fuel gas and oxygen outlet; and
 - (ii) pressure regulator outlet of any gas cylinder.

25. Measures for crane or lifting machine

(1) Every owner of a crane or lifting machine shall ensure that the crane or lifting machine used —

- (a) is of good construction, sound material and adequate strength;
- (b) is free from defects;
- (c) is properly maintained;
- (d) is positioned and operated so as to be stable;
- (e) that have loads that have a tendency to swing or turn freely during hoisting are controlled by tag-lines.

(2) Where any crane or lifting machine is used, the operator of the crane or lifting machine shall take, so far as is reasonably practicable, such measures as are necessary to ensure that a suspended load is not moved over the head of any person.

(3) Where any work involving the use of any crane or lifting machine, hoisting machinery, or excavating machinery is carried out, the employer shall ensure that no person rides on the loads, buckets, skips, cars, slings or hooks of the crane or machinery, except where specially designed lifting cages are used to hold the persons while it is suspended from a crane.

(4) Where any work involving the use of a crane or lifting machine is carried out, the employer shall ensure that no load is left suspended on the crane or lifting machine when it is not in use.

26. These regulations shall come into operation on 1 November 2013.

Made by the Minister on 8 October 2013.

FIRST SCHEDULE

[Regulations 2 and 6]

HIGH-RISK WORKS

1. Work which involves the use of any hazardous, volatile, corrosive or flammable chemical, material or solvent in significant quantities
2. Work involving entry into any confined space
3. Spray painting work
4. Grit blasting work carried out in a confined space
5. Testing or dismantling of any pipe or equipment that —
 - (a) contains, or had contained, oil or substances that are flammable, toxic or corrosive; or
 - (b) contains steam
6. Ballasting and de-ballasting of a ship
7. Repair or maintenance work carried out on the hydraulic system of a ship
8. Bunkering and transferring of fuel oil
9. Radiography work
10. Hot-work
11. Such other work which is considered as high-risk work following a suitable and sufficient risk assessment

SECOND SCHEDULE

[Regulation 6]

PERMIT-TO-WORK SYSTEM

The permit-to-work shall contain the following information —

- (a) permit-to-work title;
- (b) ship identification;
- (c) job location;
- (d) permit number and reference to any other relevant permits-to-work in force;
- (e) description of work to be done and any limitations;
- (f) hazard identification;
- (g) necessary control measures and precautions required to be taken for employees, other persons or both, and attestation by all, including the supervisor, that control measures and precautions have been taken;
- (h) personal protective equipment and other safety tools required;
- (i) shift handover procedures to confirm that the ship has remained safe to be worked upon by employees, other persons or both, and attestation by all, including the supervisor, that the precautions taken are known to all;
- (j) date of issue, time and duration of the permit.

THIRD SCHEDULE

[Regulation 9]

HAZARDOUS SUBSTANCES

Carcinogens

Corrosive substances

Explosives

Flammable substances

Gases under pressure

Irritants

Mutagens

Organic peroxides

Oxidising substances

Pyrophoric substances

Self-heating substances

Self-reactive substances

Sensitizers

Substances hazardous to aquatic environment

Substances which emit flammable gases when in contact with water

Teratogens

Toxic substances