





Window & Glass Health & Safety Resource



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Not all risks in this sector have been identified and discussed within this resource. This resource is intended to assist you in developing and enhancing your health and safety commitment and responsibilities. This resource is not, by any means, to be used as a final point of reference in developing robust health and safety systems, processes and company policies or procedures. It is merely an introduction and a collation of information intended to highlight some of the most important aspects of health and safety requirements for this sector.

A variety of tools (Risk Assessment Matrix and risk scores, Good Work Design, SafePlus, etc.) are introduced in this resource. No one tool should be used in isolation. Further reading on applying each of the tools is recommended

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INTRODUCTION

This section explains how this resource can be useful to you and how you can make the most of this document.



Purpose of this resource

The purpose of this 'Window & Glass Health & Safety Resource' is to provide small manufacturing businesses with health and safety (H&S) guidance specific to their field. This will help lift H&S performance across Aotearoa, one small business at a time.

Improving the overall H&S of New Zealand's Small and Medium Businesses (SMEs) is the key goal of a pilot project launched in March 2021. 'Increasing the Health & Safety Performances of SMEs' was created by the Health & Safety Association of New Zealand (HASANZ) in partnership with Accident Compensation Corporation (ACC). This resource has been developed as a result of that project.



Over the last 18 months HASANZ collaborated with a team of H&S professionals and small manufacturing businesses. We identified key challenges and found ways to help SMEs navigate some of the main risks they are currently facing.

In 2019, WorkSafe identified the burden of harm from work-related injury/ill-health as follows:

injury/ill-health Other 1% Respiratory Cancers . 14% 16% Total annual work-related disability-adjusted life Heart Diseas years lost (DALY) is 6% Injury 11% 50,000 Catastrophic Harm 0.13% Mental III-health 17% Translates into social Hearing Loss cost of at least \$2 billion 7% each year 27% Musculoskeletal

Burden of harm from work-related

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The role of HASANZ and the HASANZ Register

We collaborate to achieve healthy and safe workplaces for everyone in Aotearoa.

After the Pike River Mine disaster, the Government put together a Taskforce to investigate the reasons for New Zealand's poor H&S record. The Taskforce spent about ten months investigating and made several recommendations to the Government. One of the issues the Taskforce found was that there is a huge capability and capacity problem in New Zealand regarding our H&S workforce. The Taskforce recommended the industry work on improving its accreditation standards and putting in place a voluntary registration system to lift professional standards. As a result, the Health and Safety Association of New Zealand (HASANZ) and the HASANZ Register were established.

HASANZ is unique. Nowhere else in the world have the key H&S disciplines chosen to work together as one organisation to promote and influence excellent H&S for everyone. As an association of associations, HASANZ enables and supports its member associations to collaborate to improve and progress H&S outcomes for Aotearoa.

This spirit of collaboration is evident in this resource. HASANZ registered professionals worked together to provide useful, targeted advice and support for the window & glass sub-sector.

The Window & Glass Health & Safety Resource has been developed through a partnership between HASANZ, ACC, and the Window & Glass Association. Significant input has been provided by GA Aluminium Ltd/Fairview, and Fisher Aluminium Canterbury.

Producing or reading any document is not the end of what we need to do to keep our workers safe. Evidence shows that small businesses struggle to identify appropriately qualified workplace H&S professionals who can help them with what comes next. With the variability in the quality of advice comes a lack of trust on the part of businesses – how do they know who to choose, and how can they rely on the advice they receive?

HASANZ has been working to lift professional standards. To make it easy to access competent health and safety professionals we created an <u>online register</u> to support businesses of all sizes. Initially established in 2018 with funding from ACC and WorkSafe NZ, the HASANZ Register has proven to effectively improve access to quality advice for businesses and support for their workers. Anyone can search for free to find providers who offer services across the health and safety disciplines. <u>https://register.hasanz.org.nz/search/</u>

The strength of the Pike River families and survivors inspired me to do what I could to make sure that every single person is safe at work and can go home to their families at the end of the day. I believe that all New Zealanders share the belief that work should be healthy and safe for everyone, and all of us do what we can.

Using this resource, making your workplace safer and accessing professional advice where needed is what you can do.

We look forward to scaling this successful project to make a real difference across the entirety of the manufacturing sector and improving how HASANZ supports small businesses in Aotearoa.

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How to use this resource

This resource has been developed to help inform, educate, and guide you to increase your business's health and safety performance. Our site visits helped us identify some common key areas that needed risk management strategies in the window & glass businesses. These key areas are what we have focused on within this resource.

In the following section 'Key Hazards Identified', we have provided an overview of each highlighted topic. While there are many more risks we could go into, this isn't an exhaustive list of every possible risk. And some of the risks we have covered may not be relevant to your business.

We have provided references and further reading links to help direct you where you can find more information and advice. Additionally, we recommend a full individualised H&S assessment of your business. Each business is different; therefore, a professional assessment will provide tailored controls and risk management advice.

Each topic of discussion within the resource identifies your legal obligations and suggests practical applications. Some have had risk assessments completed on them as a guide, which you will find in Appendix F beginning on page 54. The following risk matrix has been used to assess the likelihood and consequence of the risk occurring, and examples of how to complete your hazard registers. On page 50 in the appendix, a blank risk assessment template has been provided for your use.

	Consequences				
Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	5 Moderate	10 Moderate	19 High	20 High	25 High
Likely (4)	4tow	8 Moderate	12 Moderate	16 High	20 High
Possible (3)	3 Low	6 Moderate	9 Moderate	12 Moderate	15 High
Unlikely (2)	2 Low	4 Low	6 Moderate	8 Moderate	10 Moderate
Rare (1)	llaw	2 Low	31ow	4 Low	5 Moderate

Risk Assessment Matrix and Risk Scores

Interpretation and application of risk scores

Likelihood	Description of Likelihood	Consequence	Description of Consequence
1. Rane	Will only occur in exceptional circumstances	1. Insignificant	No treatment required
2. Unlikely	Not likely to occur within the foreseeable future, or within the project lifecycle	2. Minor	Minor injury requiring First Aid treatment (e.g. minor cuts,
3. Possible	May occur within the foreseeable future, or within the project lifecycle	3. Moderate	injury requiring medical treatment or lost time
4. uksly	Ukely to occur within the foreseeable future or within the project lifecycle	4. Major	Serious injury (injuries) requiring specialist medical treatment or hospilisation
S. Almost Certain	Almost certain to occur within the foreseeable future or within the project literarie	5. Catastrophic	Loss of life, permanent disability or multiple serious injuries

Table 1: Risk matrix and risk scores, Source: Safe and Sound Solutions Ltd

On top of providing you with industry specific guidance, this resource will also give you a general overview of health and safety in the workplace and your obligations as a small business owner/leader. The overview can be found in the second half of this resource, beginning on page 30.

This resource also highlights the skills and value of engaging with a HASANZ registered Health and Safety Professional to assist you to meet your H&S obligations. Details of each H&S Profession represented on the HASANZ Register can be found on page 41.

KEY HAZARDS IDENTIFIED

In this section we have listed the main hazards we identified during our site visits that are most likely to be relevant to your part of the industry.

Each topic within this section identifies your legal obligations and suggests practical applications to help. Some have had risk assessments completed on them as a guide, which you will find in the appendix.



Design and layout of factory

Description of hazard

The design and layout of the factory may create bottlenecks, restrict space for moving materials and/or working zones for people, create additional walking distances and impact the flow of materials between work areas.

Why is it risky?

When there is inadequate space for movement of people, materials and equipment there may be congestion in pathways, creating a negative impact on workflow. There is an increased risk that the plant and equipment could be



accidentally damaged and/or that people may be injured. If using aids such as trolleys, there needs to be enough turning space for trolleys to be easily manoeuvred without hitting anything.

When there is lack of space around work areas and the working height does not match the person and the task, the person may adopt awkward postures such as bending, reaching and twisting. Repetitive or sustained awkward positions can lead to musculoskeletal discomfort (pain in joints, tendons and muscles) particularly in the back, neck and shoulders. The worker may require time off work and treatment if the discomfort is severe. Even mild discomfort may mean the worker is not functioning at their best, resulting in reduced productivity.

Too much clutter in the workspace will likely create trip hazards and make finding tools difficult. When the flow between work areas is poorly designed there may be increased distances for people and materials to move. This increases the time required and impacts efficiency. Excessive walking will contribute to general fatigue.

Lack of space may make it difficult to store materials and finished products. When working in a limited space, it may be harder for the worker to see their work or product details, which will likely increase the risk of mistakes.

What can you do about it?

- Redesign the layout of the factory to provide adequate space for people, materials and equipment.
- Use a scale model to plan the factory layout. Consider how the materials and product flow (from inwards to dispatch), the space required for manoeuvring handling equipment in relation to the order they are used, and the space around workbenches for the access required.
- Use floor markings to identify and define work zones and areas for movement of materials.
- Consult with workers about their requirements.
- Provide training on the importance of housekeeping, the benefits of keeping movement areas clear and maintaining natural alignment of joints when working.

Keeping track

- Regularly check movement areas are kept clear and the space around benches is adequate for the tasks performed.
- Monitor discomfort experienced by workers and encourage early reporting as this may indicate areas that need further evaluation and changes.
- Annually audit layout to check that space and clearances are appropriate.
- Review space requirements when making any changes to work areas or purchasing/installing new machines or equipment.

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Other factors

- Having optimal space with an appropriate layout improves efficiency, allows easier movement of materials and reduces clutter, making it easier to keep spaces clean. It also helps to reduce worker fatigue caused by excessive walking.
- An efficient layout helps reduce accidents and mistakes so the business can maintain productivity and be more profitable.

Want to know more?

Legislative references/ legal context

• The Health and Safety at Work Act requires PCBUs to "provide and maintain a work environment that is without risks to health and safety".

Resources

- <u>https://www.worksafe.govt.nz/topic-and-industry/health-and-safety-by-design</u>
- See page 39 of this resource for information on Good Work Design.

Dust

Description of hazard

Factory workers are often exposed to hazardous wood and aluminium dust levels. The following activities are likely to cause high dust exposures:

- Sawing and cutting.
- Routing and turning.
- Sanding.
- Dry sweeping of dust.
- Bagging dust from dust extraction systems.



It was observed that the workplaces visited were dusty - dust could be seen in the atmosphere and lying on surfaces, including on machinery. Local exhaust ventilation (LEV) did not seem to work effectively given the dust present. Some workers were wearing respiratory protection, and some masks could be seen sitting on work benches dirty and covered in dust.

Why is it risky?

Wood processing causes small particles of wood dust to become suspended in the air. Workers can inhale these particles. A person's upper respiratory system can filter out the larger particles. Smaller particles can go deep into the lungs causing damage and scarring to the lung tissue and damage in the sinuses. Each time this happens a small amount of irreversible damage occurs. This damage reduces the lungs' ability to take in oxygen and makes breathing increasingly difficult over time. The presence of glues, resins, formaldehyde, and other wood treatment chemicals in some wood products present additional health risks.

Wood dust may pose the following risks to worker health:

- Breathing problems can lead to lung diseases such as occupational asthma. There is evidence some forms of wood can cause sino-nasal cancers.
- Getting dust in the eyes can cause irritation and damage.
- Skin contact with wood dust can cause skin ulceration, irritation, and dermatitis.

Aluminium dust may pose the following risk to worker health:

- Irritation to the upper respiratory tract.
- Metal fume fever: symptoms include cough, sore throat, tightening of the chest, headache, fever.
- Ingestion of aluminium (dust or fragments) causes nausea, vomiting and diarrhoea.
- Getting aluminium dust in the eye can cause irritation and damage.

It is important not to rely on respiratory protection as a control measure, as Personal Protective Equipment (PPE) is the least effective control measure. When used, workers must have correctly fitting masks and use them appropriately (i.e., Workers are clean-shaven). LEV must be designed from the outset to be effective and be tested regularly to ensure it remains effective. Housekeeping should include a weekly or daily (depending on levels) clean-up of dust from all surfaces using a HEPA-filter vacuum cleaner.

Dust particles come in a range of sizes. We are primarily concerned about those that are inhalable (0–100 microns in diameter) and those that are respirable (0-10 microns in diameter). Inhalable dusts are those that we breathe in, anything bigger is too big and settles on surfaces as grit/dust. Respirable dust is the smallest dust size - these particles can enter the lower respiratory system. The smaller the particle generated, the greater the potential health effect.

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Table 1: Simplified diagram illustrating the concept of different particle sizes.

There are softwoods and hardwoods. In general, hardwoods are more hazardous to a workers' health, therefore softwoods should be used whenever possible.

Hardwood	Taraie, Tawa, Akeake, Kohekohe, Hina, Fuschia, Broadleaf, Black Maire, Rewarewa: Pukatea, Manuka, Kanuka, Mangeao, Pohutukawa, Southern Rata, Northern Rata, Southern Beech, Kowhai, Puriri, Kamahi
Softwood	Kauri, Pine, Silver Pine, Pink Pine, Yellow-silver Pine, Rimu, Kaikawaka (New Zealand Cedar), Tanekaha, Miro, Matai, Totara, Kaikatea, Macrocarpa

Table 2: Wood species classification list

Workplace Exposure Standards and Biological Indices, 13th Edition, April 2022, Worksafe NZ. Noting these may change over time so refer to the most recent version of the WES book.

Hazardous Substance	NZ-WES-TWA 8-hour time weighted average
Aluminium, Metal dust (as Al)	10 mg.m ³
Aluminium, Welding Fumes (as Al)	5 mg.m ³
Soft wood dust	2 mg.m ³
Hardwood dust	0.5 mg.m ³

 Table 3: Workplace Exposure Standards (explained in concentration levels)

What can you do about it?

Carry out an assessment of the workplace

• Discuss with workers what they find dusty, sources of dust.

Implement elimination and engineering controls such as Local exhaust ventilation (LEV)

- Elimination and engineering controls such as Local exhaust ventilation (LEV) are more effective than administrative controls and PPE.
- Eliminate the risk by buying pre-cut or processed wood materials.
- LEV is one of the most effective ways to control dust at the source. Use LEV systems to capture dust from cutting, shaping, and sanding wood by hand or machine.
- Use on-tool extraction on saws and grinders to control wood dust at the source.
- Refer to the manufacturer's operating instructions for equipment use and maintenance. For example: use the correct saw blade or planer for the task.
- Use water damping methods where practical.
- Provide a suitable industrial HEPA-vacuum to remove dust from work areas.
- Minimise worker exposure by limiting the time each person spends doing dusty work.
- Advise workers to wear Respiratory protection equipment (RPE) when emptying vacuum cleaner bags or collection bags there is a potential for high wood dust exposure.
- Ensure workers wear RPE and other Personal protection equipment (PPE) suitable for the task. Advise workers to carefully remove work clothing such as overalls at the end of the task or shift to avoid generating dust clouds.
- Provide washing facilities at work so dust is not taken home.
- Advise workers to wash their face and hands immediately after finishing the task and before eating, drinking or smoking.
- Ban the use of compressed air, blowers or fans to blow down dusty areas.

Train your workers

• Talk to workers about how dust could harm them, and how to identify hazardous dust sources. Continually address gaps in workers knowledge by providing ongoing training. Remind your workers about safe practices to protect their lungs and skin.

Provide Respiratory Protection (Level P2 protection)

• Ensure your workers always wear respiratory protection if needed. Discuss with an Occupational Hygienist or a supplier the appropriate protection required. Remember, respiratory protection is the least effective control measure, and should only be considered after you have tried to eliminate or minimise the dust risk. Train your workers on when and how to use, fit, care for, and maintain their respiratory protection correctly. You must pay for respiratory protection, including maintenance and replacement.

Seek your workers views when managing the risks associated with dust

• Engage with your workers on issues or concerns regarding their health.

Set up a Respiratory Conservation Programme

• This will include health monitoring (annual spirometry testing) and exposure monitoring (dust surveys least every five years).

Keeping track

Schedule exposure monitoring at regular intervals (as recommended by an occupational hygienist) or following any changes to your equipment or processes that may increase the risk of your workers being exposed to hazardous dust levels.

Annual spirometry testing will detect early signs of ill-health or disease. Health monitoring can also show if control measures are working effectively.

Review your control measures to see if controls at the source are prioritised over less effective controls, such as respiratory protection. A good way to do this to check how much has been budgeted and spent on dust assessments compared to buying, maintaining, and replacing respiratory protection.

Other factors

- Environment impacts consider the dust from your factory and how it affects businesses near you.
- Resources you will need assistance from an Occupational Health Nurse and Occupational Hygienist.
- Costs/financial there will be costs associated with implementing new controls, for the health monitoring and dust survey.

Want to know more?

Acts

The key legislation here is the Health and Safety at Work Act 2015 (HSWA). HSWA sets out the principles, duties, and rights concerning workplace health and safety. Risk management is an important requirement of this legislation.

Health and Safety at Work Act 2015 No 70 (as at 28 October 2021), Public Act Contents – New Zealand Legislation

Regulations

Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (LI 2016/13) (as at 01 December 2020) Contents – New Zealand Legislation

This legislation includes requirements for:

1. Health Monitoring – monitoring workers exposure though annual spirometry is recommended, to ensure that controls are working effectively and to identify early signs of respiratory disease. A skin assessment could also be completed to identify, prevent, and manage ulceration of the skin, irritation, and dermatitis.

The purpose of health monitoring is to:

- make sure that the health of workers is not being harmed from exposure to hazardous dust while carrying out work
- detect early signs of respiratory disease
- help treat and protect workers who have been exposed to hazardous dust levels.

Baseline spirometry (lung function test) is recommended at commencement of employment (this can be done as part of a pre-employment process). An occupational history questionnaire as part of the assessment will assist in identifying previous exposures to dust at work and recreationally. Spirometry testing by an Occupational Health Nurse also provides an opportunity for worker education, e.g., the fitting and maintenance of respiratory protection and the providing of health information.

2. Exposure monitoring – to measure the actual dust levels that workers are exposed to and may be harmed by. This will assist in identifying controls and assessing the effectiveness of controls such as LEV. If Local exhaust ventilation (LEV) is in place this is an opportunity to check if this is working effectively. The frequency of the surveys should be discussed with an Occupational Hygienist who can carry out this work.

WorkSafeNZ Guidelines

WorkSafe NZ has a large range of information about dust management on their website.

See: <u>Wood dust: controlling the risks | WorkSafe</u>

AS/NZ Standards

AS/NZS 4745:2012 Code of practice for handling combustible dusts

Resources

- For information about dust management see the WorkSafe website: <u>Wood dust: controlling the risks</u> <u>WorkSafe</u>
- ACC has resources, mainly related to noise induced hearing loss and claims_Resources (acc.co.nz)
- <u>https://www.breathefreely.co.nz/</u>

Description of hazard

Factory workers are exposed to noise levels likely to be over 85 decibels (dBA) which puts them at risk of noise induced hearing loss (NIHL). The tasks we saw being carried out on our site visits that met this noise level included machine and hand tool operation.

An indication that the environment is too noisy is when it is difficult to talk to and hear people standing nearby. It is important to ensure that hearing protection is used appropriately. As a general rule, if you have to raise your voice to be heard by someone one metre away, you have a noise problem.



Why is it risky?

High noise levels can lead to increased accidents as warning sounds like the reversing beep of a forklift may not be heard.



What can you do about it?

Assess the workplace

• Discuss with workers what they find noisy, sources of noise and noise levels. You can use a phone app to indicate whether noise could be a problem in your workplace. Then get a noise survey by a competent person search for an Occupational Hygienist on the HASANZ register.

You must try to eliminate the noise source

• For example: by removing the noisy machinery from your work, or by choosing quieter equipment.

Implement a 'Buy Quiet Policy' for all new equipment

• Before you buy new equipment, consider noise levels and choose quieter models.

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If you're not reasonably able to, you need to consider what you can do to minimise the risk of noise. Some ways you can do this are:

- Separating the noisy machinery from where your workers are.
- Using barriers or acoustic shields to block the path of the noise.
- Using silencers or noise insulated equipment.
- Limiting the time your workers spend in noisy areas by rotating tasks or shifts.

Train your workers

• Talk to workers about how noise could harm them, and how to identify hazardous noise sources. Continually address gaps in workers' knowledge by providing ongoing training. Remind your workers about safe practices to protect their hearing.

Provide hearing protection

Make sure your workers always wear hearing protection if needed. Remember, hearing protection is
the least effective control measure, and should only be considered after you have tried to eliminate or
minimise the noise risk. Train your workers on when and how to use, fit, care for, and maintain their
hearing protection correctly. Class 1 or 2 are the level of protection likely to be required. You must pay
for hearing protection, including maintenance and replacement.

Overprotection with hearing protection over what is required can be an issue

• Overprotection occurs when a hearing protector reduces sounds to such low levels that it's difficult for the wearer to understand conversations and/or hear important sounds around them. An inability to communicate or detect warning signals can keep workers from performing their jobs safely and efficiently.

Seek your workers views when managing the risks associated with noise

• Engage with your workers on issues or concerns regarding their hearing.

Set up a Hearing Conservation Programme

• This will include health monitoring (annual audiometry testing) and exposure monitoring (noise surveys every five years).



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Three Options for Controlling Noise

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Keeping track

Schedule noise surveys at regular intervals (every five years as per ASNZS 1269.1:2005) or following any changes to your equipment or processes that may increase the risk of your workers being exposed to hazardous noise levels.

Annual audiometry testing will detect early signs of ill-health or disease. Health monitoring can also show if control measures are working effectively.

Review your control measures to see if controls at the source are prioritised over less effective controls such as hearing protection. A good way to do this to check how much has been budgeted and spent on noise assessments compared to buying, maintaining and replacing hearing protection.

Other factors

- Environment impacts consider the noise from your factory and how it affects businesses near you.
- Resources you will need assistance from an Occupational Health Nurse and Occupational Hygienist.
- Costs/financial there will be costs associated with implementing new controls, for the health monitoring and noise survey.

Want to know more?

Acts

The key legislation here is the Health and Safety at Work Act 2015 (HSWA). HSWA sets out workplace health and safety principles, duties, and rights. Risk management is an important requirement of this legislation.

<u>Health and Safety at Work Act 2015 No 70 (as at 28 October 2021), Public Act Contents – New Zealand</u> <u>Legislation</u>

Regulations

There are two key pieces of legislation related to noise management.

Health and Safety in Employment Regulations 1995 (SR 1995/167) (as at 15 May 2017) Contents – New Zealand Legislation

The Regulations are that: you must, so far as is reasonably practicable, make sure that your workers (or people that visit your workplace) are not exposed to noise levels that are:

- equivalent to 85 decibels averaged over eight hours, or
- a peak noise level over 140 decibels.

This always applies, whether or not your workers are wearing hearing protection.

<u>Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 (LI 2016/13) (as at 01</u> <u>December 2020) Contents – New Zealand Legislation these regulations don't apply yet to health monitoring</u> (no safe work instrument), it is the overriding act hat places the duty re health monitoring

This legislation includes requirements for:

1. Health Monitoring – monitoring workers exposure though annual audiometry (hearing tests) is recommended to ensure that controls are working effectively and to identify early signs of NIHL.

The purpose of health monitoring is to:

• make sure that the health of workers is not being harmed from exposure to hazardous noise while carrying out work

- detect early signs of noise induced hearing loss
- help treat and protect workers who have been exposed to hazardous noise levels

Baseline audiometry (hearing tests) is recommended at commencement of employment (this can be done as part of a pre-employment process). An occupational history questionnaire as part of the assessment will assist in identifying previous exposures to noise at work and recreationally. Audiometry testing by an Occupational Health Nurse also provides an opportunity for worker education, e.g., the fitting and maintenance of hearing protection and providing other health information.

(Note: occupational exposure to certain organic solvents, with or without noise, is a risk factor for hearing loss. There is evidence that styrene, particularly toluene, have synergistic effects with noise).

- Noise exposure assessment to measure the actual noise levels that workers are exposed to and may be harmed by. This will assist in identifying controls including the use of hearing protection. Occupational Hygienists carry out this work.
- Noise surveys are required to be undertaken at least every five years or after significant changes (for example new equipment, new layout or new processes) to the workplace as per ASNZS 1269.1:2005 (Occupational noise management – Measurement and assessment of noise emission and exposure)

WorkSafeNZ Guidelines

WorkSafe NZ has a large range of information about noise management on their website.

See: Noise | WorkSafe

This includes:

- Factsheet: Legal Duties. This section will help you to understand your duties in managing the risk associated with noise at work.
- Approved Code of Practice for the Management of Noise in the Workplace, OSH, DOL, 2002
- Further information | WorkSafe

AS/NZ Standards

There are six Standards about noise management:

- AS/NZS 1269.4:2014 Occupational noise management Part 4: Auditory assessment
- AS/NZS 1269.0:2005 Occupational noise management Overview and general requirements
- AS/NZS 1270:2002 Acoustics Hearing protectors
- ASNZS 1269.1:2005 Occupational noise management Measurement and assessment of noise emission and exposure
- ASNZS 1269.1:2005 Occupational noise management Noise Control Management
- ASNZS 1269.1:2005 Occupational noise management Hearing protector program

Resources

For information about noise management see the:

- WorkSafe website: Noise | WorkSafe
- ACC website: has some resources, mainly related to noise induced hearing loss and claims <u>Resources</u> (acc.co.nz)

Machinery Safety

Description of hazard

The failure to adequately guard machinery and/or apply other controls such as signage, lockout, training, and PPE can result in significant injury.

Why is it risky?

Machinery safety or lack of machine guarding exposes workers to different hazards. These can include cuts and amputation to fingers/hands from moving parts or machinery tools, and entanglement of the body, clothing or hair of the operator with primary drive motors, shafts or belts. Other hazards include



flying objects from the machine, heat and dust generated from the process, crushing from movement and operator interaction. Noise and associated hearing loss is another common hazard/risk covered in a separate section.

What can you do about it?

- Fit and maintain interlocked guards that prevent machine operation when doors or guards are opened (isolation).
- Fixed guards (secured with bolt/screw) should be so arranged and assembled so that they can only be removed with the use of a tool and procedures cover machine lockout (isolation).
- Cover foot pedals with a shroud to prevent accidental activation (isolation).
- Guards, fences and gates should be constructed, and guards should have a mesh size that restricts workers from reaching over or through (engineering/isolation).
- Worker induction, competency and training is established and maintained for workers so they can setup, operate and maintain the machine in a safe manner (administrative).
- When machinery is required to be operated without guards on for servicing and sharpening, the operator should be trained, and a documented procedure established (administrative).
- Where risks still exist, signage can be used to alert workers of the risk. For example: when guards are openable and moving blades are present, cut/laceration signage could be used as well as the interlock.







Fig 1: Examples of points of injury from typical manufacturing machinery

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Keeping track

- Inspection regular inspection to review machinery functionality and safety aspects should be completed.
- **Prestart** operators should check at the commencement of their shift that electronics and interlocks work as designed.
- **Certification** lifting and pressurised containers usually have prescribed certification frequencies.
- **Calibration** precision instruments and equipment are sometimes required to be tested for accuracy, e.g., scales or torque wrenches.

Other factors

- Environment impacts poorly maintained and serviced equipment can sometimes result in leakages or spillages of oils and lubricants, creating slip hazards and/or a fire risk.
- **Quality aspects** a poorly maintained, sharpened and serviced plant can also impact the quality of the desired product. In-line quality checks should ensure that machines are running sharp and true.

Want to know more?

Legislative references/ legal context

- Health and Safety at Work Act 2015, S30, 39, 40 (management of risk/ hazard)
- Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, regulation 5

 8 (identify hazards, apply controls, maintain and review controls)

Resources

- Worksafe NZ <u>https://www.worksafe.govt.nz/topic-and-industry/manufacturing/safe-use-of-machinery/#lf-doc-29308</u>
- AS/NZS 4024 Safety of machinery

Manual Handling

Description of hazard

Hazardous manual tasks (lifting and moving materials and equipment)

Manual handling includes lifting, carrying, moving, lowering, pushing, holding, supporting and pulling items by hand. From our site visits we noted manual handling is repetitive throughout the production process.

And there is frequent heavy lifting involved, and the loads in relation to materials, weight and size vary considerably and can be awkward in shape. The heavy lifting of material and glass occurs in and around the factory, in and out of trucks and off site. The lifting is repetitive at times and is in all areas - inwards goods, cutting, preparation, fabrication, reveals, glazing and



dispatch. Manual lifting of products is done either independently or in teams. There is limited to no information about manual handling risks and controls within Standard Operating Policies or policy documentation.

Why is it risky?

When handling materials, the person may adopt awkward body positions such as bending, reaching or twisting. If the item is heavy, the person may need to use considerable force to lift or move it. When people are moving heavy loads it increases the risk of injury to their bodies, when the load is greater than the person can manage.

Forceful movements and awkward postures strain the joints and muscles. They may lead to discomfort or injury, particularly if the activity is repeated or sustained. High repetitions contribute to muscle and general fatigue, making workers more susceptible to making mistakes.

No weight limit is considered 'safe' for lifting because the risk is not solely dependent on the object's weight. Each situation should be assessed by considering the combination of all the factors that impact the person's ability to safely complete the task. For example: what is the space available for movement; what is the lifting height and distance to be moved; the size, weight and shape of the item; housekeeping within the area (such as cords and dust); frequency of lifting; availability of assistive equipment such as trolleys or mechanical lifters; and the skill, age and fitness of the worker. An object is too heavy to manage when the person states it is too heavy for them. If it feels difficult or too heavy, then an alternative way of moving the item should be used.

People in this industry are moving loads 20-35 kg frequently. They can be up to 200kg in completed units in multi-person manual lifts. These loads are considered very heavy in relation to the physical demand of the work. Using mechanical assistance with these large, awkward loads is the preferred option.

However, if this is not practical, team lifting with two (or more) people may be necessary. However, there will still be a high residual risk. Team lifting requires good coordination and communication to control the lift as there is a chance that one person may unexpectedly take too much of the load. When more than one person lifts it may be difficult for everyone to get close enough to hold the item securely. This limits the postures and actions that can be used. Research indicates that team lifting is "generally 30% less effective than the sum of the individuals acting alone"¹. The frequency of lifting completed by everyone working the floor within the business is a considerable manual handling risk.

¹ Mital, A.; Nicholson, A. S; Ayoub, M. M. (1993). A Guide to Manual Materials Handling. Taylor & Francis.

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It is common to focus on body mechanics and provision of training for individuals on 'correct lifting techniques'. The traditional 'bend the knees and keep the back straight' approach is unlikely to be practical for

most situations. It does not address all the underlying factors that makes the task hazardous. Appropriate handling techniques must be task-specific, practical within the workplace design and integrated within the task instructions.

Manual handling of material presents several risks. The repetitive nature of manual handling material increases the risk of worker fatigue, discomfort, pain and injury. There is also the risk of product damage due to worker fatigue and poor manual handling techniques.

Manual handling injuries can result in workers being off work with injuries. In severe cases there may be permanent impairment where the person cannot return to work. There are costs to the business for replacing the absent team member, the loss of worker expertise and the impact on ACC levies. There may be disruption to productivity due to workers being absent or trying to be at work with ongoing pain and discomfort. Injuries negatively affect the business's market and employment reputation, impacting recruitment and retention, hurting business financially.



What can you do about it?

- Assess and design the layout of work areas and processes to ensure manual handling is eliminated or minimised, where possible.
- Use mechanical devices whenever practical to eliminate the need for manual lifting. For example: use a vacuum gantry lifter to move items onto the glazing platform; use a forklift to move bulk materials from delivery point to storage.
- Provide appropriate trolleys, dollies, skateboards or A-frames to move product between work areas. Ensure that wheel size and configuration is suitable for the loads being moved. Consider whether a pushing handle is required.
- Regularly maintain all equipment including keeping wheels free of dust and dirt.
- Review the layout and flow of the factory area to optimise space and access (including delivery and collection of materials within the factory). Ensure mechanical equipment for eliminating or minimising manual handling can be used safely.
- Provide self-height adjusting tables as work platforms and consider rollers or conveyors to allow sliding of materials between work areas.
- Ensuring the shortest path is taken between workbenches. Remember that the bench height affects how much bending is required.
- Consider whether vertical or horizontal storage is more appropriate for easier access.
- Deconstruct heavy assembled items for easier transportation to site.
- Consider using a loading dock to allow level entry onto trucks so items can be wheeled on. Alternatively, use a tail-lift on the truck for loading and unloading assembled items.



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- Consider options for improving grip on materials such as using appropriate gloves or suction handles.
- Provide modular tool storage systems on wheels for site work, so that all tools are readily available and easily moved.
- Keep floor surfaces clean and even to eliminate trip hazards and provide a smooth surface for wheeled equipment.
- Consider the impact of ambient temperature (hot or cold) on the ability to securely hold items.
- Ensure there is adequate lighting to see walkways.
- Manage the workload to reduce repetition and provide a variety of tasks to be performed.
- Consult with the workforce regarding manual handling, by asking questions about how they physically do tasks and to know as a business what works well for the team.
- Encourage workers to take regular breaks and stretch frequently.
- Provide practical task-specific training for workers. Training needs to consider the physicality of the worker to ensure hip squat lifting technique with breathing, leverage, range and strength considerations. Encourage the person to keep close to the load, move their feet to avoid twisting, and regularly stretch in the opposite direction. The training needs to be appropriate for all workers in respect of their language, culture and learning needs.
- Regularly discuss manual handling in toolbox talks and Health and Safety meetings. Foster a culture of 'not being a hero' at work and encourage workers to ask for help when needed.
- Induction provide assessments and education to new staff including observation and on the job training with an experienced worker, or manual handling 'champion'.
- Consider the physical demands of the role in pre-employment assessments. Ensure workers are fit for the job, and that the lifting components of tasks are discussed during job interviews and described in position descriptions.

Keeping track

- Review manual handling tasks annually or whenever there is any change in procedures to check that controls are relevant and effective. Update task instructions and Standard Operating Procedures (SOPs) as required.
- Consider manual handling in relation to specific products, (particularly new products) as regulations change and products may be larger or heavier than previously worked with. Ensure SOPs are updated and include mechanical equipment available to move products.
- Regularly check work practices to ensure equipment is being selected and used correctly.
- Monitor discomfort experienced by workers and encourage early reporting as this may indicate areas that need further evaluation and change.
- Review every incident reported in relation to manual handling risks and consider the level of controls to be implemented to eliminate and prevent incidents. Use the near-miss category in hazard reporting as part of this process.
- Review manual handling requirements when making any changes to work areas or purchasing/installing new equipment. Consider eliminating manual heavy lifting by using mechanical assistance as the first control.
- Use toolbox talks as an opportunity for training and feedback from workers.
- Ensure policy, procedures and SOPs reflect current best practice.

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Other factors

- Ideally, manual tasks should be able to be easily performed regardless of age, gender, expertise and ability. If this is the case, then you can retain an ageing workforce, employ a variety of people (by avoiding limits on suitability) and potentially become a preferred employer.
- Share knowledge within the industry regarding preferred equipment, systems, processes and best practices to eliminate and minimise manual handling risks.
- Ensure workers know what a strong lifting technique looks like. This includes: having a strong grip on the object; being in line with the object (not twisting); that the movement to bend down is a hip-lead squat with the back neutral; being balanced in their stance; having the object close to them and in front of them; moving their feet to avoid twisting; using breathing out when pushing, pulling and lifting; using their legs for power, and considering how they are going to lower a load safely. When lifting with another person, emphasise the need for clear and concise communication regarding timing and intended technique.
- Encourage workers to be responsible for ensuring they are fit and able to meet the physical demand of the work. Consider their different needs to remain strong and flexible with allowances for time for micropauses, warmups and stretching. Allow individuals the time they need to complete work tasks if there is a high manual handling risk. Ensure clothing issued for work allows for freedom of movement, warmth in cool conditions, and control of body temperature in hot conditions.

Want to know more?

Legislative references/ legal context

Health and Safety at Work Act

Resources

- Code of Practice for Manual Handling (Department of Labour, Occupation Safety and Health Service, 2001).<u>https://www.worksafe.govt.nz/topic-and-industry/manual-handling/preventing-manual-handling-injuries-acop/</u>
- <u>https://www.worksafe.govt.nz/topic-and-industry/manual-handling/</u>
- <u>https://www.worksafe.govt.nz/topic-and-industry/manual-handling/lifting-and-carrying/</u>
- Safe Work Australia <u>https://www.safeworkaustralia.gov.au/system/files/documents/1905/model-cop-hazardous-manual-tasks.pdf</u> and <u>https://www.safeworkaustralia.gov.au/doc/model-codes-practice/model-code-practice-hazardous-manual-tasks</u>
- <u>https://www.worksafe.vic.gov.au/hazardous-manual-handling</u>
- Health and Safety Executive (UK) Manual handling assessment charts (MAC tool) <u>https://www.hse.gov.uk/msd/mac/</u>

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Mental Health and Wellbeing

Vision of a Mentally Healthy Workplace

Looking after workers' mental health and wellbeing is an important part of how people interact with one another. It is part of how working conditions and management processes are structured and decisions are made and communicated. While many factors external to the workplace can impact workers' mental health and overall wellbeing, this resource focuses on what can be controlled within the work environment.



The following is a framework for approaching the management of mental health and wellbeing at work. It assists business owners and operators to

help prevent harm at work, and helps workers thrive. The vision of a mentally healthy workplace is one that actively works to prevent harm to worker psychological health, including negligent, reckless, or intentional ways, and also promotes wellbeing. There are four main areas of consideration that make up the business case for improving mental health and wellbeing:

- Risk mitigation.
- Cost effectiveness.
- Recruitment and retention; and
- Organisational excellence and sustainability.

Description of hazard

Psychological Hazard

When we think of hazards, we typically think of tangible hazards such as chemical, electrical, slips, trips or falls etc. However, a hazard that affects a worker's mental health and wellbeing can also influence the health and safety of your workers every day. These hazards can take many forms including trauma, ongoing stress, emotional abuse, bullying, or harassment.

Factors can be organisational and/or systemic and can be influenced by the workplace. Addressing these factors effectively can positively affect worker mental health and wellbeing, psychological safety and participation. This can result in increased productivity and financial returns.

There are four levels of harm that businesses should be aware of:

- Harm to self.
- Harm to business.
- Harm to other people; and
- Harm to the environment/plant.

Why is it risky?

Studies have identified that workplace factors can promote or harm psychological health and safety. Often these factors can combine to contribute to this, however, the evidenced based research from both scientific and legal studies on this issue have shown single factors can be beneficial or harmful as well.

Generally, mental health issues fall into the following categories with workers:

• Existing workers with mental health issues that have not been disclosed to managers, or new workers entering the place of employment with pre-existing illnesses that are not disclosed at the time. The risks are generally low as they seek support elsewhere, however, they may or may not be well managed within the health service.

- A worker either develops or has a relapse of mental health illness while employed.
- Addictions drug and/or alcohol addictions of workers. Businesses need to consider having zero tolerance enforced for alcohol and drugs in the workplace, especially when in control of machinery.
- Work related mental health issues arise including predisposition to developing mental health issues, e.g., the inability to manage stress.

Mental health issues can arise from pressure within the organisation - for example: workload management, bullying/harassment, shift work, working extended hours, or lack of organisational support.

Other reasons why a worker's mental health may suffer include:

- Working in isolation.
- Staff with no known mental health issues presenting with new onset of mental health issues.
- Staff with poor coping strategies or who have undergone personal distress, e.g., conflict at home, bereavement, divorce and/or family issues.

What can you do about it?

- Engage an appropriate health and safety professional to ensure work is designed to prevent and manage risk.
- Consider Good Work Design for mental health and wellbeing throughout all processes e.g., work environment, work organisation, work hours, workload, rostering, roles and responsibilities.
- Get to know your staff. Establishing good working relationships with staff to understand what their pressures are at work (and out of work) will enable you to identify if mood/mental health changes are starting to occur.
- Document and communicate organisational values, culture and expected behaviours.
- Provide EAP Services and peer support/counselling support services/cultural support services.
- Foster a responsive workplace culture where managers offer tailored responses through trust and having honest conversations.
- Have clear organisational policies regarding drugs, alcohol, and smoking.
- Design policies that support flexible leave and entitlements, including sick leave, flexible working arrangements and return to work plans.
- Provide education through holding mental health awareness week and wellbeing initiatives.
- Establish peer support or buddy systems so staff have someone other than management to talk to.
- Review work tasks and as applicable and, if necessary, temporarily remove an at-risk worker from high-risk tasks e.g., machines and decision-making.
- Follow random and routine drug testing policies and procedures.
- Create a policy to state that staff must notify management when prescribed medication that could affect driving and/or machine use.
- Openly discuss mental health and wellbeing at toolbox talks.
- Provide ample resources online, on pin boards and in staff kitchens, on what a mental health issue is and where to access resources/support.
- Create a safe, non-judgmental culture through education and support.
- Critical response management plan to suicidal and/or self-harm of a worker.
- Mental first aid course through an appropriate agency like Red Cross or St John's. This education provides staff with a basic introduction into mental health awareness and appropriate responses.
- If staff are required to work in isolation, consider setting up a buddy system with a trusted colleague.

Keeping track

- Consider having a health professional (e.g., occupational health nurse or occupational therapist) to complete screening assessments or person-specific assessments.
- Consider including annual medicals or psychological screens with staff. Consider including psychological screens/questions as part of the pre-employment process.

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- Monitor investigation reports, HR data and incident data for opportunities to improve mental health and wellbeing management.
- Evaluate the effectiveness of policies and procedures at least annually, in collaboration with staff.

Job Analysis Assessment

Included in the appendix of this resource is an example that demonstrates how to manage the risk assessment process at your workplace - see page 63.

Building a system

Creating a health and safety management plan that includes the mental wellbeing of its workers means developing an ongoing and flexible framework built over time and integrated into how business is done. It should not be considered as another organisational program, short-term project, or initiative. Making the shift requires careful thought and a tailored approach to the needs of your workforce. And, an effective strategy that helps to avoid unintended consequences, as well as removing barriers to the strategy being effective and sustainable.

Many work-related factors and stressors have the potential to harm or protect mental wellbeing. Factors such as workload, social interactions, organisational culture, and each individual's ability to cope and deal with the impact of work. Many of the work-related factors that can harm workers are often referred to as psychological risks. Good work design can protect workers from risks and harm and



Figure 1: CEO Guide to Mental Health and Wellbeing at Work (2021). https://www.forum.org.nz/resources/?category%5B%5D=7

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Want to know more?

The Road to Psychological Safety

Legal, scientific, and social foundations should be considered for psychological safety in the workplace. A psychologically safe workplace is defined as one that is the result of every reasonable effort being made to protect the mental health of employees.

The law and science agree that risks to mental health are more likely to arise and contribute to a psychologically unsafe workplace in the following situations:

- Job demands and requirements of effort: this is where job demands consistently and chronically exceed worker skill levels. Or exploit them beyond what would be considered reasonable for a particular undertaking. Or, where work is distributed inequitably.
- Job control or influence: discretion over the means, manner, and methods of their work (including 'voice' or the perceived freedom to express views or feelings appropriate to the situation or context) is withheld from workers by choice, rather than because of the nature of the work.
- **Reward**: this is when praise, recognition, acknowledgement, and credit are withheld from workers for no good reason.
- Fairness: there is a consistent failure or refusal to recognise and accommodate workers' reasonable needs, rights, and claims. Perceptions of such failure can arise from feelings that decisions are made without attention to due process.
- **Support:** support with advice, direction, planning, and provision of technical and practical resources and information (to the extent that they are available within the organisation) is withheld from workers by choice, rather than due to some form of constraint within the organisation.

Psychological safety is a concept that connects the dynamic of the workplace to the health, resilience, and well-being of society at large.

Ref: World Health Organisation (WHO)

Legislative references/ legal context

Occupational health and safety management – psychological health and safety at work: managing psychological risks – guidelines (ISO/FDIS 45003) - <u>https://www.iso.org/standard/64283.html</u>

Resources

- Mental Health Foundation <u>https://mentalhealth.org.nz/workplaces/open-minds</u>
- WorkSafe <u>https://www.worksafe.govt.nz/topic-and-industry/work-related-health/mental-health/mentally-healthy-work/</u>
- Business Leaders' Health and Safety Forum resources such as 'Protecting mental wellbeing at work'; 'Measuring mental wellbeing' and 'CEO Guide Mental Health and Wellbeing'-<u>https://www.forum.org.nz/resources/?category%5B%5D=7</u>
- Key questions to ask a staff member if they are feeling mentally unwell -<u>https://www.healthandsafety.govt.nz/assets/Documents/A_Mental_Health_Guide_for_New_Zealand</u> <u>Leaders.pdf</u>
- Mates in construction <u>Suicide Prevention in Construction Mates in Construction NZ</u>

HEALTH & SAFETY OVERVIEW

In this section we want to bring you closer to health and safety. We will introduce you to the regulating bodies for the industry and explain how HASANZ and HASANZ registered professionals can help you. We will also give you an overview of your health and safety obligations as a small business owner.



Health and Safety in New Zealand

HEALTH & SAFETY IN NEW ZEALAND

Groups that work to make New Zealand work healthy and safe



For more information about this act see page 32 in this resource

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Health and Safety at Work

The Health and Safety at Work Act 2015 (HSWA) is New Zealand's main work health and safety (H&S) law.

WorkSafe New Zealand is the work H&S regulator. Other agencies have designated functions for specific sectors - including Maritime New Zealand, the Civil Aviation Authority and New Zealand Police.

HSWA, regulations, safe work instruments, and WorkSafe information and guidance all work together to support duty holders (people responsible for H&S oversight – explained further on page 33) to improve their work H&S. The legislation is designed to be flexible and workable for both small and large businesses, without imposing unnecessary compliance costs.

The work H&S legislation:

- reflects modern working relationships
- places obligations on the people who create risk and are best placed to manage it
- provides for worker participation and the sharing of health and safety information
- has regulations which describe certain requirements to be met for certain duties
- integrates the regulation of workplace use of hazardous substances
- has a responsive enforcement regime.

A guiding principle of the Health and Safety at Work Act 2015 (HSWA) is that people should be given the highest level of protection against harm to their health, safety, and welfare from work risks (as is reasonably practicable).

The main purpose of HSWA is to provide for a balanced framework to secure the health and safety of workers and workplaces by:

- protecting workers and other persons against harm to their health, safety, and welfare by eliminating or minimising risks arising from work
- providing for fair and effective workplace representation, consultation, cooperation, and resolution of issues
- encouraging unions and employer organisations to take a constructive role in promoting improvements in work health and safety practices and assisting PCBUs (PCBUs is explained in more detail on page 35) and workers to achieve a healthier and safer working environment
- promoting the provision of advice, information, education and training on work health and safety
- securing compliance with the HSWA through effective and appropriate compliance and enforcement measures
- ensuring appropriate scrutiny and review of actions taken by persons performing functions or exercising powers under the HSWA
- providing a framework for continuous improvement and progressively higher work health and safety standards.

Duty Holders

Under the Health and Safety at Work Act (HSWA) 2015 there are four types of duty holders that have work H&S duties.

These include:

- Officers (officers or directors).
- Persons conducting a business or undertaking (PCBUs) these may be individuals or organisations.
- Workers (employees, contractors and some volunteers).
- Other persons at workplaces (any place where work is undertaken).



Further Information

Special Guide - Introduction to the Health and Safety at Work Act (WorkSafe New Zealand)

WorkSafe Quick Reference Guide – Health and Safety at Work

Officers

Under HSWA, an Officer holds a specific role in an organisation that allows them to significantly influence the management of the business or undertaking.

An Officer can be:

- a director of a PCBU that is a company
- a partner in a PCBU that is a partnership
- a person in any other entity who holds a position similar to a company director (a Board member)
- paid or voluntary.

Officers Due Diligence

Officers have a due diligence duty under HSWA.

Exercising due diligence as an officer includes:

- keeping up to date in their knowledge
- understanding the PCBU operations
- ensuring the PCBU has resources for managing risks
- ensuring the PCBU has processes for managing risks
- ensuring there are compliance processes
- verifying resources and processes.



Further Information

WorkSafe Position – Officers Due Diligence

Health and Safety Guide – Good Governance for Directors

Health and Safety Leadership - A guide for small to medium business owners and company directors

PCBU Meaning

A PCBU is a 'person conducting a business or undertaking'. A PCBU may be a person (e.g., a sole trader) or an organisation. In most cases, the PCBU will be an organisation (e.g., a business entity such as a company). While the terms 'business' and 'undertaking' are not defined in HSWA, the usual meanings of these terms are:

- business: an activity usually carried out intending to make a profit or gain
- undertaking: a non-commercial activity (e.g., certain activities of a local authority or a not-for-profit group).

Primary Duty of Care

The primary duty of care means that a business (a PCBU) is primarily responsible for the H&S of workers and others influenced by its work.

All businesses must ensure, as far as is reasonably practicable, the health and safety of:

- its workers
- any other workers who are influenced or directed by the business.

The **primary duty of care is a broad** overarching duty which includes, but is not limited to, a business having effective practices in place for:

- providing and maintaining a work environment that is without risks to health and safety
- providing and maintaining safe plant and structures
- providing and maintaining safe systems of work
- ensuring the safe use, handling and storage of plant, structures and substances
- providing adequate facilities for the welfare of workers when doing work for your business, including ensuring access to those facilities
- providing any information, training, instruction or supervision necessary to protect all persons from risks to their health and safety arising from the work of the business
- monitoring the health of workers and the conditions at the workplace to prevent injury or illness of workers when doing work for your business
- workplace monitoring
- health monitoring
- providing healthy and safe worker accommodation.

Further Information

WorkSafe - Primary Duty of Care Information

WorkSafe PCBU Information

Special Guide - Introduction to the Health and Safety at Work Act (WorkSafe New Zealand)

Managing Workplace Hazards and Risk

Identifying and managing hazards and risks is a key concept of good H&S management. HSWA and the General Risk and Workplace Management Regulations 2016 place a duty of care to eliminate or minimise risks to workers. And effective risk management supports this process to prevent harm to workers and others.

Workplace Hazards

Healthy and safe work starts with identifying and understanding your work-related health and safety hazards and risks and the kind of harm those hazards and risks could cause. What they are depends on the type of work you carry out. Then, it is about doing what is reasonable and practicable to eliminate or minimise those risks. Many different types of workplace hazards can be harmful.



Definition of Harm

Harm means death, injury or illness and can be either physical or psychological, or both.



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HSWA requires a PCBU to:

- Eliminate risks to health and safety, so far as is reasonably practicable; and
- If it is not reasonably practicable to eliminate risks to health and safety, to **minimise** those risks so far as is reasonably practicable.

A PCBU must ensure H&S risks are managed 'so far as is reasonably practicable', including:

- How likely are any hazards or risks to occur?
- How severe could the harm that might result from the hazard or risk be?
- What a person knows or ought to reasonably know about the risk and the ways of eliminating or minimising it (e.g., by removing the source of the risk or using control measures such as isolation or physical controls to minimise it).
- What measures exist to eliminate or minimise the risk (control measures)?
- How available and suitable is the control measure(s)?

Further Information

Health and Safety at Work (General Risk and Workplace Management) Regulations 2016

WorkSafe Factsheet – Reasonably Practicable

WorkSafe Factsheet – How to Manage Workplace Risks

WorkSafe Quick Guide – Identifying, Assessing and Managing Work Risks

WorkSafe Quick Guide - Workplace Exposure Monitoring and Health Monitoring for Small Businesses

WorkSafe Good Practice Guidelines – Exposure Monitoring and Health Monitoring

Worker Engagement, Participation & Representation

PCBUs have a duty to engage with workers about H&S, and to provide workers reasonable opportunities to participate in improving work health and safety.

As a PCBU you must:

- ensure that workers' views on health and safety matters are asked for and taken into account, and
- have clear, effective, and on-going ways for workers to suggest improvements or raise concerns.

All businesses should have planned well-known ways to engage with workers formally and informally. Their participation in H&S matters should be well supported.

When workers are engaged in work health and safety, everyone benefits. Your business is a healthier and safer for everyone, and performance and productivity will increase.

HSWA sets out the key steps in the health and safety engagement process including:

- sharing information on matters relating to health and safety (this includes specific issues that you need to engage with workers on)
- giving your workers time to consider the issues
- giving your workers a reasonable opportunity to
 - **express** their views and raise work health or safety concerns, and
 - **contribute** to the decision-making process
- taking into account the views of your workers, and
- advising your workers of the **outcomes** in a timely way.



All businesses should engage regularly with their workers.

A well-established way to support worker participation is by electing Health & Safety Representatives (HSRs) or setting up a H&S Committee (HSCs).

HSRs are an important asset in your business. If HSRs and/or HSCs are part of your worker participation practice(s), the HSWA sets out requirements for how they will work.

Further Information

WorkSafe Position – Worker Engagement, Participation and Representation

WorkSafe Good Practice Guide – Worker Engagement, Participation and Representation

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Good Work Design

Looking at the 'big picture' of your workplace as a whole work system (rather than a series of separate hazards to be managed) will help you recognise overlapping and interacting issues. You will find opportunities to address multiple issues by thinking about how the work is designed.

It is essential that you understand how the work is actually done within your workspace and recognise the diversity of the individuals performing the work. For your workers, their age, gender, ethnicity, general fitness, underlying health issues or old injuries will impact their ability to complete tasks. Designing work that is 'do-able' for most (if not all) people means fewer restrictions on who you can employ.

Well-designed work is good for business because it allows workers to be more productive and helps keep them safe and healthy. Safe Work Australia have produced a handbook outlining ten principles of good work design <u>https://www.safeworkaustralia.gov.au/safety-topic/managing-health-and-safety/good-work-design</u> (see below). Effective design of good work considers the work itself, the physical environment and the workers.



The ten principles of Good Work Design (SafeWork Australia)

The WHY principles

Principle 1: Good work design gives the highest level of protection as far as reasonably practicable.

• It is a legal requirement to protect the health, safety and welfare of workers.

Principle 2: Good work design enhances health and well-being.

• Protect your workers from harm by enhancing their mental health, heart function and preventing discomfort in joints and muscles. Remember that satisfying work and positive social interactions can help improve people's physical and mental health.

Principle 3: Good work design enhances business success and productivity.

• Efficient work processes help to manage risks to the business sustainability and profitability. Designing out problems before they arise is generally cheaper.

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The WHAT principles

Principle 4: Good work design addresses physical, biomechanical, cognitive and psychosocial characteristics of work, together with the needs and capabilities of the people involved.

• Different hazards may be associated with work tasks. These should be considered in combination and should accommodate abilities and vulnerabilities of workers as far as reasonably practicable.

Principle 5: Good work design considers the business needs, context and work environment.

• The physical structures, plant and technology, work layout, organisational design and culture, human resource systems, work health and safety processes and information/control systems should be 'fit for purpose'.

Principle 6: Good work is applied along the supply chain and across the operational life cycle.

There may be a flow-on effect where the health and safety 'costs' and business 'costs' of poor design of your product are passed down the supply chain. For example: the handling risks for builders and installers associated with managing awkward and heavy lifting of assembled items. For further information about Health and Safety by Design refer to WorkSafe NZ <a href="https://www.worksafe.govt.nz/topic-and-industry/health-and-safety-by-design/health-and-safety-

The HOW principles

Principle 7: Engage decision makers and leaders.

• There should be a high level of visible commitment, practical support and engagement by decision makers. This may include allocating appropriate time and resources to undertake effective work design or redesign processes.

Principle 8: Actively involve the people who do the work, including those in the supply chain and networks.

• Workers can provide valuable insights and suggestions on ways to improve the work. Consultation allows opportunities for sharing information and raising issues. Involving workers helps to promote ownership of any changes.

Principle 9: Identify hazards, assess and control risks, and seek continuous improvement.

• This is the foundation of your health and safety management system by using a systematic risk management approach that is continually monitored and adjusted to adapt to changes in the workplace.

Principle 10: Learn from experts, evidence and experience.

• Collaboration and cooperation between internal and sometimes external experts will fill any knowledge gaps.

For professional help refer to the HASANZ Register <u>https://register.hasanz.org.nz/</u>

Health & Safety Professions at a Glance

A Health and Safety professional can assist you with testing, monitoring, assessing and implementing changes within your business structure to ensure you meet your legal obligations. Engaging with professionals will allow you to very quickly understand the current risks, hazards and obligations that need addressing and how to address these. Professionals can also provide the education and support needed to understand compliance and legal obligations. And you can connect with these professionals using the HASANZ Register. https://register.hasanz.org.nz/

The H&S profession is multi-disciplinary, with many different professions working in the wider field. A brief explanation of the various disciplines available are listed below.

H&S Discipline	Focus	Examples of services
Health & Safety Generalists	Supporting businesses to manage their health and safety risks and promote good work across workplaces.	Developing health and safety systems, plans and procedures. General advice on managing a wide range of risks. Health and safety assurance or audit.
Hazardous Substances Professionals	Specialists in the management of safety risks from explosive, flammable, toxic or corrosive substances being manufactured, used, stored, or transported at work.	Test Certification, specialist advice on hazardous substance use, handling, management and transportation, development of Hazardous Substances Policies and procedures.
Human Factors Professionals/ Ergonomists	Achieving the best possible fit between people, their work and the environment minimises harm and improves productivity through optimal design.	Analysis of tasks and workflow to provide advice on managing risks relating to work layout, design of work bench areas, equipment use and organisation of work.
Occupational Health Nurses	Supporting healthier workplaces through health and wellbeing promotion, prevention, and protection programmes.	Design and delivery of tailored health & wellbeing programmes. Workplace harm prevention, including health monitoring. Health and safety risk assessment and education. Rehabilitation back to work.
Occupational Health Physiotherapists	To maximise the worker's health and wellbeing through understanding the interaction between the worker, work, and the workplace. Prevention and management of all factors including physical that impact health and wellbeing to optimize individual comfort, enhance productivity and sustainability for business performance.	Task analysis, workload, physical demand assessments, discomfort pain and injury (DPI) prevention, education and training. Early intervention programs; injury assessment and rehabilitation; return to work planning and management.

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H&S Discipline	Focus	Examples of services
Occupational Hygienists	Managing health risks including assessing and measuring hazardous exposures and providing advice on controlling workplace health risks to protect worker health.	Health risk assessment. Evaluation and monitoring of physical, chemical, and biological exposures. Advice on appropriate controls. Advice on selection and use of PPE.
Occupational Medicine Specialists	Interaction between work and health (both work on health and health on work) at individual and population levels.	Advising about the prevention of injuries and disease. Assessing fitness for work before, during and after employment. Helping return to work after injury or sickness by finding appropriate treatment and rehabilitation.
Occupational Therapists	Enabling people to engage in the activities they want, need, or are expected to do, to optimise health, wellbeing, and independence.	Matching worker physical and mental capabilities to work tasks and roles. Injury prevention, adaptation of environments/tasks/people post injury or disability so that good work is possible. Planning, implementing and monitoring rehabilitation programmes for return to work from illness or injury.
Organisational Psychologists	Assisting organisations to achieve business goals while supporting employee health and wellness.	Development of organisational culture and systems that support staff's health, safety, and wellbeing. Development of wellbeing and resilience strategies and related leadership development. Resolving conflict and bullying investigations.
Asbestos Specialists	Professionals and practitioners providing services to the asbestos industry.	Provide advice on asbestos management, asbestos testing services, and asbestos removal and remediation services.



Appendix A – Project Overview

Background

Although progress has been made in recent years to improve H&S within New Zealand, our level of workrelated harm remains high by international standards. HASANZ, with the support of ACC, created this project to lift SMEs' health, safety and wellbeing capability. Resulting in a reduction in harm to our workers. To help improve H&S guidance for small businesses within the manufacturing industry, HASANZ assembled a team of six H&S professionals, qualified in different fields. They also engaged two manufacturing sub-sector associations, including the Windows & Glass Association. Through them, we found three small/medium sized Christchurch based businesses who volunteered for the project.

Purpose

- Determine and test our belief that by lifting SMEs' health, safety and wellbeing capability, there will be a reduction in incidence and harm to workers.
- Educate the sector about the need for professional advice to drive demand.
- Connect the demand and supply sides to increase SME H&S performance.

Why the project is focusing on SMEs:

- SMEs are often resource challenged time, people and cashflow.
- Owners/managers are often responsible for every facet of the business.
- Owners/managers don't know their obligations or where to start.
- They might think H&S is just about compliance.
- They can be overwhelmed with other competing priorities and concerned about the cost implications.
- They don't know where to get help.

Why the project is focusing on Manufacturing:

- Workers in manufacturing experience a greater risk of injury when compared with other sectors.
- In 2019, ACC paid 261,424 compensation days for new claims in the manufacturing sector.

Process

- **On-Site Visits:** the team of HASANZ professionals spent up to two hours at each business identifying its key risks.
- Workshop One: during a half-day workshop, HASANZ professionals shared their findings with the businesses and presented the identified risks.
- Workshop Two: this session focused on prioritising risks and understanding how these can be monitored and controlled. We also worked with the businesses to co-design strategies to help reduce the top risks identified. We discussed how these could be shared with other manufacturing businesses.
- Workshop Three: the tools were presented in a first resource draft endorsed by the HASANZ professionals during this session. The businesses were able to provide feedback and recommendations to ensure industry needs were met.

Appendix B – Acknowledgements

HASANZ would like to thank Neil Shaw, Philip Aldridge, Mike O'Brien, and Lisa Bridge for the idea and design of this project, as well as ACC for the opportunity to conduct and realize the concept. Hilda Bancolita and Paula Herring have worked tirelessly to ensure a successful and smooth completion, despite some challenges and COVID-19 related complications.

Our health and safety professionals have shown tremendous effort and teamwork throughout this process. Thank you, Randa Abbasi (Occupational Therapist), Sue Alexander (Ergonomist), Donna Burt (Occupational Health Nurse), Katie Croft (Physio Therapist – Occupational Health), Sam McGee (Occupational Hygienist), Charles de Lambert (Health and Safety Generalist), and Margaret Van Schaik (Health and Safety Generalist) for your hard work.

And most importantly, the biggest thanks go out to the Window & Glass Association and the collaborating member businesses. Without them, this project could never have been accomplished. Three Christchurch based business leaders spent many hours on this project. They volunteered their time and expertise to help their industry partners by creating this resource. We would like to especially thank Fisher Canterbury, and GA Aluminium for their efforts and diligence – you are truly making a difference and are leading by example.

Thank you all for supporting making Aotearoa a healthier and safer place.



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Appendix C - Trolley selection and design

Trolley design and use

Using a trolley is a good control measure for reducing or eliminating the need for awkward and/or heavy lifting. The weight of the load is carried by the trolley rather than the person. A pushing force is required to move the item rather than lifting and carrying while walking. One person can often safely move the load rather than needing two or more people.

The trolley should be appropriate for the load it carries and the space it will be used in. There is unlikely to be one design suitable for all areas within the factory.

Things to consider

- 1. How will the load sit on the trolley? What is the size and shape of the item to be carried?
 - Sheets of glass are easier to handle and access when stored vertically
 - Wooden reveals may be easier to handle when stacked horizontally
 - Extrusions placed vertically into small bins make the load more compact
 - Bulk uncut extrusions may be placed horizontally and loaded by forklift
 - Completed frames or windows may be balanced on a 'skateboard'
 - Large frames may be supported on an A-frame trolley.



Tooth trolley for glass storage



Pack trolley for extrusions storage



Tooth trolley for reveals storage



'Skateboard' for frames and windows





Exclusion trolley



A frame trolley

97-9-0

Site lift trolley²

- 2. How long is the trolley? Will there be enough turning space for easy movement without hitting things?
 Trolleys over longer than 1.3 metres or wider than 1 metre are difficult to turn.
- 3. How high is the trolley when loaded? Will there be enough space to see where you are going?
 - Recommended maximum laden height is 1400 mm to allow visibility over the top. If it is taller, the sides should be open or have mesh areas so the person can see through.¹

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¹ <u>http://www.theglassrackingcompany.com/nz_glass_racking_nz/glass_handling_equipment/euro_factory_a-frame_trolleys</u>

² <u>http://www.theglassrackingcompany.com/nz_glass_racking_nz/site_lifting/site_lifters</u>

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4. Where will the person hold the trolley for pushing?

- Handles allow the person to securely hold the trolley. The handle should be between 910 mm and 1000 mm above the floor so that the person can remain upright without having to stoop forward.
- Vertical handles allow the user to find their own best height for pushing. The handles should be approximately 450 mm apart.
- Rounded handles without sharp edges are preferred. The recommended handle diameter is between 25 and 40 mm.
- Note that there may be trolleys where handles are impractical such as using a dolly or skateboard where the person supports the load.
- Place handles at both ends if the trolley has four swivel castors/wheels. Trolleys with two fixed and two swivel castors should have the handle located at the swivel end.

5. Where will the trolley be used? How far will it travel and over what type of floor surface?

- Selecting the right castors/wheels is important because it affects the rolling and turning forces required. Large diameter wheels reduce the pushing forces required. A minimum diameter of 200 mm should be used for outdoor trolleys or moving loads more than 200kg, otherwise a minimum of 125 mm diameter is suitable for most trolleys.
- Wheels of rubber or polyurethane are recommended. Pneumatic tyres are best for rough surfaces and outdoors.
- The arrangement of the wheels affects steering, manoeuvrability, and load capacity.
 - Four swivel castors make the trolley highly manoeuvrable in all directions allowing easy parking. Still, it will be difficult to steer over longer distances.
 - A directional lock on one wheel will help steering in straight lines.
 - Two fixed castors at the front and two swivel castors at the rear are best for long distance pushing, sloped paths and outdoor use but will need more space for turning and cannot be pushed sideways into a small space.
- Keeping floors even, clean and clutter-free makes trolley movement easier.
- Dirt build-up around the wheels make the trolley hard to push, so regular maintenance is important.
- Brakes should be applied when loading or unloading, especially on sloping surfaces or when handling large items.

6. What is the best technique for moving trolleys?

- Pushing is preferable, so the person can stay upright and see where they are going.
- Place feet slightly apart with one foot ahead of the other when initiating the movement (step stance). Initiate the movement with your legs first. If necessary, use body weight by leaning forward to start moving.
- Keep arms shoulder width apart and elbows slightly bent.
- Avoid twisting the trunk or leaning sideways.
- Avoid pushing and pulling with arms to change direction, move your feet and push the trolley from a step stance to turn. You may need to move to one side of the trolley to apply force in the new direction to help with turning. Move smoothly and avoid jerking or sudden changes.

References

For further reading on trolley design refer to: <u>https://www.fallshaw.com.au/attachments/Page/589/designing-trolleys-brochure-web.pdf?ts=1531095170</u>

Appendix D – SafePlus health and safety improvement tools

SafePlus is a health and safety improvement toolkit for businesses and other organisations, launched in 2017, was developed jointly by WorkSafe New Zealand, ACC and the Ministry of Business, Innovation and Employment (MBIE).

SafePlus provides a review of health and safety practices in your business, using ten key indicators of good performance. Reporting gives recommendations and guidance for making improvements.

There are three options for using SafePlus:

- 1. <u>SafePlus online self-assessment tool</u>. A free rating survey based on the ten SafePlus performance requirements. Can be customised for the key risks for your business.
- 2. <u>SafePlus onsite assessment and advisory service</u>. An in-depth review delivered by HASANZ-registered, independent health and safety professionals.
- 3. Free <u>SafePlus resources</u>. Details the in-depth onsite assessment approach, to support in-house health and safety professionals using these methods.

SafePlus assessments use feedback from people at all levels of a business, to build collaboration in making work safer and healthier for everyone.

The SafePlus online tool was developed primarily for small-medium sized businesses.



PERFORMANCE REQUIREMENTS

ASSESSMENT FOCUS

Further Information

About SafePlus

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Appendix E – JSA Risk Assessments and self-use template

A Job Safety Analysis (JSA) is a straightforward method to identify hazards and minimize risks. When a JSA is conducted, every basic step of a job is analysed to identify potential hazards; this helps determine the safest way to perform work tasks. We encourage you to use the JSA template (provided on page 50) to conduct risk assessments in your business. This could be done as a team exercise during a toolbox meeting and may even be a helpful tool to boost worker engagement.

How to conduct a JSA by using a risk matrix

A risk matrix with consequence and likelihood scales is commonly used to score or rate the level of risk that the identified hazard poses to workers. The risk score can be directly related to health and safety risks posed to workers and the organisation. Risk scores can be useful in determining the financial input into managing the hazard, the priority the actions take, and the type of controls applied to the hazard. The controls or treatments that are applied to each hazard should be reflective of the hazard score. For example: a score in the red zone should have elimination, substitution, or engineering/isolation controls instead of controls that rely on worker decision and the application.

It should also be remembered that the law requires the PCBU to **eliminate** or **minimise** those risks so far as is reasonably practicable. The risk matrix in Table 1 below will help you identify the severity of hazards and risks in your workplace. Use the following risk matrix to assess the hazards and risks around your workplace and complete your JSA template (page 50).

		Consequ		s	
Likelihood	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	5 Moderate	10 Moderate	15 High	20 High	25 High
Likely (4)	4 Low	8 Moderate	12 Moderate	16 High	20 High
Possible (3)	3 Low	6 Moderate	9 Moderate	12 Moderate	15 High
Unlikely (2)	2 Low	4tow	6 Moderate	8 Moderate	10 Moderate
Rare (1)	1 Low	2 Low	3.Low	4 Low	5 Moderate

Risk Assessment Matrix and Risk Scores

Interpretation and application of risk scores

Likelihood	Description of Likelihood	Consequence	Description of Consequence
1. Rare	Will only occur in exceptional circumstances	1. Insignificant	No treatment required
2, Unlikely	Not likely to occur within the foreseeable future, or within the project lifecycle	2. Minor	Minor injury requiring First Aid treatment (e.g. minor cuts, butter butter)
3. Possible	May accur within the foreseeable future, or within the project lifecycle	3. Moderate	Injury requiring medical treatment or lost time
4. Likely	Likely to occur within the foreseeable future or within the project lifecycle	4. Major	Serious injury (injuries) requiring specialist medical freatment or hospilisation
5. AlmostCertain	Almost certain to occur within the foreseeable future or within the project lifecycle	5. Catastrophic	Loss of life, permanent disability or multiple serious injuries

Table 1: Risk matrix and risk scores, Source: Safe and Sound Solutions Ltd

Job Safety Analysis Risk Assessment: (JSA)

TEMPLATE

Work Group:	Date:	
Location:	Author:	
Activity:	Version:	

	Activity	Hazards	Risk Rating before	Risk Control Measures	Risk Rating after
	List the tasks required to perform the activity in the sequence they are carried out.	Against each task list the hazards that could cause injury when the task is performed.	applying controls	Choose the control measures required to lower the risk of harm arising from the identified hazard.	applying controls
				Level 1 (L1) - Elimination	
				Level 2 (L2) – Substitution, Isolation, Engineering Controls	
				Level 3 (L3) – Personal Protective Equipment, Administration controls (procedures, training)	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					

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EXAMPLE

This is an example only, noting that hazards and risk control measures are different in each business.

Company Name:	Glass Glass	Date:	01.01.2022
Location:	Factory	Author:	Foreman and worker
Activity:	Operating fuel forklift in- and outdoors	Version:	1/1

	Activity	Hazards	Risk Rating	Risk Control Measures	Risk Rating
	List the tasks required to perform the activity in the sequence they are carried out.	Against each task list the hazards that could cause injury when the task is performed.	before applying controls	Choose the control measures required to lower the risk of harm arising from the identified hazard.	after applying controls
				Level 2 (L2) – Substitution, Isolation, Engineering Controls	
				Level 3 (L3) – Personal Protective Equipment, Administration controls (procedures, training)	
1.	Check forklift is safe to use (pre- start up inspection)	• Trip hazards	9 Moderate	 Dedicated parking space L2 Only licensed staff to operate the forklift L3 Train all staff to be safe around the forklift L3 Adequate footwear (lace up boots) L3 Regular, effective communication (e.g., toolbox meetings) L3 Housekeeping L3 Prohibit use of phones L3 	3 Low
2.	Start the forklift	• Exposure to fumes	12 Moderate	 Opt for electric forklift L1 Ventilation (open doors, use of fans) L2 Exhaust scrubbers to remove chemical build-up L2 	4 Moderate

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				 Training L3 Qualified maintenance only L3 Maintenance schedule L3 Annual health monitoring question L3 	
3.	<i>Operate the forklift (unloading/loading, shifting/moving materials around)</i>	 Hitting obstacles Hitting people exceeding capacity of forklift speed fatigue driver impairment (visual, cognitive, mental, drug & alcohol) driver position noise exposure to fumes vibration 	20 High	 Training L3 Licensing L3 workplace design L2 Exclusion zone sensors L2 Spotters L3 Lower speed L2 	15 High
4.	Park and shut down the forklift	 Hitting obstacles Hitting people exceeding capacity of forklift speed fatigue driver impairment (visual, cognitive, mental, drug & alcohol) driver position noise exposure to fumes vibration 	20 High	 Training L3 Licensing L3 workplace design L2 Exclusion zone sensors L2 Spotters L3 Lower speed L2 	15 High
5.	Egress forklift	 Hitting obstacles Hitting people 	12 Moderate	 Training L3 Licensing L3 workplace design L2 Exclusion zone sensors L2 	9 Moderate

Appendix F – Site Visit Risk Assessments

The following risk assessments were completed onsite by the HASANZ professionals, and the businesses involved in this project. They demonstrate real life examples of risk assessments being conducted onsite. Some of them show risk ratings. The risk scores below are compiled using the risk matrix Table 1 on page 49 and highlight the initial risk score and the residual risk score after controls have been applied. This is an example and is not a set score, as it will vary between businesses.

Identified risk: Design and layout of factory creates bottlenecks, restricts space for moving materials, creates additional walking and impacts flow of materials between work areas

Hazard	Initial risk score	Controls applied	Residual risk score
Design and layout of workspace with limited space	16 High	Redesign layout	8 Moderate

Describe what is currently happening (a brief task analysis)	There is a lack of space in the factory and the yard for storage and movement of materials, resulting in congested pathways and difficulty moving safely.
What is the problem? Why is this risk a problem?	When there is inadequate space, the pathways become congested, and movement is restricted, impacting workflow.
	It is difficult to manage storage of materials and finished product within small spaces, making it harder for people to see their work or product details.
	Lack of space around work areas restricts the person's space to move, which may result in them adopting awkward postures such as twisting and reaching. There is clutter that may create trip hazards and make it difficult to locate tools or move materials.
	When the flow between work areas is poorly designed there may be increased distances for people and materials to move. This increases the time taken to complete tasks and reduces efficiency.
	If using aids such as trolleys, there needs to be enough turning space for loaded trolleys to be easily manoeuvred without damaging other plant and materials.
What is the outcome of this risk? (Describe the potential harm of the risk) Who is at	When repeatedly adopting awkward postures, the person may develop discomfort in joints, muscles or tendons. This may occur in any part of the body, particularly in the back, neck and shoulders.
risk the most?	People within specific work areas or moving between areas may be at risk.

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	Potential damage to materials and plant from unexpected impact.		
Describe why it is important to	Designing the layout of the factory to optimise the space and flow provides a better workspace for the workers		
manage/isolate/minimise this risk	that:		
	is easier to move within		
	• is easier to access tools		
	 Is easier to keep clean is easier to see work and (or product details 		
	 requires less walking (which may lead to cumulative fatigue) 		
	 allows better use of equipment such as trolleys, forklifts etc. for moving materials 		
	Good design helps prevent discomfort that could develop into a long-term pain problem requiring treatment and time off work for recovery.		
	People with discomfort:		
	 may be less productive which affects overall business productivity 		
	 may be more likely to make mistakes that could lead to other injuries or damage to products. 		
	Having adequate space reduces the likelihood of damage to product or plant.		
List how and what can you do to change or	Use a scale model to plan the factory layout. Consider the flow of materials (from inwards to dispatch), space		
control the task? (There will be multiple	required for manoeuvring handling equipment in relation to the order they are used, and the space required		
controls, so please list them all)	around workbenches for the tasks performed there.		
e.g., elimination/design/administration/	Consider using floor markings to identify/define work zones and areas for movement of materials.		
people?	Consult with workers about their requirements and monitor compliance.		
	Provide information and training on the benefits of good work layout and flow.		
What is the benefit of managing this risk?	Efficiency improvements – easier movement of materials, less walking required, less clutter.		
Comment on each:	Reduction of the likelihood of damaging plant and/or materials.		
• Cost benefit?	Reduction of the likelihood of worker discomfort and further injury.		
• Time benefit?	Workers who are comfortable and happy.		
 Productivity benefit? 			
Safety benefit?			
• Other benefits identified?			
Review – how often/ when will this be	Review six-monthly or when there are any changes in work area design such as installation of new equipment.		
reviewed?			

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Identified risk: Dust Exposure

Hazard	Initial risk score	Controls applied	Residual risk score
Dust	16 High	Effective LEV, on tool extraction, housekeeping, effective respiratory protection, job rotation	9 Moderate

Describe what is currently happening (a brief task analysis)	Limited controls are currently in place to reduce worker exposure to aluminium dust and wood dust (soft wood).
What is the problem? Why is this risk a problem?	The problem is that workers are being exposed to dust generated on site. Inhalation of aluminium dust may cause irritation and metal fume fever. Ingestion of aluminium (dust or fragments) causes nausea, vomiting and diarrhoea. Exposure to wood dust can cause breathing problems, lead to occupational asthma and cancer. Dust in the eyes can cause irritation and damage. Skin contact can cause ulceration of the skin, irritation and dermatitis.
What is the outcome of this risk? (Describe the potential harm of the risk) and who is at risk the most?	The production workers, particularly those undertaking the cutting of the wood.
Describe why it is important to manage/isolate/minimise this risk	To protect the workers from adverse health effects such as asthma, allergic reactions, reduced lung function and even cancer.
List how and what can you do to change or control the task? (There will be multiple controls, so please list them all) e.g., elimination/design/administration/ people?	Substitution – purchasing pre-cut wood to reduce cutting onsite. Engineering – on tool extraction, local exhaust ventilation, HEPA vacuum. Administration – maintenance schedule for extraction systems, cleaning procedures, ban of compressed air to blow down dirty areas, training on extraction systems, training on potential health effects, pre-employment spirometry (lung function testing), health monitoring (spirometry), fit testing of Respiratory protective equipment (RPE). PPE – P2 level respiratory protection.
 What is the benefit of managing this risk? Comment on each: Cost benefit? Time benefit? 	Reduced staff illness, healthy workers work more productively, decreased staff turnover.

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Productivity benefit?	
Safety benefit?	
Other benefits identified?	
Review – how often/when will this be	It depends on the exposure levels for the site. Still, dust levels should be monitored every six months to three years
reviewed?	depending on the levels.

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Identified risk: Noise Exposure

Exposure to noise levels over 85 dBA can lead to noise induced hearing loss (NIHL). Research shows that some workers report raised stress levels due to excessive noise in the workplace. There is an opportunity to explore options to eliminate or minimise noise exposure for workers. There is an over reliance on hearing protection.

Hazard	Initial risk score	Controls applied	Residual risk score
Noise	16 High	Effective noise barriers, isolate machinery, machine maintenance, job rotation, effective hearing protection	9 Moderate

Describe what is currently happening (a brief task analysis)	There are limited controls in place to protect workers from excessive noise.
What is the problem? Why is this risk a problem?	Workers are being exposed to excessive noise on site. Noise exposure can cause hearing damage, noise induced hearing loss, tinnitus and stress. Decreased communication in noisy environments can increase incident rates.
What is the outcome of this risk? (Describe the potential harm of the risk) and who is at risk the most?	The production workers, particularly those undertaking cutting, grinding and screwing tasks.
Describe why it is important to manage/isolate/minimise this risk	To protect the workers from adverse health effects such as noise induced hearing loss and tinnitus.
List how and what can you do to change or control the task? (There will be multiple controls, so please list them all) e.g., elimination/design/administration/ people?	Substitution – implement a 'Buy Quiet Policy' on new equipment. Engineering – noise barriers/acoustic shields. Administration – maintenance schedule for equipment, training on potential health effects, hearing conservation programme, pre-employment audiometry (hearing tests), annual health monitoring (audiometry) and fit testing of hearing protection. PPE – adequate hearing protection Class 2 or 1 most likely. Overprotection is an issue so in most cases Class 5 would not be suitable.
 What is the benefit of managing this risk? Comment on each Cost benefit? 	Reduced staff illness, healthy workers tend to work more productively, decreased staff turnover.

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• Time benefit?	
• Productivity benefit?	
• Safety benefit?	
• Other benefits identified?	
Review – how often/ when will this be reviewed?	Noise levels should be reviewed every five years or if something changes within the building and/or production.

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Identified risk: Unguarded or non-compliant machine guarding

Hazard	Initial risk score	Controls applied	Residual risk score
Moving parts, drive belts/shafts	16 High	Guards (fixed, interlocked, movable)	4 Low
Entrapment, crush	15 High	Design, space, fencing/guarding	5 Moderate

Describe what is currently happening (a brief task analysis)	Drills – no chuck guards.
	Foot pedal shroud on machinery does not cover the pedal.
	Mill – opening is not adequately guarded and allows access to moving parts.
What is the problem? Why is this risk a problem?	Accidental activation of machinery, open moving parts that pose entanglement risk.
	(Risk score – Moderate)
What is the outcome of this risk? (Describe the potential harm of the risk) and who is at risk the most?	Workers involved in cutting and machining aluminium parts are exposed to the risk of moving parts/cuts and rotating parts/entanglement.
Describe why it is important to manage/isolate/minimise this risk	Importance of hazards and risks include:
	• Serious injury (cut).
	Entanglement.
	Lost time of injured worker.
	 Production capacity lost if workers are away.
	Lost pay for workers.
	Potential legal infringement.
List how and what can you do to change or control the task? (There will be multiple controls, so please list them all)	Isolation/improved guarding of mill to reduce the opening and potential for serious injury should a worker reach inside.
e.g., elimination/design/administration/people?	Engineering control – foot pedal shroud had come partially loose and moved to expose the pedal to accidental activation.
	Elimination – unguarded drill press is redundant and could be eliminated from the process/removed from site.
	Administration – training of staff to improve their knowledge of each machine.
	Administration – only approved and trained staff to use high risk machinery.

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	Administration – monthly safety reviews include key safety components of each machine.
What is the benefit of managing this risk?	Company cost – less injury -> LTI -> production throughput.
Comment on each:	Personal cost – less wages if worker is on ACC, lost first week leave.
• Cost benefit?	Company cost – infringement fines.
• Time benefit?	Time – none.
Productivity benefit?	Productivity – none.
Safety benefit?	Safety – improved physical safety.
• Other benefits identified?	
Review – how often / when will this be reviewed?	Monthly check during plant inspection.
	(Different staff are used to give a new perspective).

Identified risk: Manual Handling

Hazard	Initial risk score	Controls applied	Residual risk score
Manual handling heavy loads	20 High	Mechanical alternatives	8 Moderate
Manual handling heavy loads	20 High	Worker training	12 High

Describe what is currently happening (a brief task analysis)	Heavy lifting of material and glass – in and around factory, in/out of trucks, off site	
What is the problem? Why is this risk a problem?	Need to move heavy items to produce product.	
	The material and heavy items are awkward in shape, movement and lifting is repetitive at times. Lifts are done either independently or in teams.	
	Load weights and size vary.	
What is the outcome of this risk? (Describe the potential	Manual handling of material presents several risks, such as:	
harm of the risk) and who is at risk the most?	Risk of injury.	
	Risk of serious injury.	
	 Repetitive nature of manual handling material increases risk of worker fatigue, discomfort pain and injury. 	
	Risk of product damage to worker fatigue, and/or poor manual handling technique.	
Describe why it is important to manage/isolate/minimise	Manual handling injuries to workers can result in:	
this risk	 Workers being off work sick or injured. 	
	Reduced productivity.	
	Impacts on ACC levies.	
	Loss of specialist staff.	
	Affects market/employer reputation.	
	Financially affects the business.	
List how and what can you do to change or control the task?	Risk can be managed through:	
e.g., elimination/design/administration/people?	 design/high-level controls (potentially too much emphasis on training) 	
	 having suitable, regular manual handling training 	

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	 having suitable and appropriate equipment to assist/reduce lifting
	 having a culture of 'not being a hero' at work, asking for help
	 discussing it regularly in toolbox talks and Health and Safety meetings
	 provide assessments and education to new staff including observation and on the job training with an experienced worker, or manual handling 'champion'
	 considering completing pre-employment assessments to ensure staff are fit for the job before starting
	 ensuring lifting, weights and repetition of manual handling is discussed in job interviews and included in position descriptions
	 ensuring SOPs reflect manual handling requirements.
What is the benefit of managing this risk? Comment on	Cost – reduce costs due to staff off work due to injuries.
each:	Time – workers are more productive if not injured or working with pain, discomfort or injury.
Cost benefit?	Productivity – workers feel looked after and cared for when provided appropriate training and
• Time benefit?	education, and if not injured or in pain and/or discomfort are more productive and efficient in
Productivity benefit?	their work.
 Safety benefit? 	Safety – workers can identify risks and manage them correctly and safely.
Other benefits identified?	Other benefits identified: team morale is high, confidence to complete the job safely is high, and workers have the confidence to ask for help when required. Recruitment and retention are low
	due to low staff turn over from injuries. Known as a good employer in the community, so are more likely to attract workers.
Review – how often/when will this be reviewed?	Weekly through toolbox talks – keep it simple, clear and concise.
	Monthly through health and safety meetings – look at trends of injuries, plan and prepare for new processes and plant coming into the factory and the manual handling implications.
	Review every incident and discuss at the above meetings.
	Board Meetings – present data, trends and outcomes of incident reviews.

Describe what is currently happening (a brief task analysis)	Team members have personal issues and sometimes find it hard to separate work from home life. This may affect the ability to concentrate. It affects their state of mind and their ability to work without distraction and maintain focus.
What is the problem? Why is this risk a problem?	Suppose a worker is distracted and not focused on the task at hand. In that case, there is the possibility for unsafe practices which may cause injury or harm.
What is the outcome of this risk? (Describe the potential harm of the risk) and who is at risk the most?	The worker is at risk the most from causing themselves an injury and to other workers if they are not fully aware of their surroundings. Suppose they use equipment incorrectly or leave something in an unsafe state. In that case, it can be very dangerous to themselves and their co-workers.
Describe why it is important to manage/isolate/minimise this risk	A worker's physical and mental wellbeing needs to be discussed to ensure safety for the worker and the business. If either is not performing well it can have detrimental effects on the worker and the business.
	Suppose workers feel supported and safe to address and raise work-related mental/psychosocial barriers or concerns. In that case, they often perform better at work, commit to their work and thrive personally.
List how and what can you do to change or control	Ensure regular one on one check-ins with workers.
the task?	Offer internal and external support for workers.
e.g., elimination/design/administration/people?	Ensure bullying and harassment does not occur in the workplace.
	Ensure workers feel safe to report issues and are provided with options to resolve them.
	Get to know workers beyond their capacity to work – what stressors they might have personally, within their lives and at work.
	Increased and prolonged stress of the job – high workload, without adequate breaks can affect mental wellbeing and resilience.
What is the benefit of managing this risk?	Cost – there can be a cost to upskill managers to understand the impacts of managing mental health
Comment on each:	issues within the workplace, such as mental health first aid training. Establish employee assistance
Cost benefit?	There can be a significant cost to have workers off work sick if suffering mental health related issues
• Time benefit?	There can be a significant cost to have workers on work sick in suffering mental health related issues.
Productivity benefit?	production lines and added pressure on workers to fill the gaps.
Safety benefit?	

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Other benefits identified?	Productivity – production can be slower if workers are not performing to their full capacity or are off work sick.
	Safety – if workers are mentally unfit for the job, safety issues can occur through poor decision-making, inattention, fatigue, concentration and/or decreased sleep.
Review – how often/when will this be reviewed?	Daily by floor/factory managers.
	Weekly through toolbox talks.
	Annually through reviewing company health and wellbeing policies.

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Describe what is currently happening (a brief task analysis)	Fabricators work at fixed height benches and/or trestles when assembling frame components using various hand tools. This may require horizontal or vertical drilling with the body and/or arms in awkward positions. These actions are repeated continuously throughout the day.
What is the problem? Why is this risk a problem?	Bench height affects the postures adopted by the fabricator and the way they may complete the task. People have different body sizes, so a fixed height may not be compatible with their standing elbow height and the task being performed.
	Standing elbow height (distance from the under surface of the forearm with elbow bent to the floor) is used as guidance for bench height. When free arm movement is required, the working height should be lower. In contrast, precise movements require the work surface to be slightly higher.
1	Various sizes and thicknesses of frames are fabricated depending on the job. This may change the overall working height and impact working postures adopted.
	When the bench is at a fixed height i.e., non-adjustable, the person may need to bend forward or reach their arms forward and upwards (with the arms raised away from their body). This puts the joints out of their natural position. When these awkward positions are sustained or repeated, there is a risk that the muscles become fatigued and/or pain develops.
What is the outcome of this risk? (Describe the potential harm of the risk) and who is at risk the	The person may develop discomfort in joints, muscles or tendons. This may occur in any part of the body, particularly in the back, neck and shoulders.
most?	Any person working at any type of workbench may be at risk.
Describe why it is important to manage/isolate/minimise this risk	The discomfort may develop into a long-term pain problem that requires treatment and time off work for recovery.
	People with discomfort:
	may be less productive which affects overall business productivity.
	may be more likely to make mistakes that could lead to other injuries or damage to products.
List how and what can you do to change or	Provide adjustable-height workbenches where possible, or if people work at one primary bench, consider adjusting the working height to suit them and the tasks performed
so please list them all)	If the bench cannot be easily adjusted:

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E.g., elimination/design/administration/ people?	Limit the duration spent working in awkward positions.
	 Ensure fabricators take formal breaks away from the workbench.
	 Encourage fabricators to frequently stretch in the opposite direction and move about to enhance blood circulation.
	 Encourage fabricators to bend their knees to help adapt to different working heights.
	 Keep work as close as practical to avoid over-reaching and twisting.
	 Consider alternative ways to raise the work surface, such as temporarily using an old frame to place the work piece onto.
	Provide information and training on the prevention and management of discomfort.
What is the benefit of managing this risk?	Reduction of the likelihood of discomfort and further injury.
Comment on each:	Workers who are comfortable and happy.
• Cost benefit?	Reduction of the likelihood of mistakes with potentially expensive re-work and/or product damage.
• Time benefit?	Efficiency improvements.
Productivity benefit?	
• Safety benefit?	
• Other benefits identified?	
Review – how often/ when will this be reviewed?	Review six-monthly or yearly or when there are any changes in personnel or equipment.

Appendix G – Next Steps

Listed below are suggestions to help you in your workplace to implement the various things we have talked about in this resource.

1. Carry out an internal assessment using the SafePlus Online Tool: <u>SafePlus</u>

The online tool is a quick, simple way to engage people from all areas of your business. It asks about three things for good health and safety performance: leadership, worker engagement and risk management.

The anonymous responses from the self-assessment create a snapshot of how your people think the business is doing in health and safety. This process can identify differences in thinking between different teams, roles, or locations of your business.

A report provides recommendations on what to work on, and guidance links to help you put the recommended improvements into action, together with your people.

2. Risk Management

Review the risk assessments you have completed, discuss with your workers, and develop an action plan to implement the risk management controls you have identified. You may wish to seek help from a Health and Safety Professional alongside this.

Managing risks | WorkSafe

3. Leadership

Take some time to think about what training and support your senior managers and health and safety staff may need.

Safety Governance » Business Leaders Health & Safety Forum What is Safety Leadership? » Business Leaders Health & Safety Forum

4. Worker Engagement

Develop some procedures which detail how to:

- share information with workers on matters relating to health and safety
- give your workers time to consider the issues
- give your workers a reasonable opportunity to
 - o express their views and raise work health or safety concerns, and
 - contribute to the decision-making process
- consider the views of your workers, and
- advise your workers of outcomes in a timely way.

Good practice for worker engagement, participation and representation | WorkSafe WorkSafe has some case studies which you may find helpful: Worker engagement and participation case studies | WorkSafe

5. Appropriate Training of Staff

Ensure staff are not only trained on how to use each piece of equipment/machinery required to do their job, but also how to manage an accident/injury if it was to occur. Remembering both physical and mental health aspects of the job require training.

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