

# Boat builders **risk management guide**



NZI Risk Solutions™

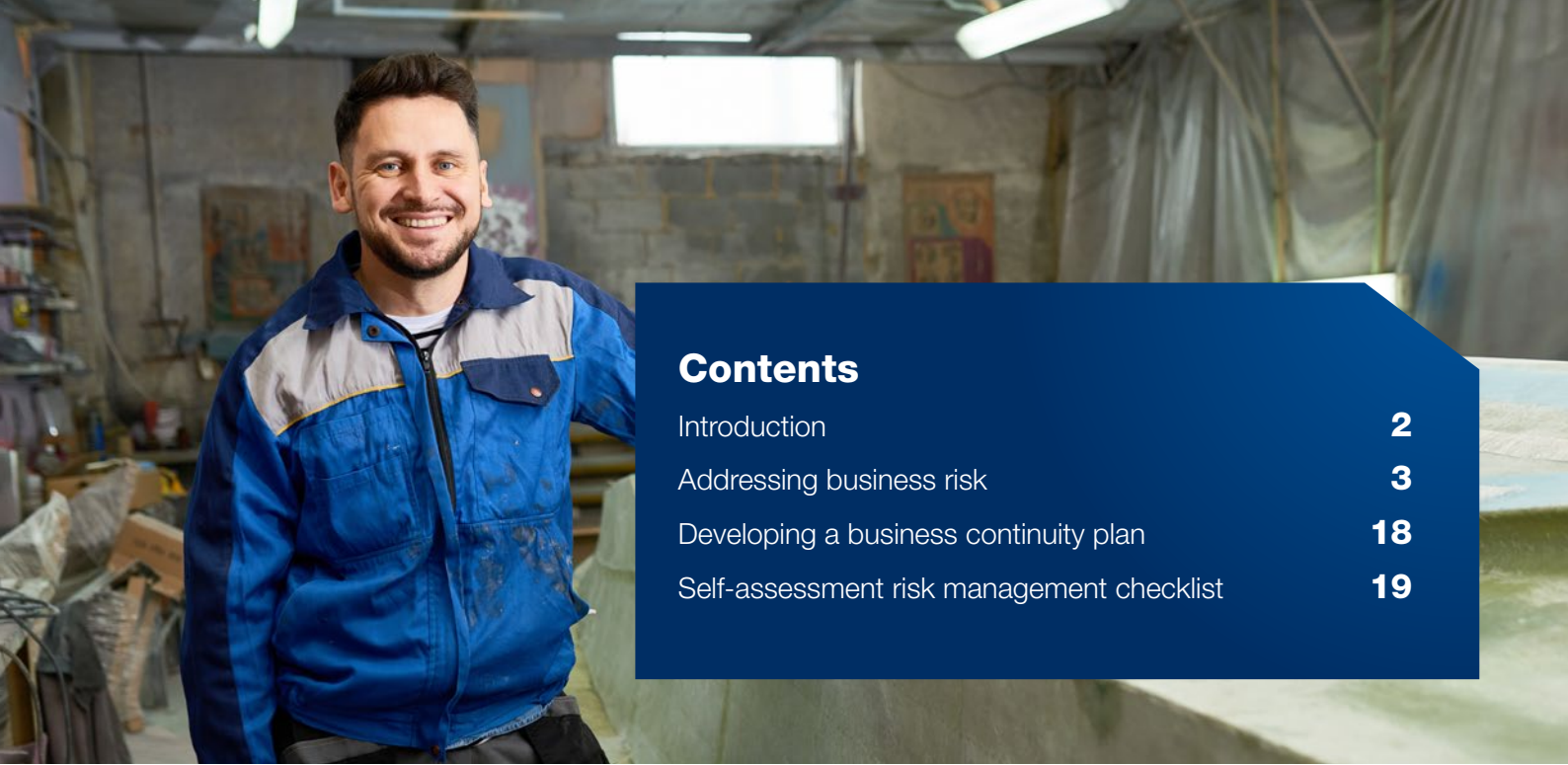
'Helping our customers stay  
in business by reducing risk'



# About NZI Risk Solutions

NZI has extensive experience in providing expert risk management advice to help our commercial customers remain in business. We have used this industry knowledge and developed a suite of fact sheets, and this guide, covering risk management issues that will help you to take control of your business risks.





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# Your business risk management guide

Many business owners are unaware of the numerous risks within their business and the effect these could have on their ability to continue trading. The real cost of a major loss incident is not only the direct loss or damage, but also the time spent dealing with the aftermath – including disruption to work and production schedules. Customer loyalty and business reputation can also be adversely impacted.

## Risk management is critical to business survival

Risk management is critical to business survival. At NZI we want to share our risk management expertise with our business customers and, in particular, help them to address those risks associated with their buildings and assets.

### As the owner of a boat building business, what are some of the risks I need to be aware of?

The key risks for boat builders are fire and the use of hazardous materials such as fibreglass, epoxy resins, polyester resin fillers, adhesives and paints. Other important risk areas include: the use of equipment like forklifts, boat hoists and jacks, electrical safety, and spray painting booths. It's also important to have good risk management programmes in place to control risk related to general housekeeping, waste management and health and safety.

## First things first – check your insurance policy and endorsements

When starting on your risk management journey, it's important to check your insurance policy and any endorsements that are applicable to it. Your policy and endorsements set out exactly what your insurer will pay for as a result of accidental loss, and what you are not insured for. It is particularly important that you understand any exclusions that may apply to your insurance policy. Having the right cover and adequate sum(s) insured is critical to your business surviving a significant loss.

If you have any questions it's important that you discuss these with your Insurance Advisor.

## Addressing business risk – what to be aware of

The following section includes information about the most common areas of risk associated with boat building as well as more general risks all businesses should be aware of.



## Fire safety

### Explosion hazards

Fire represents a significant risk for boat building manufacturers due to the regular use of hazardous substances, many of which release flammable vapours making boat building manufacturers particularly at risk of fire or explosion

We strongly recommend you read the June 2014 fact sheet *Using hazardous substances in fibreglass boat building* found on the WorkSafe website [www.business.govt.nz/worksafe](http://www.business.govt.nz/worksafe). See Information and guidance/ Guidance by industry/Hazardous Substances/Guidance by industry/Boat Building.

### Flammable substances

Most hazardous substances used in boat building workshops are flammable liquids such as:

- ▶ acetone and other solvents
- ▶ solvent-based products, like paints, lacquers and primers
- ▶ flammable resins
- ▶ promoters and accelerators for polyester resins.

Flammable liquids release flammable vapours. These vapours can build up in a workshop and, if ignition sources aren't managed properly and ventilation isn't sufficient, can ignite resulting in a fire or explosion. The vapours can also travel significant distances taking the explosion risk with them.

Flammable fluids like thinners, solvents and fuels can accumulate static charges when they are flowing and can be ignited by static electricity. Extra care should be taken when decanting flammable liquids. Because of the chance of fire, it's essential that staff understand the dangers of working with flammables and know what to do if something goes wrong.

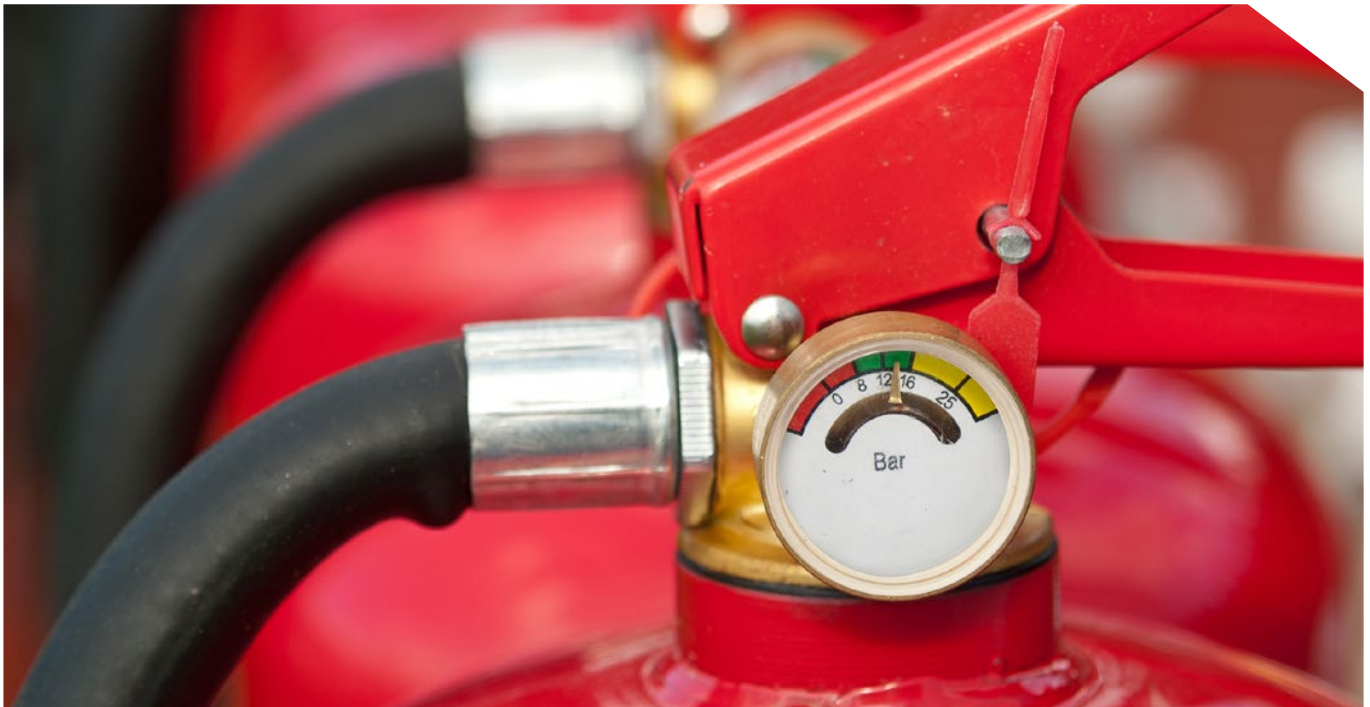
### Resin exotherm

When too much resin (epoxy or polyester) is mixed and not used in time it starts to generate its own heat, rapidly increasing the curing process. This causes an exothermic reaction where the resin bubbles, boils and cracks giving off toxic fumes and creating a fire risk. To avoid a fire starting, exotherming resin needs to be covered in water to keep it cool while it cures.

### Hardeners, catalysts and initiators

Unsaturated polyester resins are cured by catalysts or initiators, such as MEKP – an organic peroxide that increases the risk of fire because it releases oxygen when heated. Organic peroxides are very sensitive to temperature increases and must be stored in a cool, dark place. Epoxy resins may also use peroxides as curing agents.

Peroxides are extremely dangerous. Contact between peroxides and flammable material can cause a fire or explosion.



## Fire risks to property

Business owners must minimise risks to property by ensuring the separation distance and the fire rating of their building complies with the Hazardous Substances and New Organisms (HSNO) Act.

Solvents, flammable paints, lacquers, varnishes, primers and some resins will all have flammable liquid classifications. There may be other flammable substances used in your boat-building workshop. Check your inventory and find the HSNO classification for each product.

The classification of these substances and the amount in open containers will determine what type of building your workshop needs to be.

## General fire safety

The reality is that the only proven method of controlling a fire in a boat building business is with a properly designed and maintained automatic sprinkler system. However, it's important to have hand-operated fire extinguishers available as well. The key elements of a well-planned fire protection system are outlined on the following pages.

## Fire extinguishers and hose reels

Best practice for business premises is the installation of hand-operated fire extinguishers and/or hose reels.

Accidental fires are more likely to occur during working hours due to the greater use of electrical equipment, heating and normal processes.

Fire extinguishers should be installed by approved contractors and mounted on brackets with clear signage indicating their positions so they can be easily located in an emergency.

Where immediate access to extinguishers is limited, consider using a 'mobile fire point' with several extinguishers in one location e.g. alongside or on board a boat under construction. They require annual servicing by approved contractors to ensure they remain ready for use and they should also be checked regularly by staff on site.

## New Zealand Standards

NZS 4503:2005 Hand operated fire-fighting equipment, is the minimum standard for hand-operated fire fighting equipment in New Zealand. The other relevant Standard is NZS 1850:2009 Portable fire extinguishers – Classification, rating and performance testing. It classifies and rates fire extinguishers to determine the appropriate type of extinguisher by fire type e.g. chemical fire or electrical fire etc. You should ensure that your fire extinguishers are selected, installed and maintained in accordance with these standards.

## Using the correct fire extinguisher

Care should be taken to use the right type of fire extinguisher. Using the wrong fire extinguisher on certain fires can sometimes have disastrous results e.g. never use water extinguishers on burning liquids or oils or electrical fires.

## **Fire sprinkler systems and automatic fire detection systems**

Sprinkler systems have become the most widely used and most reliable automatic means of fire protection.

Fire sprinkler systems automatically detect a fire, transmit an alarm to the Fire Service as a result of water flow and control or extinguish the fire. Sprinklers provide 24/7 fire protection as needed in the immediate vicinity of the fire.

Automatic fire sprinklers provide significant protection for the occupants of a building, as well as the environment, by minimising the effects that a major structural fire could have. Only the sprinkler heads within the vicinity of a fire will activate i.e. all the sprinkler heads do not go off at once.

If your building is fitted with either a fire sprinkler system or a fire detection system, these should be maintained regularly by an approved agent.

## **Building warrant of fitness**

The Building Act 2004 requires owners of buildings with specified systems (such as sprinklers, lifts and fire alarms) to provide the relevant council with an annual building warrant of fitness (WOF). The WOF confirms that the building's specified systems are being maintained and are operating effectively, and must be publicly displayed.

## **Fire doors and smoke control doors**

If your building has automatic self-closing fire doors or smoke control doors it is important that these are kept clear of any obstructions. We also suggest you arrange for regular monthly operating checks (possibly by the building owner) and annual inspection or maintenance to be undertaken and documented by a skilled fire protection contractor.

## **Regular fire drills**

An orderly and efficient response to an emergency can be vital to the protection of property and the safety of people. It is strongly recommended that regular fire drills are held so that employees, volunteers and other regular visitors are aware of the procedure should an evacuation become necessary.

Well-performed fire drills will also help determine problems or danger areas, equipment problems or failures, knowledge of likely evacuation times and external meeting areas.

Evacuation plans should then be posted internally for each building and, wherever possible, drills should be conducted with the knowledge and support of your local fire service.

## **Evacuation procedure**

In the event of an emergency, the speed with which people can safely exit the building can mean the difference between life and death and therefore the internal layout of your building(s) should allow for adequate means of escape.

It is recommended that fire exits, doors relating to fire exits and paths of travel to fire exits, be routinely checked to ensure they are not obstructed or impeded in anyway. The final exit doors should be suitably signed and checking of fire exits should form part of your regular hazard inspection regime. To assist with safe evacuation, notices providing clear instruction on how to evacuate and raise the alarm should be displayed at the main exit doors.

"It is strongly recommended that regular fire drills are held so that employees, volunteers and other regular visitors are aware of the procedure should an evacuation become necessary."

## **What should you do to protect workers in the event of a fire?**

- ▶ Install an alarm system to warn for necessary action or safe escape.
- ▶ Establish emergency plans and fire prevention plans.
- ▶ Install battery backed-up emergency lighting along the exit routes to aid in the evacuation of smoke-filled buildings.
- ▶ Maintain first-aid kits designed for the initial treatment of burns and smoke inhalation. These kits should be stored outside the area of fire risk.



## Hot work fire safety

There are a number of risk factors associated with hot work, including a high risk of fire.

Hot work includes: welding, flame cutting, disc cutting, grinding, blow lamps, brazing, burning off, soldering and the use of hot air guns. We've outlined a few key steps you can take to help prevent this type of fire on your premises.

### Hot work permit

Before carrying out any hot work on site, a 'Hot Work Permit' should be issued. The person authorised to issue a permit (e.g. warehouse manager) should inspect the work area prior to releasing the permit and confirm all precautions have been taken in accordance with the New Zealand Standard 4781:1973 – Code of Practice for Safety in Welding and Cutting.

We recommend using the 'NZI Hot Work Permit Card', which is freely available from our Surveyors. This will help to easily identify fire hazards and take the necessary precautions.

### Identifying hot work hazards

Here are a few key steps you can take to ensure you manage hot work fire safety effectively on your premises.

- ▶ Where possible, move the hot work object to a designated safe location, such as a welding bay.
- ▶ If the hot work object cannot be moved, relocate all movable fire hazards to a safe place.

- ▶ If the hot work object cannot be moved and if all fire hazards cannot be relocated, provide guards to confine the heat, sparks and slag, and protect the immovable fire hazards.
- ▶ Establish a 'Fire Watch Duty' and assign people key responsibilities for overseeing the hot work. Where possible, a fire hose should be available to use, if required.
- ▶ To eliminate the risk of fire, conduct a final check for hot spots 60 minutes after hot work is completed.
- ▶ For more detailed fire safety guidelines refer to the NZS 4781:1973 – Code of Practice for Safety in Welding and Cutting, Part 6.

### Hot work precautions

The following factors must be considered before a hot work permit can be issued.

- ▶ Ensure hand-operated fire extinguishers or hose reels are readily available.
- ▶ Ensure manual fire alarm system, if installed, is operational.
- ▶ Ensure sprinkler system, if installed, is operational.
- ▶ Isolate automatic fire alarm detection system, if installed. Contact your fire alarm maintenance contractor to isolate the alarm.
- ▶ Train hot work operators to perform the work safely.
- ▶ Identify, isolate, remove, protect or disconnect all hazards, as appropriate.
- ▶ Restrain compressed gas cylinders.
- ▶ Maintain all equipment so it's in good working order.



### **Within 10 metres of hot work**

These factors should also be considered to ensure the area within 10 metres of any hot work is managed appropriately:

- ▶ Sweep floors so they're clean and free from combustibles.
- ▶ Wet down combustible floors and cover with damp sand, metal or other shields.
- ▶ Remove any combustible material or liquids.
- ▶ Protect immovable combustibles with covers, guards or metal shields.
- ▶ Cover all wall and floor openings.

### **Hot work in confined spaces (tanks, containers, ducts, dust collectors etc.)**

Be familiar with the hot work safety procedures in confined spaces. Ensure that anyone who welds, brazes, solders or gas cuts any container or pipe that has contained a combustible substance carries out the safety measures below.

- ▶ Hot work equipment is cleaned and all combustibles removed.
- ▶ Containers are flushed out and all flammable vapours extracted.

### **Hot work on foamed plastic panels (insulating panels)**

Be familiar with these important safety steps when working on or near foamed plastic panels:

- ▶ Do not use heat producing cutting or drilling equipment directly on the panels.
- ▶ Where panels need to be cut, only use cold cutting methods such as shearing with hand operated tools at low speed or cooled/lubricated drills or hand saws.
- ▶ Do not use heated rods or similar to make small holes through the panel core.
- ▶ Equipment cannot be retro-mounted on panels unless it is bolted and supported properly.
- ▶ The panel core cannot be exposed. For example, all penetrations must be sealed and joint covers replaced as the job progresses.
- ▶ Remove all job waste and any combustibles immediately.

### **Hot work fire watch**

Be aware of the post-hot work fire risks and apply these fire watch safety measures:

- ▶ Check for hot spots during and 60 minutes after any hot work is completed.
- ▶ Supply appropriate fire extinguisher(s) in the hot work area and, if possible, a fire hose should also be available.
- ▶ Provide fire fighting equipment training for personnel carrying out the hot work and those responsible for the fire watch. Ensure they know how to raise the alarm.
- ▶ Provide a mobile phone or other suitable means for personnel to raise the alarm.



## Spray booth safety and compliance

Painting or lacquering operations in spray booths are some of the many hazardous activities in boat building facilities. In order to minimise risks and control the explosive atmospheres surrounding these types of surface treatments, their application should be carried out in isolated spray booths.

Spray booths deserve special attention in relation to fire hazard due to the accumulation of volatile organic compounds. Paints, solvents, varnishes and lacquers are all toxic and flammable materials used in spray painting. An additional hazard is the presence of gas burners and compressors for regulating the temperature inside the booth, the pressure required by the equipment and the flammable products being used. Spray booths are typically protected with an automatic sprinkler system.

### Spray booth dossier

Maintaining a dossier is considered best practice spray booth management and is something that should be kept up-to-date by all companies operating booths. At a minimum, the dossier should include at least the following 10 points of significant information:

1. Description – a description of what the dossier covers.
2. Reference documents – regulations and standards that the equipment has been built to.
3. Site layout – plans of the whole site showing equipment, exit paths and evacuation assembly points.
4. Operating instructions – for the equipment that has been installed.
5. Wiring diagrams – for equipment that has been installed.
6. Heating – specifications of heating equipment that has been installed.
7. Inlet filter and exhaust filter fact sheets – specifications and documentation for inlet and exhaust filters.
8. Pressure manometer – showing operating pressure in the spray booth cabin.
9. Maintenance and repair – all records of servicing and repairs to the equipment.
10. Certification – Certificate of Compliance on completion of the installation, Record of Inspection and certificates of re-inspection. Plus, copies of local council permits and consents.

### Spray booth construction

AS/NZS 4114.1:2003 is the joint Australian and New Zealand Standard for Spray painting booths, designated spray painting areas and paint mixing rooms. The scope of this standard covers the design, construction and testing of spray booths.

Spray booths should be constructed of steel, concrete, masonry or other non-combustible material. In order to meet all requirements of the Standard, the structure needs to be adequately supported to ensure stability and designed to sweep air currents toward exhaust outlets.

## **Spray booth illumination**

Spray booths should be illuminated by protected lighting devices such as recessed or covered lighting fixtures. Clear panels may be used to cover fluorescent lights to protect them from overspray. All lighting fixtures should be mounted in locations that are isolated or not likely to be broken or damaged by the operation. All wiring should be placed in conduit boxes or in fittings containing no splices or terminal connections.

## **Spray booth ventilation**

Ensure that all spraying areas are equipped with mechanical ventilation adequate to remove flammable vapours, mists or powders to a safe location and to confine and control combustible residue. Ventilation systems should operate during the entire spray operation and afterward until vapours are safely removed. Exhausts should be directed outside of buildings into areas where it will not accumulate in pockets and cause fire hazards. Fans used to ventilate spray rooms should be constructed of nonferrous or non-sparking material at friction points to reduce the chance of friction fires. Fan motors should be mounted outside booths or ducts and be protected by a cage or other device to prevent damage from other operations.

## **Spray booth training**

Ensure that employees who perform spray finishing activities are properly trained. Ideally these employees should be trained in:

- ▶ why spray booths are used
- ▶ hazards of combustible and flammable liquids
- ▶ types of spray finishing operations in the woodworking industry
- ▶ understanding what personal protection equipment (PPE) is required
- ▶ storage and handling requirements for combustible and flammable materials.

## **Spay booth housekeeping**

Spray booth interiors should be kept clean at all times. Exteriors should be kept clear of storage and combustible materials on all sides of the booth by at least one metre.

## **Spraying paints outside**

Most of the hazardous substances used in boat building can have negative effects on the environment. Make sure that you consider the environment when disposing of hazardous substances and spraying paints outside. Businesses should also protect stormwater drains with drain guards to prevent hazardous substances and hazardous waste from going down the drain.

Paints, like antifouling paints, lacquers and primers are all toxic to the environment and can harm your health. When applying antifouling paint you must set up a controlled work area to prevent paint leaving the area and damaging the environment or harming bystanders. One approach is to set up tarpaulins that prevent the spray from drifting away. You should set up a controlled work area when you spray other hazardous substances outside.

When spray painting with antifouling paints, you must post signs at every entrance to your controlled work area to warn people. Signs must be in place from the time you start the work until you have finished, and they need to be large enough to be read from a distance of at least 10 metres.

A sign must:

- ▶ warn that a spray paint application is being carried out with paint that is toxic to humans
- ▶ identify the person in charge of the application
- ▶ state that you cannot enter the controlled work area unless you are wearing the right personal protective equipment.



## Storage and handling of environmentally hazardous substances

All companies have a responsibility to make sure that any environmentally hazardous substances are handled and stored correctly.

### The Environmental Protection Authority

The Environmental Protection Authority (EPA) administers, monitors and reports on the effectiveness of the Hazardous Substances and New Organisms (HSNO) Act. They also compile and report data on incidents involving hazardous substances and new organisms. The HSNO Act allows the Authority to conduct inquiries into any incident.

"Make sure that all hazardous substances are labelled correctly."

### Keys to best practice handling and storage of hazardous substances

- ▶ Store all hazardous substances correctly.
- ▶ Make sure that all hazardous substances are labelled correctly.
- ▶ Segregate substances when required.
- ▶ Use correct procedures when dispensing.
- ▶ Isolate exposures with ventilators at source.
- ▶ Make sure you use the right safety equipment.
- ▶ Have emergency plans in place.
- ▶ Always dispose of hazardous waste in accordance with the law.

Note that the HSNO Act requires personnel handling or using hazardous substances in quantities above set trigger limit levels, or regulated degrees of hazard, to be certified as 'Approved Handlers'. You should also check with the EPA whether you require a HSNO Hazardous Substances Location Test Certificate.



## Specific risk management solutions

While this guide is specifically focused on the buildings and assets of a business, it is impossible to ignore the fact that boat building can be a dangerous work environment. It's a chemically-intensive industry that poses significant risks to worker health. Some specific risk management solutions for boat building facilities are outlined below.

### Good housekeeping

Good housekeeping extends to periodic hand cleaning of your entire facility, as some dust will eventually accumulate on rafters and other out-of-the-way spots which can create a dust explosion hazard. Also, it is extremely important to inspect and maintain your storage areas which contain flammable and toxic materials.

### Storage areas

- ▶ Good lighting and access to storage areas is important.
- ▶ Storage racks should be fixed to walls or floors and strength-checked to prevent overloading.
- ▶ Guard rails and kick-boards should be fitted on mezzanine storage areas.
- ▶ Storage of goods on top of offices should be avoided, especially if the ceiling construction is not load-bearing
- ▶ Walkways and gangways should be kept clear at all times.

- ▶ Oil spillages cleared promptly and floors kept clean and dry.

### Lifting equipment

- ▶ Lifting equipment, including jacks, should be regularly inspected and any necessary repairs carried out immediately.
- ▶ Ensure that maximum working loads are never exceeded.
- ▶ Hoists should be fitted with 'dead man's controls'. Never allow raised platforms to be used as working areas unless proper guard rails are fitted.
- ▶ Ensure all staff members are trained in the safe use of all lifting equipment.

### Compressed air equipment

- ▶ Ensure air compressors and air powered equipment are regularly checked.
- ▶ Ensure that hand tools operate at a pressure which is compatible with that of the supply line.
- ▶ Do not use compressed air to clean up – avoid spreading combustible dust. Use a purpose-built industrial vacuum cleaner.

### Petrol

Spillages of petrol, due to damage to fuel lines or the use of unsuitable containers, can lead to serious risk of fire.

- ▶ Assess whether petrol needs to be removed, e.g. if welding next to a fuel line and if so, use a fuel receiver to avoid spillages.
- ▶ Work in a well ventilated area away from sources of ignition.



## Used marine engine oil

Frequent, prolonged contact with used engine oils may cause dermatitis and other skin disorders including skin cancer.

- ▶ Ensure that protective clothing is worn and that it is cleaned and replaced regularly.
- ▶ Dispose of waste oils safely in metal containers with lids.

## Correct storage of flammable materials

- ▶ Ensure the proper use and storage of flammable materials, such as paints, finishes, adhesives, and solvents.
- ▶ Segregate combustible and flammable materials and chemical solvents from each other and from ignition sources.
- ▶ Segregate tasks particularly prone to fire and explosion hazards, such as spray painting, welding, and use of electric power tools.

## Hazardous waste disposal

Boat-building tasks often create leftover hazardous substances. For example, solvent waste can be created from cleaning resin mixing equipment and spray gear.

- ▶ Never pour hazardous substance waste down the sewer or storm water drains or onto the ground. Get a waste solvent container and, where possible, have systems in place to recycle solvent waste.
- ▶ Add hardener or catalysts to old resins to cure them so that they can be disposed of as solids rather than liquids.

- ▶ If you are combining different types of hazardous substance waste, make sure it's safe to mix them.
- ▶ Because of the potential toxicity of antifouling paint scrapings, new rules require you to collect the paint waste when removing old paint from boats.
- ▶ All hazardous waste should be collected by a specialist hazardous waste company.

## Fire safety training for employees

- ▶ Train employees to recognise and avoid potentially hazardous fire conditions and behaviours.
- ▶ Provide training for use of any specialised fire safety equipment.
- ▶ Provide training about the correct use of fire extinguishers with appropriate hazard classifications, and aspects of building design related to dealing with fires and explosions.
- ▶ Control ignition sources such as electrical and heat producing equipment.
- ▶ Use correctly rated electrical systems protected by appropriate circuit breakers.
- ▶ Ground all equipment prone to accumulating static electrical charges.
- ▶ Control and ban smoking in and around the workplace.



## Battery safety

### For electric forklifts and lift vehicles

Battery safety is important. Although batteries are designed to be extremely safe, trained staff must always be observant and cautious them as battery acid is both toxic and corrosive. It is important that safety precautions are taken when handling batteries, these include:

- ▶ always have a 'Battery Charging Safety Checklist' displayed in the charging area
- ▶ wear protective eye/ face visors and acid-resistant PVC clothing – note that acid will eat through cotton
- ▶ wear protective gloves
- ▶ make sure that people charging batteries have been properly trained.

### Lift vehicle battery charging fire risks

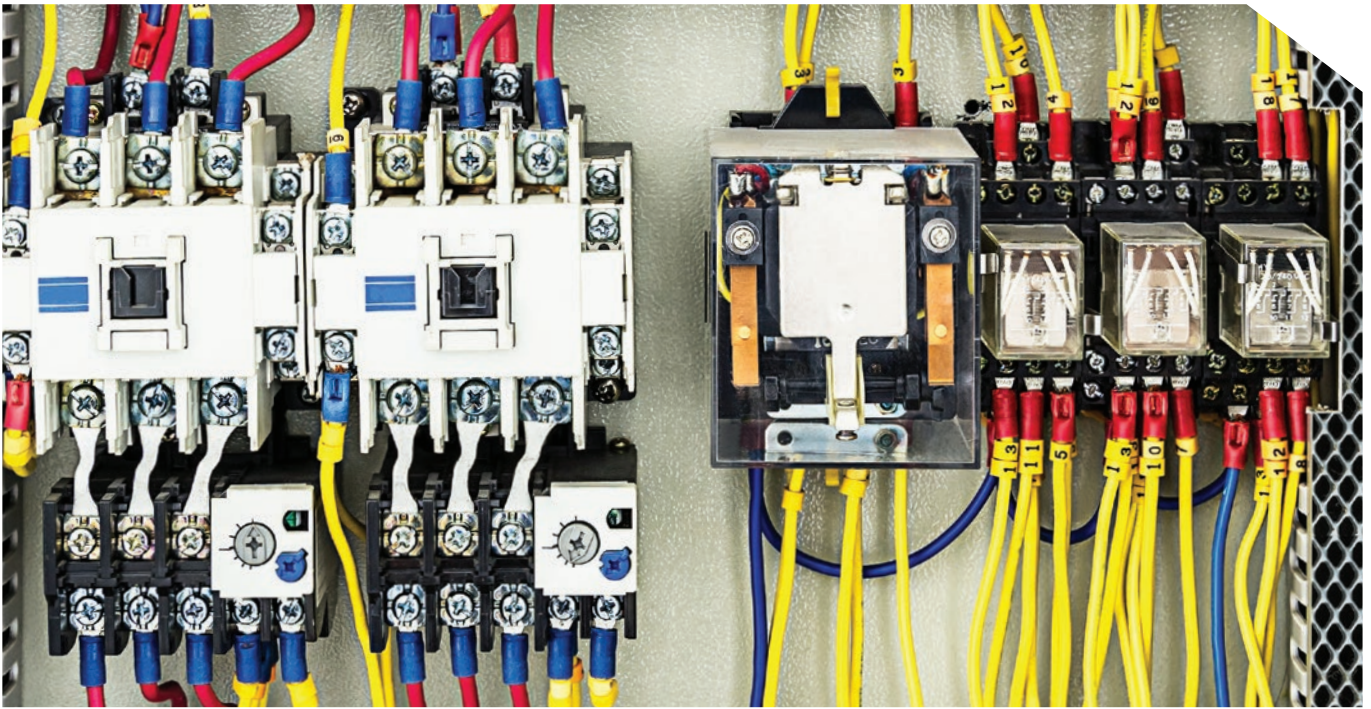
There are fire risks associated with charging or recharging of batteries. The predominant causes of these fires are:

- ▶ evolution of hydrogen, a highly flammable gas
- ▶ overloading of electrical circuits
- ▶ overheating of electrical components
- ▶ earth leakage faults
- ▶ corrosion from spilt acid causing deterioration of electrical apparatus.

### Minimising the potential for fires during battery charging

Below are some simple steps to minimise the potential for fires to occur during battery charging:

- ▶ Always have a 'Hazard Warning Notice' displayed in the charging area.
- ▶ Preferably, carry out charging in a dedicated room of fire resistant construction. This room should not be a basement.
- ▶ Maintain a clear one metre space between the battery charger and the lift vehicle.
- ▶ Provide good high-level and low-level ventilation in the room. Ventilate directly to the outside of the building.
- ▶ Provide serviced hand-held fire extinguishers within the charging area – minimum 2kg dry powder.
- ▶ Provide lime or soda ash close by to enable prompt neutralising of any spilt acid.
- ▶ Keep all switch contacts and connecting blocks clean, especially where exposed to the atmosphere.
- ▶ Regularly inspect and maintain all electrical equipment. Pay particular attention to flexible cables and current limiting resistors.
- ▶ Because of the risk of electrical arcing, keep the quantities of combustible materials in the proximity of the charger to a minimum. Remove any waste such as rags, paper and packaging materials daily.
- ▶ Where recharging of lift vehicle batteries takes place, provide a three metre 'no go' area (or fire break) where the storage of combustible materials is prohibited.
- ▶ Use yellow hatch markings around the battery charging area to make it clear nothing should be stored there.



## Electrical safety

Electrical fires make up a high percentage of fire insurance losses and are often the result of a large scale fire incident. Fires are commonly caused by loose electrical connections, weakening of insulation and poor maintenance of electrical equipment. Legislation requires specific preventative action such as disconnecting, isolating and making safe any defect which constitutes an electrical hazard to persons, livestock or property.

### The need for electrical installation inspection and maintenance

All electrical installations need regular maintenance. Switchboards wear and need replacement as time progresses and demands on the installation change. Equally, network system upgrades can affect fault-trip levels.

Related electrical shortcomings continue to account for a high number of fire losses in New Zealand. To minimise the potential for such losses, it is necessary to complete regular and ongoing inspection and maintenance, which can include thermographic image testing.

Electrical safety inspection items classified as 'requiring urgent attention' means the safety of those using the installation may be at risk and arrangements should be made for a suitably qualified person to undertake the necessary remedial work without delay.

### Electrical test and tag regime

Testing and tagging of plug-in electrical appliances is a requirement of the Electrical (Safety) Regulations 2010. The New Zealand Standard AS/NZS 3760 outlines the requirements for electrical appliance testing. Best practice requires that an asset register is set up that contains test results, failed items, repaired and out of service items, and lists of items that are exempt from testing. The register is important proof that your business is compliant with current health and safety regulations and keeps you up-to-date with the condition of your equipment. For more information visit [www.energysafety.govt.nz](http://www.energysafety.govt.nz)

"Electrical fires make up a high percentage of fire insurance losses and are often the result of a large scale fire incident."

### Electrical regulatory safety obligations

Under health and safety legislation, business owners and operators have a responsibility to ensure a safe work environment for all employees and visitors. The Electricity (Safety) Regulations 2010 specify a range of documentation that should be kept on site to record electrical work on electrical systems (including electrical system maintenance). Take a look at your record management practices to ensure they're up-to-date and compliant.



## Security

### Intruder alarms

Intruder alarms are designed to both protect the physical assets within unoccupied premises and provide a safer environment for staff. Intruder alarms deter theft and vandalism and enable a coordinated and rapid response when an alarm is activated.

Early detection of an intruder is best achieved by installing a combination of detection devices throughout your premises.

These could include:

- ▶ movement sensors
- ▶ break glass sensors
- ▶ vibration sensors
- ▶ duress and hold-up alarms
- ▶ door and window devices.

The key to a successful intruder alarm system is the careful selection and configuration of the control panel and detection devices to suit the level of risk and the physical environment. This maximises the ability to detect intruders and minimises unwanted false alarms.

### Safes

If you have valuable items or cash that require storage in a safe, it is important to have a quality, leading-brand safe that meets CEN European standards and has UL Rated locks. Your safe should also be permanently and securely attached to the structure of the building, such as bolting it to the floor, solid walls or wall studs, or encasing it in concrete.

All quality safes are allocated an amount called a 'cash rating' which is the maximum amount of cash that should be stored in the safe at any given time. If you are holding more cash than the cash rating of your current safe then you should consider upgrading it.

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## Risk management programmes

### Good housekeeping plans

Keeping premises tidy is vital to reducing risk. Having a good housekeeping plan (and regularly carrying it out) may save your business from a major loss. Regular housekeeping not only reduces risk in your business, but also helps to create an efficient workplace and a pleasant environment for staff and customers.

### General maintenance plan

Your maintenance plan will relate directly to your type of business and usually includes all of your machinery and equipment. Note that your equipment also includes all of your office equipment such as computers and communication devices.

Remember that your general maintenance plan should also include your building. Regardless of whether you are a tenant or building owner, it's important to have a plan that regularly checks all areas of your building e.g. gutter cleaning (to prevent flooding) and roof inspections (in case of losses due to high winds and/or heavy rain).

### Health and safety

New Zealand's health and safety system has been completely reformed. The Pike River Mine disaster was the catalyst for the programme of change that created the Health and Safety at Work Act 2015. The aim of the law is to reduce the number of New Zealanders killed or hurt at work.

One of the key aspects of the legislation is the allocation of duty and responsibility. The primary duty for ensuring workplace health and safety is allocated to a 'Person Conducting a Business or Undertaking', a PCBU. Business owners are considered to be a PCBU and will have immediate responsibilities to the health and safety of workers directly engaged by them and others who have contact with the business.

The law says a PCBU needs to take reasonably practical steps to manage health and safety risks. How this is done will depend on: how seriously someone could get hurt, the chance of an accident happening and how much control there is over preventing it.

See [www.business.govt.nz/worksafe](http://www.business.govt.nz/worksafe) for further information.



### **Rubbish skips and wheelie bins**

Every year the New Zealand Fire Service attends hundreds of fires that have spread from nearby rubbish skips and bins. These fires are almost always deliberately lit and result in significant costs in property loss, injuries and loss of business. In dollar terms the indirect economic loss is about \$100m annually. Rubbish stored in skips or bins near buildings is an easy target for opportunists seeking to start a fire. These fires can quickly spread to your building, plant and other equipment associated with your business, threatening your trade temporarily or permanently.

The New Zealand Fire Service has provided a nine point checklist to help reduce the risk of rubbish fires damaging your business as follows:

- 1.** Locate bins well away from buildings.
- 2.** Store combustible waste in metal rubbish containers with self closing lids.
- 3.** Products and materials that need to be stored outside must be in limited pile sizes and well away from buildings, inside and outside the boundary fences.
- 4.** Arrange to have waste collected weekly to minimise rubbish on site at weekends.
- 5.** Ensure public access to your building and yards is limited.
- 6.** Define safe designated smoking areas for staff.
- 7.** Lock bin lids when not in use.
- 8.** Install and maintain adequate perimeter fencing and lock and secure property at night.
- 9.** Provide security lighting and surveillance equipment.

Source: 'Preventing rubbish fires. Fire safety advice for businesses'.  
NZ Fire Service FS1522

### **Wooden pallet storage**

It is extremely important that wooden pallets are not stored against a building. NZI recommends they are stored at least 10 metres away from any building. Fires are often deliberately lit in pallets by arsonists.

When pallets are stored too close to commercial premises they threaten the safety of the building should a fire start. If the 10 metre rule cannot be physically met you should store idle pallets as far away as practical from the building.

### **Smoking policy and controls**

We are constantly reminded that smoking is a health hazard. However, it's also important to remember that smoking can also cause fires leading to loss of life and property damage.

Make it clear to staff and visitors what the smoking policy is and why it has been implemented. While signage can be instructive, it is not enough to ensure that smoking will be appropriately controlled. Make sure your smoking policy is included in your site induction training.

When visitors sign-in are they given instructions on your smoking policy? If you permit smoking at your facility it's important that you provide suitable controls to prevent fire. Designated smoking areas are a common means of providing such a control. Make sure that smoking areas are fitted with ash trays and are located well away from materials that can burn, including vegetation.



## Developing a business continuity plan

A business continuity plan (BCP) is one of the best investments any business can make and is one of the most critical components of any recovery strategy. A BCP details how to get your business back on track after a disruption in the most effective way possible. The main objective of a BCP is to recover all business critical processes and minimise the impact for employees, customers and your reputation.

From the Canterbury earthquakes to storms and flooding in Wellington and tornadoes in Auckland, companies that proactively consider how to respond to events are the first to get back to business, often at the expense of competitors. A predefined BCP, combined with the proper insurance coverage, maximises the chance of a successful recovery by eliminating hasty decision-making under stressful conditions.

### Withstanding a major loss event

Did you know that 25 percent of businesses do not reopen following a major loss event? This is because it doesn't take a major catastrophe to shut down a business. In fact, seemingly minor disruptions can often cause significant damage such as power failures, broken water pipes, or loss of computer data etc.

### What's in a business continuity plan?

A business continuity plan should contain all of the information you need to get your business up and running again after an incident or crisis. The size and complexity of the plan will depend on your business and good practice suggests it should form part of your overall business plan.

Generally a BCP will include a list of roles and responsibilities during an incident, an emergency response checklist and key contacts for all staff and for contractors and suppliers, including out-of-hours numbers.

### Develop, implement and maintain

Developing the plan is the obvious first step, but implementing it is essential. Appointing a person who will ensure that a BCP is created, developed, tested and maintained is your best approach to this business critical activity.

"Given that twenty five percent of businesses do not reopen following a major loss event, a business continuity plan is one of the best investments you can make."

\*These guidelines are of a general nature only. They are not intended to be a comprehensive list of all the risk management steps you should consider taking to reduce the risk of damage and financial loss, nor is it intended to be legal advice.

## Self-assessment risk management checklist

<b>Fire safety equipment</b>	<b>Yes</b>	<b>No</b>
Do you have fire extinguishers or hose reels?	<input type="checkbox"/>	<input type="checkbox"/>
Is the annual servicing up-to-date? (Check the inspection tag on the extinguisher/hose reel)	<input type="checkbox"/>	<input type="checkbox"/>
Have you and your staff been trained to use fire extinguishers?	<input type="checkbox"/>	<input type="checkbox"/>
If you have a fire sprinkler system, are they serviced regularly?	<input type="checkbox"/>	<input type="checkbox"/>
If you have a fire alarm system, are they serviced regularly?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Hot work fire safety</b>	<b>Yes</b>	<b>No</b>
Do you have safety procedures for all hot work (e.g. welding, flame cutting, disc cutting)?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have copies of NZI Hot Work Permit Cards?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Spray booth safety and compliance</b>	<b>Yes</b>	<b>No</b>
Does your spray booth comply with the current joint Australian and New Zealand Standard?	<input type="checkbox"/>	<input type="checkbox"/>
Have your staff members been trained in safe operation of spray finishing?	<input type="checkbox"/>	<input type="checkbox"/>
Has your spray booth maintenance been checked within the past 12 months?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have an up-to-date spray booth dossier with certification and inspection records?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Storage and handling of environmentally hazardous substances</b>	<b>Yes</b>	<b>No</b>
Do you have any hazardous substances on site?	<input type="checkbox"/>	<input type="checkbox"/>
Are the hazardous substances stored in a hazardous goods store?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have HSNO-approved handlers for hazardous substances?	<input type="checkbox"/>	<input type="checkbox"/>
Do you require a HSNO hazardous substances Location Test Certificate?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Battery safety</b>	<b>Yes</b>	<b>No</b>
Do you have a designated area for the safe battery charging with correct ventilation and safety checklist?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have staff members trained in battery charging?	<input type="checkbox"/>	<input type="checkbox"/>
Has your electric forklift or lift vehicle been inspected and serviced within the past 12 months?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Electrical safety</b>	<b>Yes</b>	<b>No</b>
Have you had an electrical safety check by a registered electrician in the last 12 months?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have an electrical installation Certificate of Periodic Verification?	<input type="checkbox"/>	<input type="checkbox"/>

<b>Security</b>	<b>Yes</b>	<b>No</b>
Do you have an intruder alarm?	<input type="checkbox"/>	<input type="checkbox"/>
Has the intruder alarm been serviced recently?	<input type="checkbox"/>	<input type="checkbox"/>
Is the intruder alarm monitored by an external monitoring company?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have security patrols?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have security locks on doors?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have security locks on windows?	<input type="checkbox"/>	<input type="checkbox"/>
Are your valuable items and cash stored in a safe?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Specific risk management solutions</b>	<b>Yes</b>	<b>No</b>
Do you have a regular maintenance programme for all vehicle lifting equipment?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have safety procedures for handling petrol and other flammable liquids, including spillages?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a risk management procedure for all welding work?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have regular safety training for all staff?	<input type="checkbox"/>	<input type="checkbox"/>
<b>Risk management programmes</b>	<b>Yes</b>	<b>No</b>
Do you have a housekeeping programme?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a building maintenance programme?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a smoking control programme?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a waste management programme?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a health and safety programme?	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a business continuity plan?	<input type="checkbox"/>	<input type="checkbox"/>

**NZI Risk Solutions™**

**[www.nzi.co.nz](http://www.nzi.co.nz)**

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