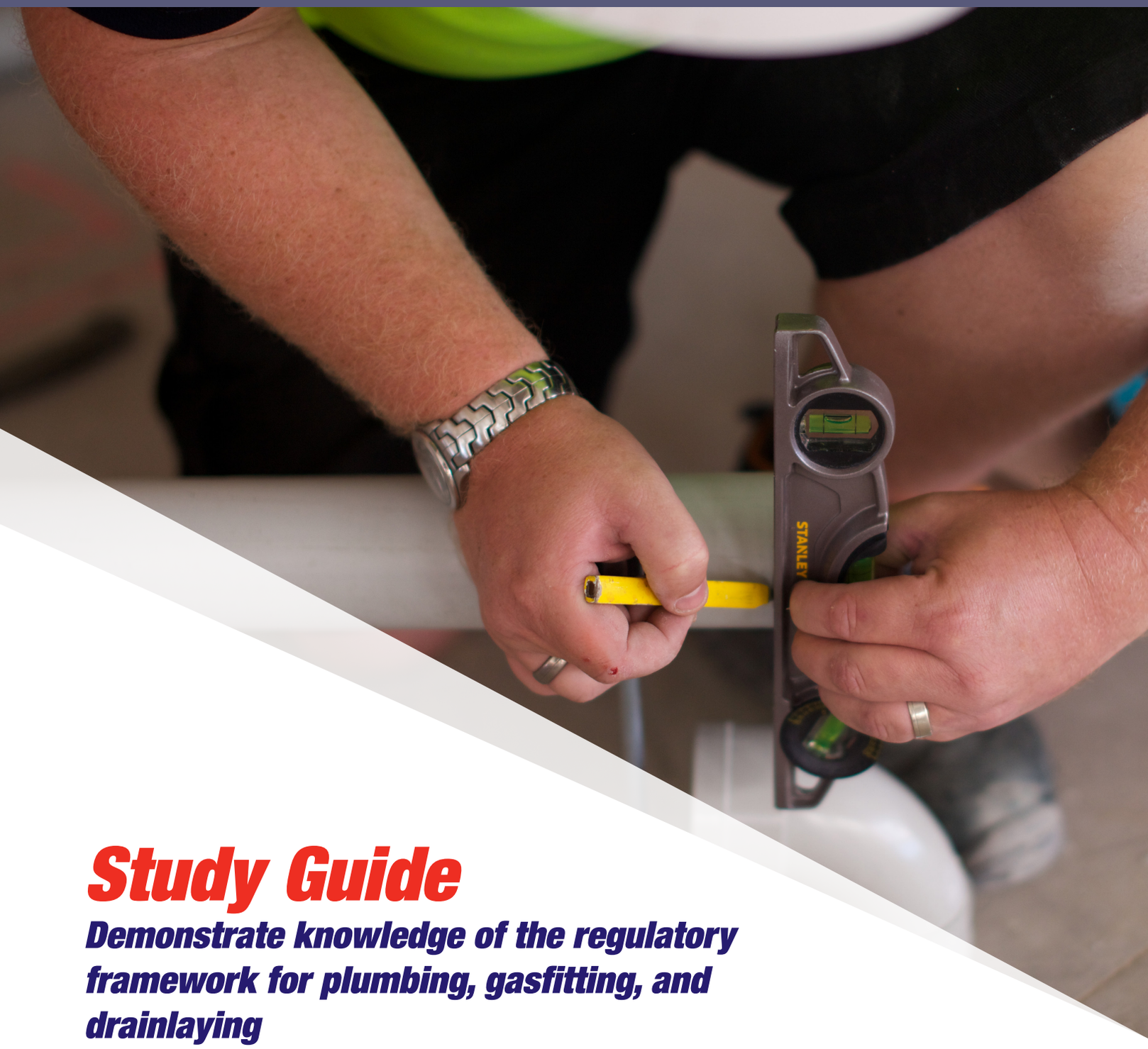

Study Guide

Demonstrate knowledge of the regulatory framework for plumbing, gasfitting, and drainlaying

30536 | Version 1 | Level 4 | Credits 5

Trainee Name _____

Grow by growing others

skills.

Unit Standard 30536

People credited with this unit standard are able to demonstrate understanding of:

- the structure of the regulatory framework of the plumbing, gasfitting, and drainlaying sector; and
- the impact of the regulatory framework for practitioners in the plumbing, gasfitting and drainlaying sector.

The best way to use this Study Guide is:

1. Read through the following information step by step.
2. Where other resources are mentioned (such as websites), find those and read them as well.
3. Complete the practice exercises, then check your answers.

Skills acknowledges the content and images provided by WorkSafe New Zealand to aid in the development of this resource.

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Legislation and standards

New Zealand, like many other countries, uses legislation to regulate plumbing, gasfitting and drainlaying work. Legislation is basically a set of rules that make up the New Zealand Law.

You don't need to know all the rules by heart before you practice your trade, but you do need to know what laws affect you, the overarching aim of the laws so you know what you can and can't do, and where to find specific information on how to comply with the law in specific circumstances.

For example, Joe needs to find out some details of where Mark lives because Mark needs some work done in the kitchen. Joe knows that it's illegal under the Privacy Act to sell Mark's details to a marketing company. If Joe needed to, he can find out which specific clause in the Privacy Act applies, but generally he doesn't need to know the law at this level of detail.

Laws in New Zealand include:

Acts. These are laws established under authority by the government.

Regulations. These support the Acts by going into further detail on how the Act can be complied with.

Codes. These are often formed under regulations and provide a model of how an Act or regulation can be complied with.

Standards. Standards provide potential solutions to issues, resolve problems, and provide ways to comply with legislation.

Legislation specific to plumbers, gasfitters, and drainlayers includes:

- Plumbers, Gasfitters, and Drainlayers Act 2006
- Trans-Tasman Mutual Recognition Act 1997
- Plumbers, Gasfitters, and Drainlayers Regulations 2010
- Gas Act 1992
- Gas (Safety and Measurement) Regulations 2010
- Building Act 2004
- New Zealand Building Code

Other legislation that applies to work in these trades include:

- Health and Safety at Work Act 2015
- Resource Management Act 1991

Standards that may apply include:

- AS/NZS 5601.1:2013 Gas installations - Part 1: General installations
- AS/NZS 5601.2:2013 Gas installations - Part 2: LP Gas installations in caravans and boats for non-propulsive purposes
- 1596:2014 The storage and handling of LP Gas
- 5262:1997 Gas appliance safety
- 5261:2003 Gas installation
- AS/NZS 3500.1 Plumbing and drainage – Water services
- AS/NZS 3500.2 Plumbing and drainage – Sanitary plumbing and drainage
- NZS 3604:2011 Timber-framed buildings
- NZS 4219:2009 Seismic performance of engineering systems in buildings

Plumbers, Gasfitters, and Drainlayers Act 2006

There are two main reasons for the Plumbers, Gasfitters and Drainlayers Act 2006 (PGD act):

1. to protect the health and safety of the public (i.e. make sure people who do this work can do it properly), and
2. to make sure people doing the work are registered and licenced.

The Act is broken into four parts.

Part 1	**Part 2**
Part 1 of the Act covers preliminary and key provisions including; • Interpretations and meanings of terms • The restrictions on doing or assisting with sanitary plumbing, gasfitting, and drainlaying.	Part 2 of the Act covers registration and licensing, including: • Classes of registration • How to become registered • How to become licensed • Duration and renewal of practising licence • Competence • Cancellation and suspension • Employer licences in respect of gasfitting • Register of plumbers, gasfitters, and drainlayers

Part 3	Part 4
Part 3 of the Act covers discipline and offences including: • Who it applies to and the offences covered by the Act • Who can make a complaint and what complaints are covered, or not covered • The disciplinary process includes investigations, considerations, suspensions, disqualification, disciplinary powers, procedures, and offences	Part 4 of the Act covers administration, appeals, and miscellaneous provisions including: • The Plumbers, Gasfitters, and Drainlayer's Board, (Schedule 1 of the act outlines provisions applying to members) • Appeals • Regulations and • Transitional provisions (e.g., for persons holding provisional licences) Like all Acts, there is also subparts to cover amendments to the Act and so on.

The Plumbers, Gasfitters, and Drainlayers Board

The Plumbers, Gasfitters, and Drainlayers Board ("the Board" or "PGDB") is the statutory body established under the PGD Act to regulate these trades and to promote the health and safety of the public.

Broadly speaking, the Board's powers and functions can be categorised into:

- competence; registration and licensing
- discipline and prosecution.

Competence, registration, and licencing

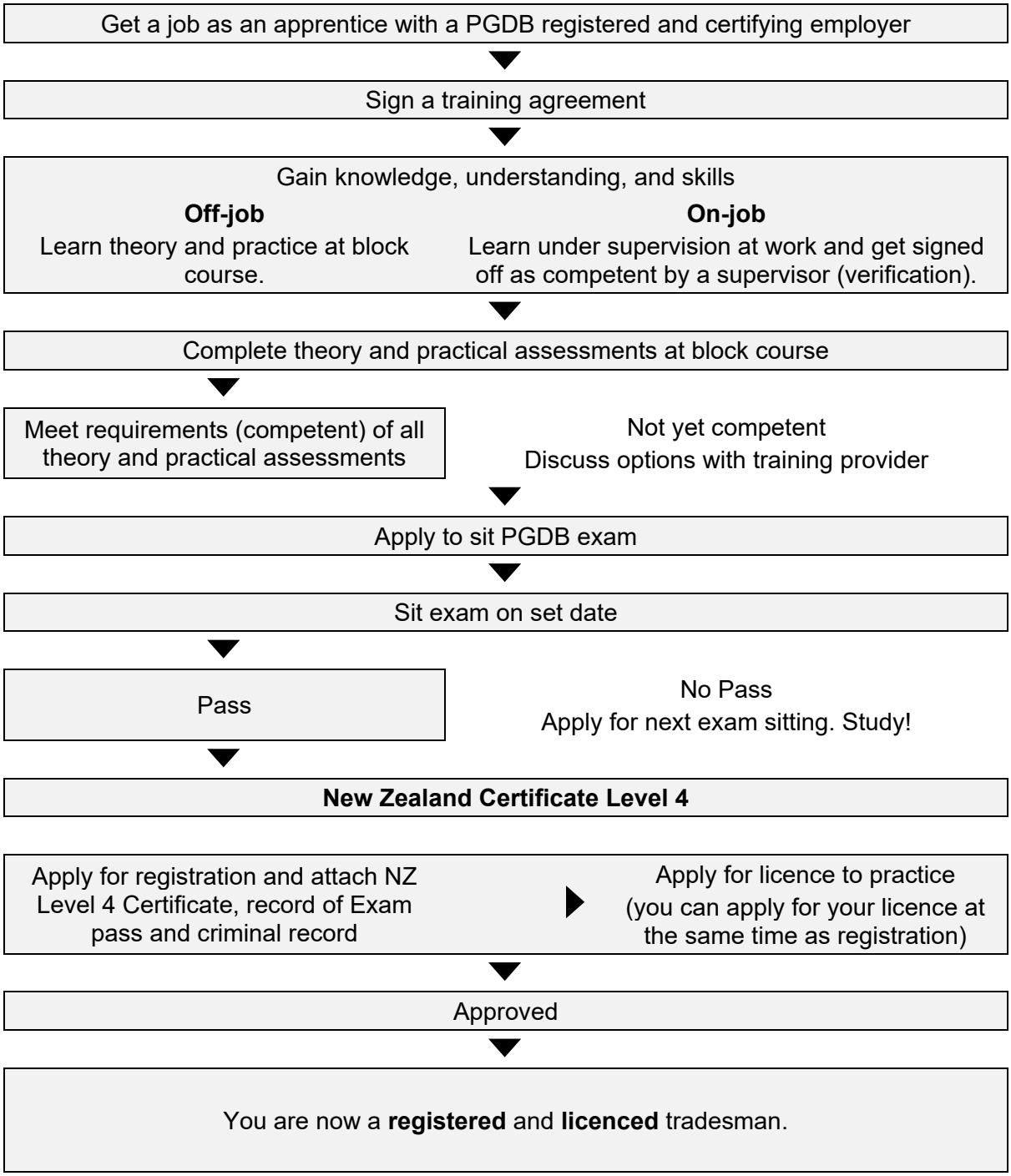
Competence means you have the knowledge, understanding, and skills to do your job. You show your competency by:

- achieving your New Zealand Certificate at Level 4 (in plumbing, gasfitting, or drainlaying), and
- passing the PGDB exam for your trade.

You can then apply for **registration** as a tradesman. You do this by completing a form from the PGDB website and attaching evidence of your competence (a copy of your NZ Certificate, and exam results). You will also need to provide a copy of your criminal record, to show that any criminal conviction in the past (if any) doesn't affect your ability to do your job. In addition, there is a section for your supervisor to complete that verifies you have the competence to do your job.

Once registered, you will need to apply for your annual **licence** to practice. You can apply for this at the same time as registration (using the same form) if you are going to start working in the trade straight away.

The chart below shows this process.



Classes of licence

There are five different classes of licence: certifying, tradesman, limited certificate, exemption under supervision, and journeyman. There is also the provisional licence for overseas qualified persons.

These are described briefly below.

Class	Level of responsibility
A Certifier	A Certifier is the highest qualification available. A Certifier is responsible for ensuring both their own work, and the work of anyone they supervise is done competently. They are also the only people that can verify work for official purposes (e.g. producer statements).
Tradesman	A Tradesman is qualified but must be supervised by a Certifying person who is ultimately responsible for ensuring the work is done competently.
Limited Certificate Trainees	Limited Certificate Trainees are working towards becoming qualified. They can do sanitary plumbing and/or gasfitting work and/or drainlaying work, but a Certifying person must ensure it is done competently.
Exemption Under Supervision	These people are not registered and don't have a full qualification. They can do sanitary plumbing and/or gasfitting work and/or drainlaying work provided they are supervised by a Certifying person - who must ensure that the work is done competently. The certifier is responsible for notifying the Board and paying the required fee for all exempt workers they supervise. NB: Exemption gasfitting under supervision workers must not work on any appliance connected to a gas supply. Their work must be tested and certified by a Certifying gasfitter before being connected to the gas supply.
Journeyman	The Journeyman class is for those plumbers, gasfitters and drainlayers who have not passed the Boards relevant licensing exam but have completed one of the following qualifications: • the National Certificate (this came into effect in 1998) • Trade Practice Certificate (this applied before 1998) or • the 3rd stage block course (this applied before 1998) A journeyman has the same level of responsibility as a tradesman and therefore must be supervised by a Certifying person who is ultimately responsible for ensuring the work is done competently.
Provisional licence holder	A provisional licence is normally issued to an overseas qualified person while their application for registration and licencing is considered. Under the provisional licence, the person is authorised to carry out the work under that licence level as outlined above.

Supervision

A Certifier is responsible for ensuring both their own work, and the work of anyone they supervise is done competently. They are also the only people that can verify work for official purposes (e.g. producer statements).

Supervision ensures:

- that the work is performed competently; and
- that while the work is being undertaken, appropriate safety measures are adopted; and
- that the completed work complies with the requirements of relevant regulations (Plumbers, Gasfitters, and Drainlayers Act 2006, Building Act, Gas Act).

Quick reference guide

The following chart provides a quick reference. You can see this and find out more on the PGDB website.

Who can…	Certifier	Tradesman	Journeyman	Limited Certificate Trainee	Exemption Under Supervision
...install?	✓	✓	✓	✓	✓
...test?	✓	✓	✓	✓	✓ **NB** must also be tested by Certifier or 'nominated person'
...be a supervisor?	✓	✗	✗	✗	✗
...be a 'nominated person' on behalf of the supervisor?	✓	✓	✗	✗	✗
...verify work for official purposes? (e.g. producer statements)	✓	✗	✗	✗	✗
...work on live gas?	✓	✓	✓	✓	✗
...commission gasfitting?	✓	✓	✗	✗	✗
...issue gas certificates?	✓	✗	✗	✗	✗

Annual licencing requirements

You have to renew your licence each year on or before 1 April, so you can continue to practice your trade.

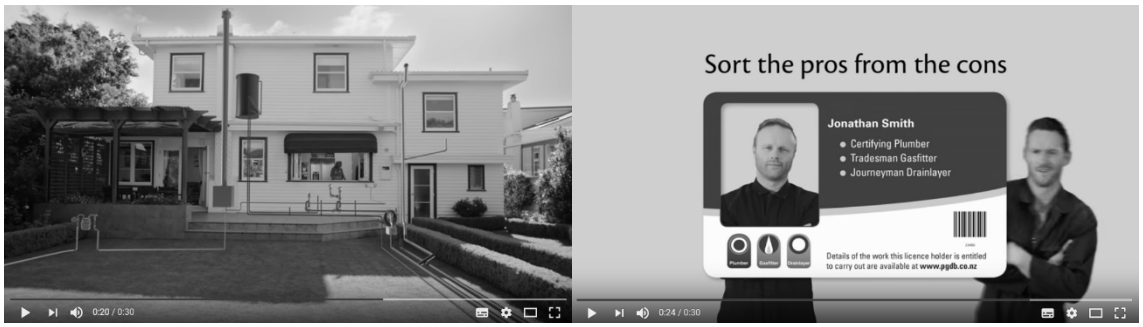
As a condition you also need to complete Continued Professional Development (CPD). This is how you maintain your knowledge and skills, for example, learning about updates and changes to legislation, codes, and standards.

After 2 years practicing as a tradesperson, you can apply for the certifying licence. This is the second and more senior class of registration and involves sitting and passing the PGDB certifying exam in the relevant trade.

Certifying plumbers, gasfitters, and drainlayers are able to test and certify their own work and are responsible for the work of those they supervise.

Benefits to being registered and licenced

When the public engage a registered tradesperson, who holds a current practising licence, they can have confidence that the tradesperson is appropriately qualified and able to carry out work safely and effectively. The Board's often advertises with the slogan 'sort the pros from the cons' which reminds people what's at stake and that only authorised tradespeople can safely carry out the work.



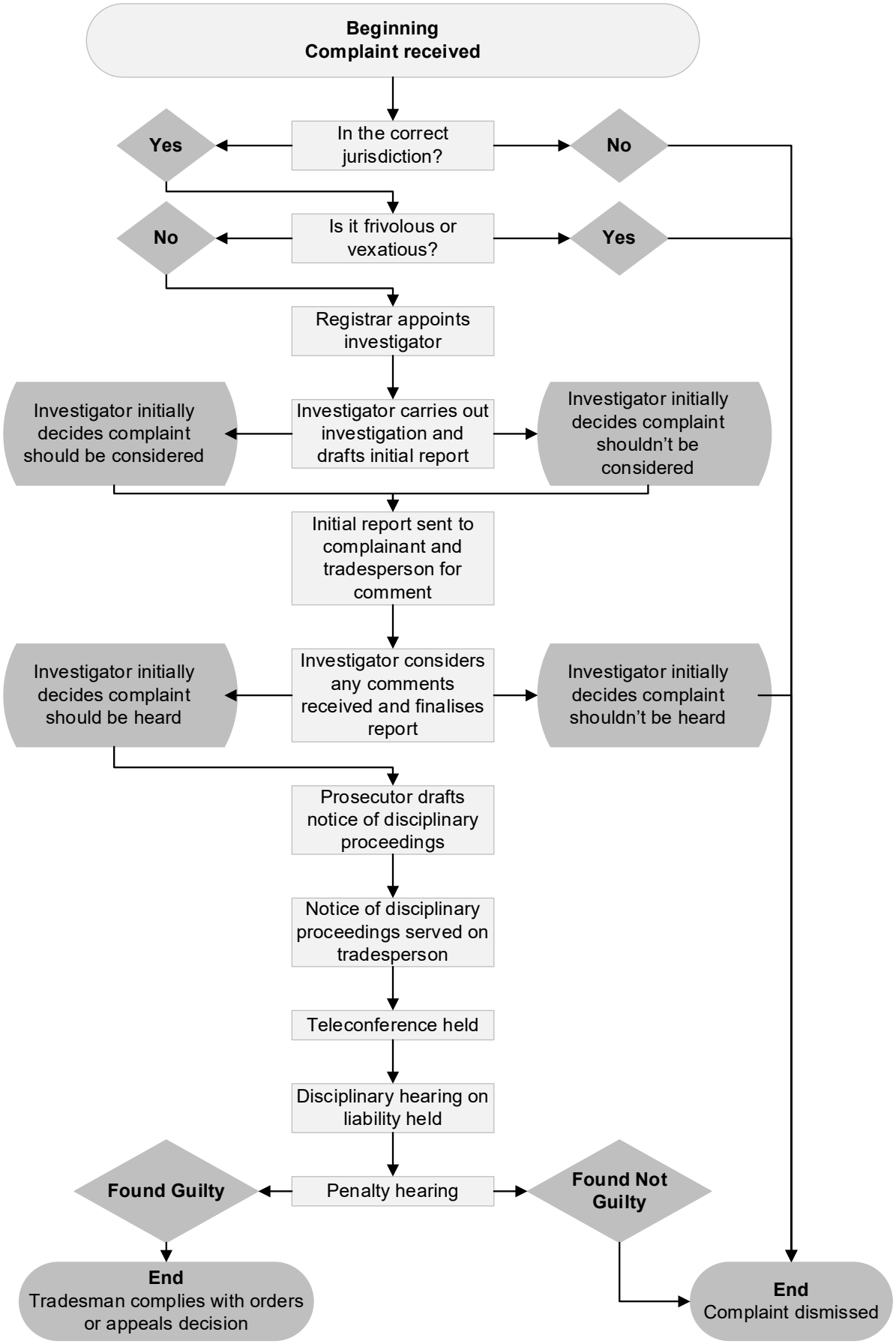
Screenshots from http://www.pgdb.co.nz

Discipline and prosecution

Anyone, except the Plumbers, Gasfitters, and Drainlayers Board, a Board member, or the Registrar, can complain to the Board about the conduct of a plumber, gasfitter or drainlayer.

The Board can only consider complaints about conduct that might be a disciplinary offence as set out in section 89 of the Plumbers, Gasfitters, and Drainlayers Act 2006. That conduct mainly relates to *poor*, *unsafe*, and *improper* or *incompetent* plumbing, gasfitting, or drainlaying.

The chart on the next page outlines the process.


Beginning
Complaint received
In the correct jurisdiction?
Yes
No
Is it frivolous or vexatious?
No
Yes
Registrar appoints investigator
Investigator carries out investigation and drafts initial report
Investigator initially decides complaint should be considered
Investigator initially decides complaint shouldn't be considered
Initial report sent to complainant and tradesperson for comment
Investigator considers any comments received and finalises report
Investigator initially decides complaint should be heard
Investigator initially decides complaint shouldn't be heard
Prosecutor drafts notice of disciplinary proceedings
Notice of disciplinary proceedings served on tradesperson
Teleconference held
Disciplinary hearing on liability held
Penalty hearing
Found Guilty
Found Not Guilty
End
Tradesman complies with orders or appeals decision
End
Complaint dismissed

Where a complaint leads to the Board finding a plumber, gasfitter, or drainlayer guilty of a disciplinary offence, the Board can make orders such as:

- censuring the person
- requiring the person to do some further training
- fining the person (the fine is not paid to the complainant)
- cancelling, suspending, or restricting the person's registration and/or practising licence, or provisional licence
- disqualifying the person from doing plumbing, gasfitting, or drainlaying work

The Board has no powers to order a plumber, gasfitter, or drainlayer to fix work or pay a consumer money.

After receiving a complaint, the Registrar writes to the person complained about, gives them a copy of the complaint, and asks for their side of what happened. After a set time, the Registrar decides whether the complaint is something the Board might be able to consider, meaning:

- it is a disciplinary offence of the type we cover, and
- it is not frivolous or vexatious (non-serious/pointless complaints)

If the complaint fits these criteria, the Registrar appoints an investigator. The investigator's job is to decide whether the Board should consider the complaint at a disciplinary hearing.

The whole process can take months from beginning to end, depending on how complex the issue is.

You can download the Board's complete guide, *A guide to disciplinary proceedings* from their website.

Publication of disciplinary action and offences

It is possible for details of the Board's decisions to be published in the Gazette (see below) or news media, or for the Board's decision to be made available to the public.

In addition, the Board publishes information about the last three years of disciplinary proceedings on its public register.

Gazette notices

A Gazette is another name for a newsletter, journal, newspaper, etc. In New Zealand a gazette is an official publication of a government organisation or institution to communicate official notifications, and notices. Once published, a gazette becomes a public record.

The Board issues Gazette notices that set out:

- the minimum standards for registration and the competencies required for each registration class
- the registration fees and 'disciplinary and prosecution' levy

These notices are on the PGDB website, and also from the NZ gazette website; gazette.govt.nz.

The Trans-Tasman Mutual Recognition Arrangement

The Trans-Tasman Mutual Recognition Arrangement (TTMRA) is a non-treaty arrangement between New Zealand and Australia's commonwealth, state and territory governments.

The arrangement means that someone registered to practise an occupation in one country is entitled to practise an equivalent occupation in the other country, without further testing or examination.

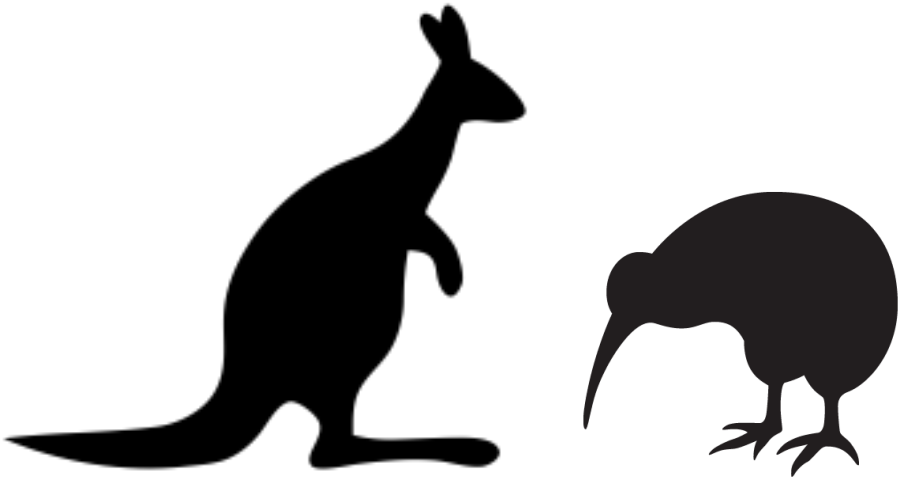
New Zealanders moving to Australia

Australian regulatory authorities recognise the New Zealand qualifications(s) held by certifying or licensed plumbers, gasfitters and drainlayers and will issue registration for the equivalent category.

If you are applying for registration in any Australian state, you may be required to produce a verified copy of your registration certificate as well as a current New Zealand licence in support of your application. The Australian regulatory authority will contact the New Zealand Plumbers, Gasfitters and Drainlayers Board to verify your details.

Australians moving to New Zealand

The New Zealand Plumbers, Gasfitters and Drainlayers Board recognises Australian qualifications held by registered plumbers, gasfitters and drainlayers under the provisions of the Trans-Tasman Mutual Recognition Act (TTMRA) 1997 and will issue the equivalent registration.



Activity 1

1. What are the **two** main reasons for the Plumbers, Gasfitters, and Drainlayers Act 2006?

2. Who is responsible for setting the minimum standards for registration of plumbers, gasfitters, or drainlayers?

3. Aside from being registered, what else do you need before you can legally carry out plumbing, gasfitting, or drainlaying work?

4. How often do you need to apply for a licence?

5. Does a qualified tradesman need supervising?

6. What work can a Limited Certificate Trainee do?

7. How can you prove you are competent in order to become registered as a tradesperson?

8. Who carries out discipline and prosecution for any people who operate in the plumbing, gasfitting, or drainlaying trades without a licence?

9. How does the Board communicate official information such as the registration and licencing requirements of plumbers, gasfitters, and drainlayers?

10. What does the Trans-Tasman Mutual Recognition Act mean for a registered plumber, gasfitter, or drainlayer?

11. Can the PGD Board accept an anonymous complaint about a tradesperson?

- ☐ Yes
- ☐ No

12. What type of complaints can be considered by the PGD Board?

13. If someone makes a complaint about you, and the Board accepts it, do you have an opportunity to defend yourself?

- ☐ Yes
- ☐ No

Check your answers at the back of this Study Guide.

Gasfitting and legislation

Gasfitters, in addition to the PGD Act, must also comply with the following legislation.

The Plumbing, Gasfitting, and Drainlaying regulations 2010

These regulations were developed to ensure that gasfitters:

- are competent to carry out the range of work for which they are employed; and
- receive the supervision and training that is necessary to ensure that the work is carried out
    - safely and competently; and
    - complies with the requirements of the Gas Act 1992 and any regulations made under section 54 of that Act.

The regulations also set requirements for licenced employers in terms of how they operate their business in relation to gasfitting. This includes information about the gasfitting that can be undertaken under the licence, employee details and work safety procedures.

The regulations also outline the requirements for those responsible for certifying the business's operations.

Gas Act 1992

The Gas Act, like the PGD Act, aims to protect the health and safety of the public and to prevent damage to property. It does this by regulating the industry, and the supply and use of gas, in New Zealand.

The Act:

- sets out the functions and powers of WorkSafe and its administrator, the Ministry of Business, Innovation and Employment (MBIE) to carry out enquiries, tests, audits or investigations to determine compliance with the Gas Act and to ensure the safe supply and use of gas
- grants owners, operators and other relevant persons powers such as rights of entry, and sets out any conditions relating to that
- sets out duties, such as requirements to inform MBIE of key gas activities, especially gas operators and other owners of gas fittings
- allows for industry codes of practice to be issued
- includes various arrangements for governing the gas industry, including authorisation of the co-regulatory model (both WorkSafe and Gas Industry Company Limited (Gas Industry Co) regulate the industry)
- dictates various requirements in respect of gas safety, including a requirement for all owners or operators of gas supply systems to have a safety management system that addresses requirements
- includes broad regulation-making powers, and
- establishes various offences for breaches of the Gas Act

In addition to the provisions in the Gas Act itself, there is a variety of regulations and rules which sit under the umbrella of the Gas Act. The main one that applies to Gasfitters is the Gas (Safety and Measurement) Regulations 2010.

Gas (Safety and Measurement) Regulations 2010

These regulations apply to anyone who designs, or supervises the design of, installs, manufacturers, maintains, owns, supplies, sells, hires, or operates a gas distribution system, gas installation or part installation, gas appliance, or fitting to ensure they are safe when used and remain safe when turned off or decommissioned.

They include:

- generic rules and requirements for safety
- the point of supply for the delivery of gas
- requirements for safety management systems (SMS)
- the third party certification regime for gas appliances
- the joint New Zealand/Australian gas appliance label
- offences

Notifying WorkSafe of danger

The regulations place an obligation on gasfitters to notify the owner or occupier, and WorkSafe, as soon as they can of any gas installation or gas appliance they believe is dangerous to life or property. Under this Act there is also an obligation to notify the Secretary of danger as soon as is practicable, as well as the owner or occupier of the property where the danger exists.

Building Act 2004

The Building Act 2004 sets out the rules for the construction, alteration, demolition and maintenance of new and existing buildings in New Zealand. It is the primary legislation governing the building industry. Its purpose is that:

- people can use buildings safely and without endangering their health
- buildings have attributes that contribute appropriately to the health, physical independence and wellbeing of the people who use them
- people who use a building can escape from the building if it is on fire
- buildings are designed, constructed and able to be used in ways that promote sustainable development.

Its aim is to improve control of and encourage better practices in building design and construction to provide greater assurance to consumers. This includes:

- setting clear expectations of the standards buildings should meet (Building Code)
- guidance on how to meet those standards
- more certainty that capable people are undertaking design, construction and inspection
- scrutiny of the building consent and inspection process
- protection for homeowners through mandatory warranties

It also contains provision to ensure existing buildings are incrementally improved, including means of escape from fire, sanitary facilities, access and facilities for people with disabilities and in relation to buildings deemed most vulnerable in an earthquake.

The Building Act has five parts:

Part 1	The purpose and principles of the Building Act, together with an overview, and commencement dates for various provisions and definitions. These sections provide an important reference point for reading and interpreting the Building Act.
Part 2 (and Schedules 1 and 2)	Matters relating to the Building Code and building work (for example, building consents).
Part 3	Sets out the functions, duties and powers of the chief executive of the government department responsible for administration of the Building Act (currently Ministry of Business, Innovation & Employment), territorial authorities, regional authorities and building consent authorities. It also deals with the accreditation of building consent authorities and dam owners, and product certification.
Part 4 (and Schedule 3)	Matters relating to the licensing and disciplining of building practitioners *(Licenced Building Practitioners – LBPs)*
Part 5 (and Schedule 4)	Miscellaneous matters including: • offences and criminal proceedings • implied terms of contracts for residential building work • regulation-making powers • amendments to other enactments • the repeal of the Building Act 1991 • transitional provisions from the Building Act 1991 to the Building Act 2004.

Building regulations

Building Regulations are made to support the Building Act. The only part of the 1992 Regulations still in force is Schedule 1 containing the New Zealand Building Code.

The New Zealand Building Code

The Building Code is made up of general and technical clauses.

These are grouped and described by a letter as shown below. Within each of these are further clauses described by the letter, then a number. For example:

- B Stability
- B1 Structure
- B2 Durability

These clauses outline the **minimum performance standards** that all building work must meet, even if it doesn't need a building consent.

Below is a list of all these clauses and their intent. Some of these are going to be more relevant to your work than others but it’s a good idea to know about all of them.

Clause	Purpose
A General provisions	This clause covers general provisions for interpretation: classifies buildings into seven categories, provides definitions and importance levels for fire. These provisions apply when interpreting the Building Code.
B Stability	B Stability contains Clause B1 Structure and Clause B2 Durability. B1 Structure requires buildings, building elements and sitework to withstand the combination of loads and physical conditions they are likely to experience during construction, alteration and throughout their lives. Loads and physical conditions include self-weight, temperature, water, earthquakes, snow, wind, and fire. B2 Durability must always be considered when demonstrating compliance with each of the clauses of the Building Code. It ensures that a building throughout its life will continue to satisfy the performance of the Building Code. It confirms the use of materials that will remain functional throughout the specified intended life of the building.
C Protection from fire	There are six Building Code clauses related to protecting people in and around buildings, limiting fire spread and helping firefighting and rescue.
D Access	D Access contains D1 Access routes and D2 Mechanical installations for Access. These provisions safeguard people from injury during movement into, within and out of buildings.

Clause	Purpose
E Moisture	E Moisture provides for buildings to manage water. It contains Building Code clauses E1 Surface water, E2 External moisture and E3 Internal moisture. These provisions ensure conditions for healthy, safe and durable buildings. They protect people and other property from the adverse effects of surface water, from penetration by water, and the accumulation of moisture from both the outside and inside.
F Safety of Users	F Safety of Users safeguards people from injury or illness. The clauses cover hazards from construction, demolition, building materials, substances, processes, safety from falling, and ensure visibility in escape routes and that buildings have warning systems and signs. There are provisions that safeguard people from a loss of amenity (services/facilities) as well as ensuring people with disabilities can carry out normal activities and processes in buildings.
G Services and facilities	Building Code clauses G1–G15 confirm the adequate and safe provision of sanitary fixtures and services such as gas, electricity and water. The clauses ensure buildings have attributes that contribute appropriately to the health of people who use them, without loss of amenity or hazard to other people or property. Sanitation addresses the risks of illness due to unsanitary conditions caused by exposure to human or domestic waste, consumption of contaminated water, or inadequate facilities for personal hygiene, laundering and food preparation. Wellbeing and physical independence are influenced by factors such as indoor climate, space, protection from noise, light, connection to the outdoors, and access. The clauses ensure that people with disabilities are able to carry out normal activities within certain buildings.
H Energy efficiency	This provision requires many buildings, such as housing, to achieve an adequate degree of energy efficiency to modify temperature, humidity, ventilation, the provision of hot water and artificial lighting. It does not apply to all buildings.

Complying with the New Zealand Building Code

You **must comply** with the Building Code, but you are free to **choose how** to meet the performance requirements.

One way is to use an Acceptable Solution.

Acceptable Solutions and verification methods

Acceptable Solutions and Verification Methods provide information about materials, construction details and calculation methods. If followed, any work will comply with the related Building Code provisions and so will be accepted by the Building Consent Authority (BCA).

Acceptable Solutions

Specific construction methods that when followed are deemed to comply with the Building Code.

Verification Methods

Methods of testing, calculations and measurements that when followed are deemed to comply with the Building Code.

Alternative solutions

Sometimes buildings (e.g. complex projects or renovations) rely on **alternative solutions** to demonstrate compliance with clauses of the Building Code.

Alternative solution

Where all, or part, of the building design differs from an Acceptable Solution or Verification Method, another means of showing how the building work still complies with the Building Code is used.

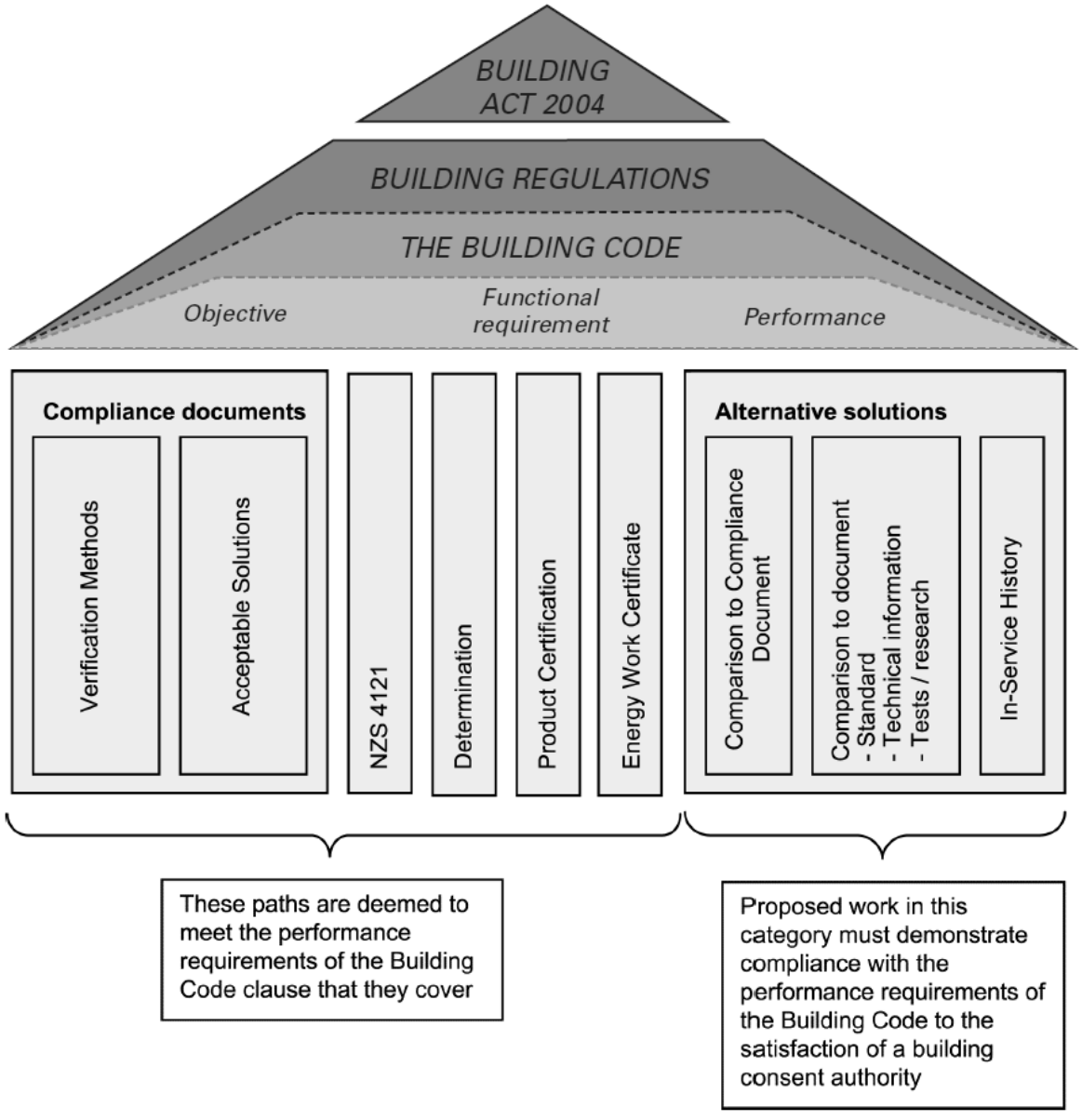
Other compliance pathways

There are other pathways to ensure that building work complies with the Code, as shown below.

Product certificates	The Act provides for a voluntary product certification scheme that enables product manufacturers to have their products certified as meeting nominated performance requirements of the Building Code. Building products or methods used in accordance with a product certificate must be accepted as complying with the Building Code.
Energy work certificates	Energy work is defined as gasfitting work or prescribed electrical work. An energy work certificate certifies that energy work complies with either the Electricity Act 1992 or the Gas Act 1992. An energy work certificate must be accepted as establishing compliance under the Building Code.
NZS 4121	The Act specifies that NZS 4121: 2001, the code of practice for design for access and use of buildings by persons with disabilities (and any modification of that Standard), is to be taken as a Compliance Document. Any work that meets the requirements of this standard must be accepted as establishing compliance under the Building Code.
Determinations	A determination is a binding decision made by MBIE. It provides a way of solving disputes or questions about Building Code matters and territorial authority, BCA or regional authority decisions under the Act. Many matters can be determined e.g.: • whether a building or building work complies with the Building Code • a BCA's decision on a building consent.

Summary

- Compliance with the Building Code can be demonstrated using various pathways.
- Understanding the New Zealand building control framework will help building practitioners decide which pathways are most appropriate when designing and constructing building work.
- The diagram below shows the hierarchy of New Zealand building controls, including the various compliance pathways. The dark grey area at the top (the Building Act and Building Regulations) shows the building legislation that must be followed.
- The diagram also shows the pathways that may be used to demonstrate compliance with the Building Code. Compliance with the Building Code must be demonstrated using one or more of these pathways.
- A building practitioner can choose which pathways to follow.



Activity 2

1. The Plumbing, Gasfitting, and Drainlaying regulations 2010 outline the requirements for gasfitters. Licenced employers must develop and maintain a manual. What are **three** things that need to be included in the manual?

2. Under the Gas Act, there are two organisations responsible for regulating the gas industry. Who are these **two** organisations?

3. Name at least **three** people or organisations that the Gas (Safety and Measurement) Regulations 2010 apply to:

4. If you notice any gas installation or gas appliance that you believe is dangerous to life or property, what are you obliged to do?

5. The purpose of the Building Act is to regulate building work and to set performance standards so that buildings are:

   Safe and healthy, _____, and _____

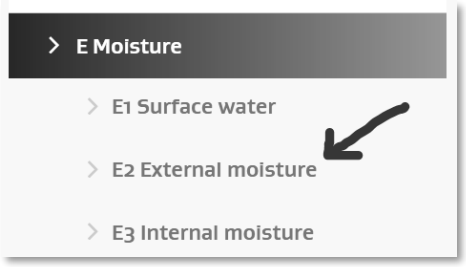
Check your answers at the back of this Study Guide.

Activity 3

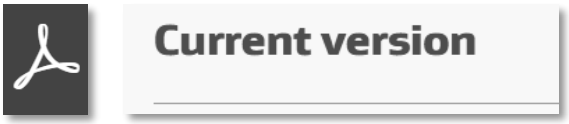
Download a copy of clause E2.

1. Go to the website https://www.building.govt.nz/
2. Click the tab ‘Building code compliance’, then click on ‘E'

3. Go to the menu and select E2 Surface moisture



4. Scroll down until you see a pdf symbol and ‘Current version’ then click the symbol. This will start a download process.



5. Open the document (you will need Acrobat reader on your computer) and find the section for Acceptable solution 1 (AS1). This is widely used for weathertight designs.

Activity 4

Now that you know how to access the NZBC clauses, look up each of the following and fill in the missing information.

Note. Building Code clauses are updated regularly. If any of the following clauses are different to the latest version on the website, it means that the clause has been updated since this activity was written. If this is the case, check your answer with your tutor.

1. **Clause G6/AS1, 1.0.1** Sound transmission through building elements, shall be minimised by using one or more of the following construction techniques:

   Avoidance of rigid service connections (e.g. in plumbing) where…

2. **Clause E3/AS1 3.3.6 Urinals** Impervious wall shall extend horizontally at least … and …

3. **Clause E2/AS1, 4.2 Selection of flashing materials** Flashing materials shall take into account the following factors:

4. **Clauses C1-C6 Protection from fire, C2.2** The maximum surface temperature of combustible building materials close to fixed appliances using controlled combustion and other fixed equipment when operating at their design level must …

Check your answers at the back of this study guide.

Other relevant legislation

Other legislation you need to know about is:

- The Resource Management Act
- The Health and Safety at Work Act ***(Note. We will look at this act in the next section)***

The Resource Management Act

The Resource Management Act 1991 (RMA) protects land and the environment. Ownership of land doesn't mean the owner can do whatever they want on it or with it. They have to comply with the RMA.

The RMA recognises that neighbours and others in our communities can be affected by the use of a piece of land and other resources. By protecting the environment, the RMA also ensures the interests of the community and future generations of Kiwis.

Regional and district plans

Under the RMA, regional councils prepare regional plans that focus on the management of air, water, land and soil. City or district councils prepare district plans that focus on managing aspects of subdivision and land use that can affect the environment, such as the height, appearance and location of buildings and signs, and the noise, glare and odour associated with the activities that take place in and around buildings. Every district or regional plan is different and reflects the desires and aspirations of the local community.

Resource consent

The plans councils prepare set out which activities will require a resource consent. A resource consent is a formal approval for such things as:

- the use or subdivision of land
- the taking of water
- the discharge of contaminants in water, soil or air
- the use or occupation of coastal space

It's not just new buildings that may require resource consent. A new use of an existing building may also require a resource consent. Just as council plans vary, the need for resource consents varies from one area to another.

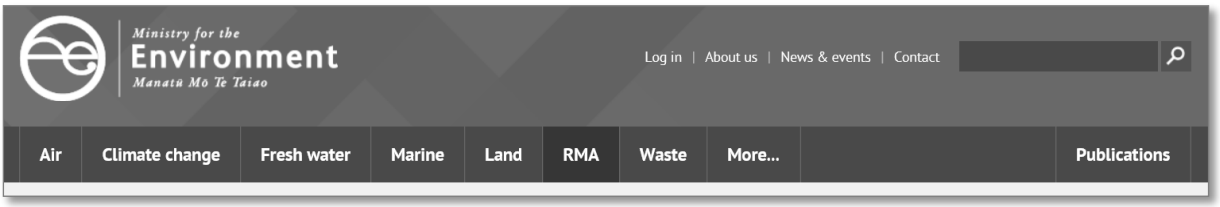
Different consent authorities for different types of resource consents

The table on the next page lists the different types of resource consents and the consent authorities responsible for issuing them, with examples of when resource consents might be required.

Consent type	Consent authority responsible	Examples
Land-use consent	Regional councils and/or district and city councils	To erect a building. To convert a garage in a residential neighbourhood into a shop. To establish papakainga housing.
Subdivision consent	District and city councils	To divide a property into two or more new titles, using fee simple or unit title mechanisms.
Coastal permit	Regional councils	To build a wharf on the coast below the mean high water springs mark. To discharge stormwater into coastal waters.
Water permit	Regional councils	To take water from a stream for an irrigation scheme. To build a dam in the bed of a river.
Discharge permit	Regional councils	To discharge stormwater from a service station through a pipe directly into a lake. To discharge exhaust fumes from a wood curing kiln into the air.

More information

You can find out more information on the RMA at the website for the Ministry for the Environment **http://www.mfe.govt.nz/rma**



New Zealand Standards

Standards are produced by Standards New Zealand, and in other countries by approved Standards organisations. They cover many subjects and are developed by independent committees of volunteers nominated by national bodies with an interest in a particular subject.

Standards are generally voluntary, but can be mandatory when cited in Acts, regulations, or other legislative instruments. Standards may also be referenced in regulations as one **means of compliance** or as **an acceptable solution** under those regulations, without being mandatory. Standards are a successful way to bridge government regulation and industry self-regulation.

Standards relevant to plumbing, gasfitting, and drainlaying include:

- AS/NZS 3500.1 Plumbing and drainage – Water services
- AS/NZS 3500.2 Plumbing and drainage – Sanitary plumbing and drainage
- AS/NZS 5601.1 Gas installations - Part 1: General installations
- AS/NZS 5601.2 Gas installations - Part 2: LP Gas installations in caravans and boats for non-propulsive purposes
- NZS 3604 Timber-framed buildings
- NZS 4219 Seismic performance of engineering systems in buildings

AS/NZS 3500 Plumbing and drainage

This Standard comes in three parts:

- Part 1: Water services
- Part 2: Sanitary plumbing and drainage
- Part 3: Stormwater drainage

Here we will look at parts 1 and 2.

AS/NZS 3500.1 Plumbing and drainage - Part 1: Water services

This specifies requirements for the design, installation and commissioning of cold water services from a point of connection to the points of discharge, and non-drinking water from a point of connection to the points of discharge. It applies to new installations as well as alterations, additions and repairs to existing installations.

AS/NZS 3500.2 Plumbing and drainage - Part 2: Sanitary plumbing and drainage

This specifies the requirements for the design and installation of sanitary plumbing and drainage from the fixtures to a sewer, common effluent system or an on-site wastewater management system, as appropriate. It applies to new installations as well as alterations, additions or repairs to existing installations.

AS/NZS 1596:2014 The storage and handling of LP Gas

This Standard covers the location, design, construction, commissioning, and operation of installations for storage and handling of LPG. It also provides technical and procedural requirements for safe storage and handling. This Standard covers from the regulator to the meter, Standards 5601.1, 4645, and 5258 cover the remaining sections.

Standard 1596:2014 also covers hazardous substances and general hazard management such as first aid, emergency preparation and planning, fire drills, and access control.

ERP's, or Emergency Response Plans, are also a major requirement of hazardous substance management for substances that are explosive, flammable, oxidising, toxic, corrosive, or harmful to the environment. These are covered at length on the following websites: WorkSafe, Fire and Emergency New Zealand's (FENZ), Site Safe, and Ministry of Business, Innovation, and Employment NZ (MBIE) and will be covered more thoroughly in study guide 21900.

AS/NZS 5261:2003 Gas Installation

This Standard outlines the mandatory requirements for compliance for the design, installation, and commissioning of gas installations that are associated with the use or intended use of fuel gases as defined by the Gas Act 1992. This covers installations downstream of the outlet of the consumer billing meter installation, the first regulator on a fixed gas installation where LPG cylinders are installed, or the first regulator on site where LPG is reticulated from offsite storage, and where the gas supply doesn't exceed 700 kPa.

This Standard has three parts:

Part 1 covers mandatory performance criteria for design, installation, and commissioning of gas installations.

Part 2 covers a means of compliance for gas installations with appliances and equipment generally under 250 MJ/h (70 KW).

Part 3 covers means of compliance for gas installations with appliances and equipment over 250 MJ/h (70 kW) and may be used as a base for the design of one-off gas appliances and large installations in compliance with Part 1.

The appendices outline approximate pipe length for gas volume, acceptable pressure drops in existing installations, test instruments suitable for varying pressure ranges, and a comprehensive gas installation checklist.

AS/NZS 5262:1997 Gas appliance safety

5262 covers the appliances within installations, outlining the safety requirements for all gas appliances intended for installation or use in NZ. The requirements protect persons, domestic animals, and property from fire, explosion, release of noxious gases, and physical injury hazards but are not intended to be used as a design code or matters of performance, appearance, or durability. It covers the safety of gas appliances and all components supplied with them.

Section 4.1 stipulates that the design should be suitable for use in a New Zealand home taking into consideration children, elderly and the infirm to ensure no hazards are presented to them or to domestic animals.

Section 5 outlines the marking and identification of gas appliances. All gas appliances must be clearly marked with the name/manufacturer/supplier mark, the type and model, gas types suitable for use with the appliance, minimum and maximum gas supply pressures for safe operation, the input rating (value and units) and the maximum overpressure and burner

pressures if relevant. Any instructions critical to the safe use of these appliances must also be displayed clearly on the appliance. These must all be displayed in English and/or in graphic form.

AS/NZS 5601 Gas installations

This Standard comes in two parts:

- Part 1: General installations
- Part 2: LP Gas installations in caravans and boats for non-propulsive purposes

Since 1992 inspection and certification of gas installations is the responsibility of a person authorised under the Plumbers, Gasfitters and Drainlayers Act 2006.

Gas installations must be undertaken only by persons authorised under the Plumbers, Gasfitters and Drainlayers Act 2006.

AS/NZS 5601.1 Gas installations - Part 1: General installations

This provides the mandatory requirements and means of compliance for the design, installation and commissioning of gas installations associated with the use or intended use of fuel gases such as natural gas, LP Gas, or biogas.

AS/NZS 5601.2 Gas installations - Part 2: LP Gas installations in caravans and boats for non-propulsive purposes

This standard provides essential requirements and deemed-to-comply solutions, to promote uniform standards of gas installation and to provide a stand-alone standard for LP Gas installations in caravans and boats for non-propulsive purposes.

NZS 3604 Timber-framed buildings

During residential work, you are likely to refer to New Zealand Standard 3604:2011 Timber Framed Buildings (**NZS 3604**). The Standard provides ‘suitable methods and details for the design and construction of timber framed buildings up to 3 storeys high’ that do not require specific engineering design.

NZS 3604 is referenced in Acceptable Solution for Building Code clause E2 External Moisture, E2/AS1.

It provides design details with drawings and tables for:

- roof framing
- building envelope – roof and wall claddings

You can follow:

- **NZS 3604** for structure, and
- **E2/AS1** for the roof and wall claddings.

Work that follows NZS 3604: 2011 automatically complies with Building Code requirements (for some Building Code Clauses such as Structure).

NZS 4219 Seismic performance of engineering systems in buildings

This Standard sets out the criteria for the seismic performance of building services or engineering systems in buildings, and the requirements for the design, construction, and installation of seismic restraints for engineering systems in buildings.

It helps prevent loss of life and provides protection of property for all New Zealanders by ensuring engineering systems in buildings are securely restrained for an earthquake. Where the engineering system supports critical lifesaving functions, the use of the Standard will help ensure the system continues to function during and after an earthquake.

The Standard has been written to assist both users carrying out non-specific engineering design (sections 1, 2, 3, and 5), and users carrying out specific structural engineering design (sections 1, 2, 4, and 5).

Appendix D of the Standard provides useful examples for calculating and selecting the appropriate anchors and bracing design for common engineering services.

NZS 4219:2009 provides a means of compliance with the New Zealand Building Code, Clause B1 Structure; Clause G10 Piped services; and Clause G14 Industrial liquid waste.

Accessing standards

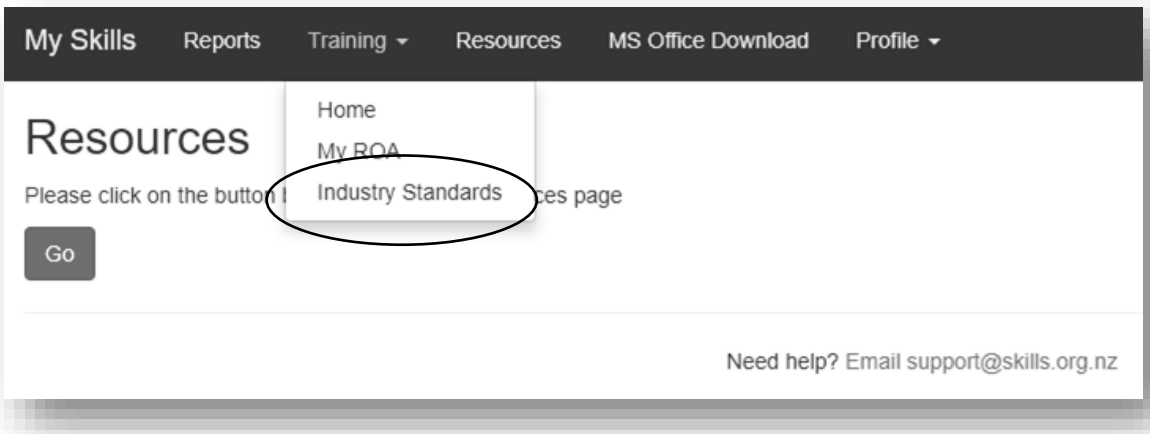
Standards New Zealand

All the standards listed above can be purchased from the Standards New Zealand Website; https://www.standards.govt.nz/.

My Skills

As a trainee, you also have access to these from your My Skills portal.

1. Login
2. Select Training
3. Then link to Industry Standards. These are available while you have a login to **My Skills**.



Activity 5

1. Which Act oversees the management of our air, water, land and soil in NZ?
   - ☐ Resource Management Act 1991
   - ☐ Conservation Act 1987
   - ☐ Reserves Act 1977
   - ☐ Public Works Act 1981

2. Who prepares the regional plans for the management of our air, water, land and soil in New Zealand?
   - ☐ The Ministry for the Environment
   - ☐ The Regional Council
   - ☐ The District or City Council
   - ☐ The local IWI

3. Identify whether the following statements are true or false by crossing out the incorrect answer.

Resource consents only apply to new buildings	True	False
Compliance with New Zealand Standards is generally voluntary	True	False
If a standard is sited in an Act, regulation or other legislative instrument, it still remains a voluntary option for compliance.	True	False
An acceptable solution outlined in a standard becomes mandatory if referenced in a regulation	True	False

4. Write the number of the standard that relates to each of the following subjects. Choose from; 3500.1, 3500.2, 3604, 4219, 5601

Standard	**Subject**
	Timber-framed buildings
	Sanitary plumbing and drainage
	Gas Installations
	Seismic performance of engineering systems in buildings
	Water services

Check your answers at the back of this study guide.

Key Stakeholders

All the acts of legislation, the regulations that come under them, and the standards and codes that provide solutions for compliance that we have covered are administered and regulated by government agencies and organisations (stakeholders). Below is a list of how these stakeholders relate to each other and on the following page is a chart to illustrate some of these stakeholders.

Ministry of Business, Innovation, and Employment (MBIE)

MBIE was formed in July 2012 and it oversees New Zealand's built environment and accordingly, oversees a range of Acts and legislation including:

- Building Act 2004 and the New Zealand Building Code
- Gas Act 1992

  Formed under the Gas Act are:

  - Gas (Safety and Measurement) Regulations 2010
  - **Gas Industry Co (GIC)** develops and makes recommendations to the Minister of Energy and Resources under the co-regulatory governance arrangements applying to the downstream gas industry.
- Health and Safety at Work Act 2015 (HSWA)

  Formed under HSWA are:

  - Worksafe
  - **Energy Safety**, part of **WorkSafe**, responsible for the administration and development of parts of the Gas Act, and for regulations and Codes of Practice relating to safety, quality and measurement of gas.
- Plumbers, Gasfitters, and Drainlayers Act 2006

  Formed under the Plumbers, Gasfitters, and Drainlayers Act are:

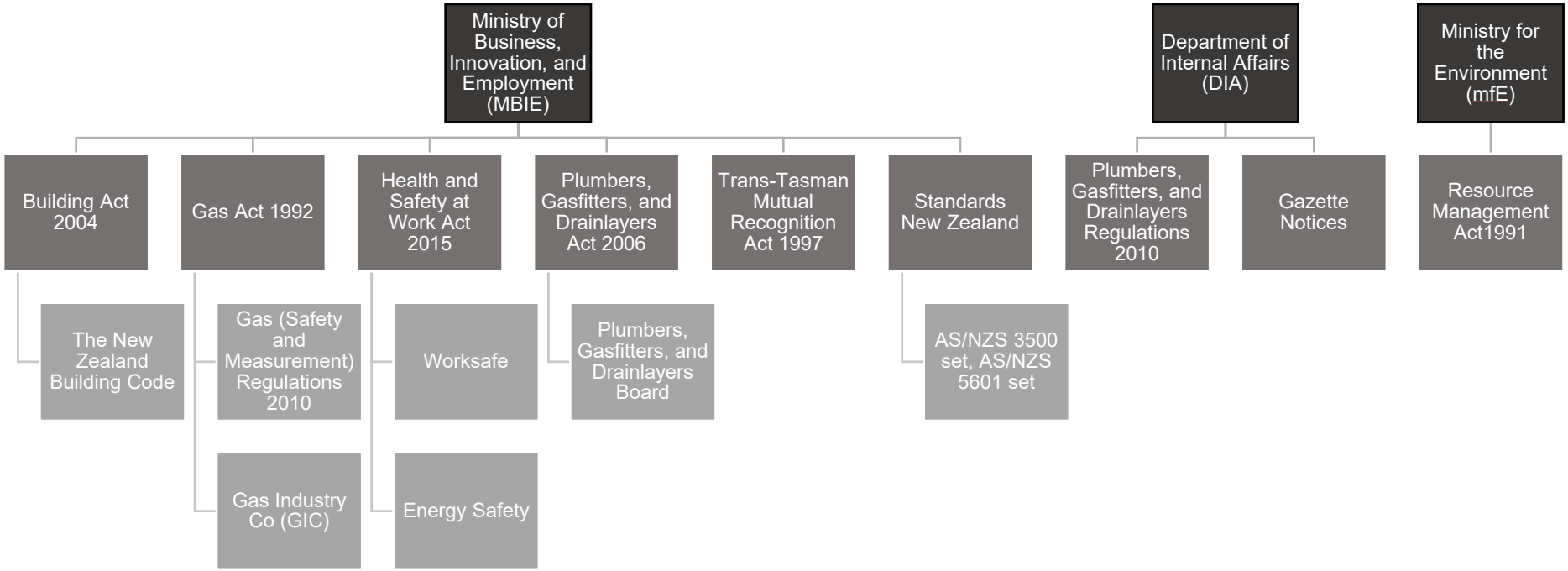
  - Plumbers, Gasfitters, and Drainlayers Board
- Trans-Tasman Mutual Recognition Act 1997
- Standards New Zealand

Department of Internal Affairs (DIA) and the Ministry for the Environment (MfE)

DIA is responsible for

- Plumbers, Gasfitters, and Drainlayers Regulations 2010
- Gazette Notices

Ministry for the Environment is responsible for the Resource Management Act 1991.


Ministry of Business, Innovation, and Employment (MBIE)
Department of Internal Affairs (DIA)
Ministry for the Environment (mfE)
Building Act 2004
Gas Act 1992
Health and Safety at Work Act 2015
Plumbers, Gasfitters, and Drainlayers Act 2006
Trans-Tasman Mutual Recognition Act 1997
Standards New Zealand
Plumbers, Gasfitters, and Drainlayers Regulations 2010
Gazette Notices
Resource Management Act1991
The New Zealand Building Code
Gas (Safety and Measurement) Regulations 2010
Gas Industry Co (GIC)
Worksafe
Energy Safety
Plumbers, Gasfitters, and Drainlayers Board
AS/NZS 3500 set, AS/NZS 5601 set

Health and Safety at Work

On 4 April 2016, the Health and Safety at Work Act (HSWA) came into force, replacing the Health and Safety in Employment Act 1992.

In New Zealand, too many people die or are seriously hurt while working. Our statistics show that every year; 52 people die on the job, hundreds more are seriously injured, and 600-900 die from work-related diseases.

On *19 November 2010 an explosion at the Pike River coal mine resulted in the deaths of 29 men*. The Government established the Royal Commission to report on what had happened and to recommend changes to prevent similar tragedies occurring. The report was a serious wake-up call for us all. The legacy we leave to the Pike River 29 is to ensure such a tragedy never happens again.

Common injuries in the plumbing, gasfitting and drainlaying industry

Injury type	Consequence	Example of how the injury happened
Ear injuries	Number of claims: 410 Injury cost: $316,998 Days lost: 0	“I have had continuous exposure to loud noise in the work environment over the last 20 years, and now have poor hearing and tinnitus.”
Lower back / spine injuries	Number of claims: 401 Injury cost: $706,607 Days lost: 4,819	“I was lifting a toilet pan and had sudden onset of pain in the right side of my back which spread down the right leg as far as the ankle.”
Finger / thumb injuries	Number of claims: 274 Injury cost: $338,516 Days lost: 2,188	“I was pulling iron guttering, the gutter hit in on the right hand, cutting my finger.”
Hand / wrist injuries	Number of claims: 186 Injury cost: $354,635 Days lost: 2,212	“I was putting up spouting at work which caused an old injury to split open on my right hand.”
Knee injuries	Number of claims: 182 Injury cost: $562,767 Days lost: 3,356	“I was walking on a pipe while drainlaying and my left leg slipped and my left knee became trapped between the pipe and the trench.”
Shoulder / clavicle injuries	Number of claims: 167 Injury cost: $793,811 Days lost: 3,672	“I was breaking up concrete on the footpath with a sledge hammer, swinging the hammer back, I had a sudden onset of pain in my shoulder.”

The information in the table above was calculated by ACC using data from 2014.
Note: Because of ‘near misses’ / lack of reporting, incidents within the industry are likely to be much higher.

Roles, Rights, Responsibilities

Everyone at work has a duty to do what they possibly and reasonably can to eliminate or minimise the likelihood of certain consequences (death, injury, or illness) occurring when a person is exposed to a hazard.

There are four duty holders under HSWA:

1. PCBUs
2. Officers
3. Workers, and
4. Other persons at workplaces.

PCBUs

A PCBU is a ‘person conducting a business or undertaking’. While a PCBU may be an individual 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).

A PCBU must do what they possibly and reasonably can to ensure the health and safety of workers (e.g. employees or contractors, including their subcontractors or workers) while they are at work and that other persons are not put at risk by the work of the business.

The primary duty of care is a broad overarching duty. It includes, but is not limited to:

- 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 at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities
- providing any information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking
- monitoring the health of workers and the conditions at the workplace for the purpose of preventing injury or illness of workers arising from the conduct of the business

PCBUs must also maintain any worker accommodation they provide so the worker is not exposed to health and safety risks.

They cannot contract out their duties but can enter reasonable agreements with other PCBUs to meet their duties.

Officers

An officer includes, for example, company directors and chief executives. Officers must exercise due diligence to make sure that the PCBU complies with its health and safety duties.

This means they need to:

- Acquire, and keep up to date, knowledge of work health and safety matters.
- Gain an understanding of the nature of the operations and generally of the hazards and risks associated.
- Ensure that the PCBU has available for use, and uses, appropriate resources and processes to eliminate or minimise risks to health and safety from work carried out.
- Ensure that the PCBU has, and implements, processes for complying with any duty or obligation under HSWA.
- Ensure that the PCBU has appropriate processes for receiving and considering information regarding incidents, hazards, and risks and for responding in a timely way to that information.

Workers

Workers include employees, contractors, subcontractors, labour hire workers, apprentices and trainees, and volunteer workers. Workers have their own health and safety duties.

They must:

- take reasonable care for their own health and safety
- take reasonable care that what they do or do not do does not adversely affect the health and safety of other persons
- co-operate with any reasonable workplace health and safety policy or procedure that has been notified to workers
- comply, so far as reasonably able, with any reasonable instruction given by the PCBU, so that the PCBU can comply with HSWA and regulations.

Backlash from your workmates

Workers should be able to carry out health and safety-related activities or functions without worrying that there may be negative consequences.

All current or prospective workers are protected from discrimination and dismissal by a PCBU for carrying out health and safety-related activities or raising health and safety issues or concerns.

Right of a worker to cease work

A worker can refuse to work, or stop work, if they believe that doing the work would expose them or another person to a serious health or safety risk arising from immediate or imminent exposure to a hazard. A trained health and safety representative (HSR) may direct unsafe work to cease.

The worker needs to tell the PCBU as soon as possible that they have stopped work. The PCBU may direct the worker to carry out alternative work, as long as that work is safe and appropriate, and within the scope of their contract or employment agreement.

Workers can continue to refuse to work if:

- they try to resolve the matter with the PCBU as soon as possible after first refusing to work and
- the matter is not resolved and
- they believe on reasonable grounds that doing the work would put them or another person at a serious health or safety risk (including where they are told by an HSR that this is the case).

Workers cannot refuse work if the nature of the work usually carries understood health and safety risks and these risks have not materially increased.

An HSR, a worker, or the PCBU can ask WorkSafe to assist in resolving any issues relating to a worker stopping or refusing to do work.

Other persons

Other persons at workplaces, including workplace visitors and casual volunteers, need to:

- take reasonable care for their own health and safety
- take reasonable care to ensure that others are not harmed by something they do, or do not do
- comply, as far as they are reasonably able, with the PCBU's reasonable health and safety instructions that are given so that the PCBU can comply with HSWA or regulations.

Other persons need to take reasonable care that anything they do (or do not do) will not cause others harm or they can be held legally responsible.

Activity 6

1. Fill in the missing spaces for each statement below.

   Our statistics show that every year:

   _____ people die on the job, hundreds more are seriously injured, and

   _____ die from work-related diseases.

2. There are new terms to describe different people/entities under HSWA. Write beside each person/entity below, what the new term is.

Business	
Managing Director	
Employee	
Contractor	
Visitor	
Sole Trader	

3. Refer to the chart in the last section (common injuries in the plumbing, gasfitting and drainlaying industry), to choose the correct word to complete the statement below.

   The most days off work were for injuries related to:

   ☐ Ears

   ☐ Fingers/Thumbs

   ☐ Lower Back/Spine

   ☐ Hands/Wrists

   ☐ Knees

   ☐ Shoulders/ clavicle

Check your answers at the back of this study guide

Practical ways of reducing your health and safety risk

The following information will help you to reduce your health and safety risk at work. You should always follow these tips to help keep yourself, your workmates and other people safe at a worksite. More information on all of these topics are available on the WorkSafe website.

Remember that many workplace accidents and injuries may have not only short term, but also long term effects on health, ability to return to work and overall quality of life.

Worksite safety

- Always follow company health and safety policies and instructions, and make sure you are familiar with any hazards present at the site.
- Get / provide training on the potential hazards at the work site.
- Place, stack, or store materials and equipment so they will not cause injury to yourself or other workers. Remove unwanted materials and construction waste from the worksite so that it does not accumulate.

Personal protective equipment (PPE)

- Use appropriate PPE and/or RPE for the task at hand. For example, hard hats, eye protection, face protection, ear protection, knee pads, gloves, breathing apparatus.
- Wear appropriate footwear (safety footwear with toe protection and a non-slip sole).

Workplace practices

- Follow a recommended shift work pattern and make sure you rotate your tasks and take appropriate breaks.
- Avoid awkward body positions and repetitive manual tasks or take frequent breaks.

Lifting

- Use mechanical load shifting devices such as cranes, hoists and hand trucks to move materials around the worksite. Fit temporary lifting points or handles to heavy or awkward loads. Reduce the size and / or weight of the load.
- Learn safe lifting techniques. If you are required to manually lift or carry a heavy object or awkward materials that you cannot safely manage alone, make sure you have adequate help.

Back / spine / shoulder protection

- Avoid working in awkward positions or performing awkward manual tasks which increase the risk of musculoskeletal injuries.
- Avoid overreaching when carrying out your work. This is one of the major contributions to a person overloading shoulder and back muscles.

- Avoid sudden, uncontrolled or jerky movements.
- Use mechanical load shifting devices such as cranes, hoists and hand trucks to move materials around the worksite.

Manual and power tools

- Operate all tools (hand and power) in accordance with instructions e.g. PPE required.
- Cut away from your face and body to avoid cuts and punctures.
- Keep tools and equipment, and their safety features, in good working order. Repair or replace damaged equipment immediately.
- Ensure power tools are properly grounded or double-insulated.
- Be cautious when working on metal pipes - if you feel tingling when touching a metal pipe, stop work immediately.

Hazardous substances

- Hazardous substances that we may come into contact within our industry include lead, sulphur dioxide, asbestos, adhesives, solvents, solder, and other toxic or carcinogenic substances. Buildings constructed before 1990 are likely to contain asbestos-containing materials (ACM).
- Make sure you are familiar with any hazardous substances that are present at a site you are working at, and always follow company health and safety policies and instructions. Material safety data sheets (MSDSs) are a good resource to use.

Biohazards

- Biohazards that we may come into contact within our industry include raw sewage (when working on sewage pipes or septic tank outlets), contaminated soil (when laying new pipes in soil), mould, and potential infection from bird or rodent droppings.
- Make sure you are familiar with any biohazards that are present at a site you are working at and always follow company health and safety policies and instructions.
- Avoid exposure to biohazards by wearing appropriate PPE. For example, gloves, overalls, rubber boots, eye protection.
- When you finish work, wash immediately with antibacterial soap and water.
- Always decontaminate your equipment after use if working at a site where biohazards are present. Soiled work clothes should be sealed in a plastic bag and laundered separately from other clothing.

Working at heights

- Workers in this environment should complete an accredited working at heights course.
- When working at height, always follow company health and safety policies and instructions.
- Use appropriate scaffolding or fall protection and other precautions to help prevent falls. Make sure you have the correct type of ladder for the job.

Activity 7

To follow are some scenarios, followed by a question. Write your answers below the questions, then check the answers at the back of this study guide.

ABC Ltd. Scenario 1

ABC Ltd. has the contract to run, from the house pipework, a new pipe in a short shallow trench and connect to an old large concrete tank that is onsite. This is to be a second water storage supply to the domestic dwelling.

This dwelling is on a small lifestyle block 45 minutes out of town. The owner has stated they think it was an old water tank but they are not sure. The job will require a person to get inside the tank to inspect it and, if required, clean and disinfect it. The tank will also need a new 50mm diameter outlet hole. Two team members Tim and John are to carry out this work.

What actions can be taken to reduce the health and safety risk when carrying out this work?

ABC Ltd. Scenario 2

ABC Ltd. is carrying out the installation of a new ablution block in an old factory. The corrugated iron roof on this building is 10m high at the lowest point. The last part of the job is to install the top section of a vent pipe that is to pass through the roof which is set back 5m from the bottom edge, and to set in place and connect two 45kg LPG cylinders.

What actions can be taken to reduce the health and safety risk when carrying out this work?

Check your answers at the back of this study guide

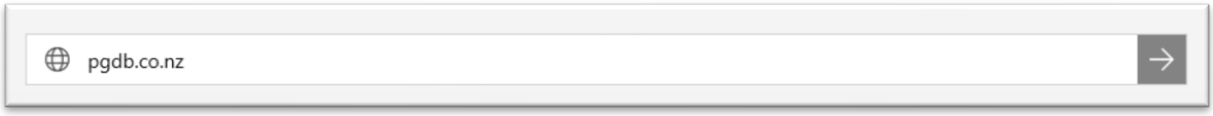
Glossary and websites

Words and terms

ACC	Accident Compensation Corporation
Acts	Laws established under authority by the government
BCA	Building Consent Authority
Codes	Provide a model of how an Act or regulation can be complied with
Gazette	A Gazette is another name for a newsletter, journal, newspaper, etc. In New Zealand a gazette is the official publication of a government organisation or institution to communicate official notifications, and notices. Once published, a gazette becomes a public record.
GSMR	Gas (Safety and Measurement) Regulations 2010
HSWA	Health and Safety at Work Act 2015
Local authority	A local authority means a regional or territorial authority
NZBC	New Zealand Building Code
PGDB	Plumbers, Gasfitters and Drainlayers Board
PDG regs	Plumbers, Gasfitters, and Drainlayers Regulations 2010
Regional council	A regional council is one type of local authority. Some district and city councils also have the powers of regional councils, these are referred to as unitary authorities
Regulations	Support the Acts by going into further detail on how the Act can be complied with
RMA	Resource Management Act 1991
Standards	Provide potential solutions to issues, resolve problems, and provide ways to comply with legislation
Territorial authority (TA)	This is a type of local authority. They are either city or district councils, and there are no differences in the way that they operate
The Board	Plumbers, Gasfitters and Drainlayers Board

Useful websites

Note. You don’t have to put ‘www’ in front of the web address. Just start with the website name as shown below in the browser window and the site will load. Once the page has loaded, use the search box to find what you are looking for.



Skills	skills.org.nz
MySkills	portal.skills.org.nz
Legislation	legislation.govt.nz
The board	pdgb.co.nz
Gazettes	gazette.govt.nz
Building performance	building.govt.nz
Gas industry	gasindustry.co.nz
WorkSafe	worksafe.govt.nz
Resource Management Act	mfe.govt.nz/rma
Standards	standards.govt.nz
ACC	acc.co.nz

Activity answers

Activity 1

1. What are the **two** main reasons for the Plumbers, Gasfitters, and Drainlayers Act 2006?

To protect the health and safety of the public
To make sure people doing the work are registered and licenced

2. Who is responsible for setting the minimum standards for registration of plumbers, gasfitters, or drainlayers?

The Plumbers, Gasfitters, and Drainlayers Board

3. Aside from being registered, what else do you need before you can legally carry out plumbing, gasfitting, or drainlaying work?

A current licence

4. How often do you need to apply for a licence?

Your practicing licence needs to be renewed annually on or before 1 April if you are continuing to work in the trade

5. Does a qualified tradesman need supervising?

Yes

6. What work can a Limited Certificate Trainee do?

They can do sanitary plumbing and/or gasfitting work and/or drainlaying work but a Certifying person must ensure it is done competently

7. How can you prove you are competent in order to become registered as a tradesperson?

   By passing the Board exam and achieving the NZ L4 Certificate for the trade (plumbing, gasfitting, or drainlaying)

8. Who carries out discipline and prosecution for any people who operate in the plumbing, gasfitting, or drainlaying trades without a licence?

   The Board

9. How does the Board communicate official information such as the registration and licencing requirements of plumbers, gasfitters, and drainlayers?

   By issuing a gazette notice

10. What does the Trans-Tasman Mutual Recognition Act mean for a registered plumber, gasfitter, or drainlayer?

    It means they are entitled to practise an equivalent occupation in the other country, without further testing or examination

11. Can the PGD Board accept an anonymous complaint about a tradesperson?

    ☐ Yes

    ☒ *No*

12. What type of complaints can be considered by the PGD Board?

    Conduct that might be a disciplinary offence as set out in section 89 of the Plumbers, Gasfitters, and Drainlayers Act 2006

13. If someone makes a complaint about you, and the Board accepts it, do you have an opportunity to defend yourself?

    ☒ *Yes*

    ☐ No

Activity 2

1. The Plumbing, Gasfitting, and Drainlaying regulations 2010 outline the requirements for gasfitters. Licenced employers must develop and maintain a manual. What are **three** things that need to be included in the manual?

   Any three of:

   - *the gasfitting that will be undertaken under the licence;*
   - *the names of employed gasfitters and the skills and training required in order to carry out each kind of gasfitting;*
   - *the names of employees and their skills and training*
   - *The location and address of their workplace(s) and a contact person for the licence.*
   - *procedures for;*
     - *carrying out, supervising, and monitoring the gasfitting; and*
     - *Investigating and taking action following any injuries or damage when carrying out gasfitting*

2. Under the Gas Act, there are two organisations responsible for regulating the gas industry. Who are these **two** organisations?

   WorkSafe and Gas Industry Company Limited (Gas Industry Co)

3. Name at least **three** people or organisations that the Gas (Safety and Measurement) Regulations 2010 apply to:

   Anyone who designs, or supervises the design of, installs, manufactures, maintains, owns, supplies, sells, hires, or operates a gas distribution system, gas installation or part installation, gas appliance, or fitting

4. If you notice any gas installation or gas appliance that you believe is dangerous to life or property, what are you obliged to do?

   Notify the owner or occupier, and WorkSafe, as soon as you can

5. The purpose of the Building Act is to regulate building work and to set performance standards so that buildings are:

   Safe and healthy, *Escapable*, and *Sustainable.*

Activity 3 and 4

1. **Clause G6/AS1, 1.0.1** Sound transmission through building elements, shall be minimised by using one or more of the following construction techniques:

   Avoidance of rigid service connections (e.g. in plumbing) where.…

   The reticulation passes through noise control building elements separating different occupancies

2. **Clause E3/AS1 3.3.6 Urinals** Impervious wall shall extend horizontally at least … and …

   300 mm beyond each side of the urinal and vertically from floor level to a height of 1500 mm.

3. **Clause E2/AS1, 4.2 Selection of flashing materials** Flashing materials shall take into account the following factors:

   a) The requirements of NZBC Clause B2 Durability

   b) The environment where the building is located

   c) The specific conditions of use, and

   d) Consideration of the surrounding materials

4. **Clauses C1-C6 Protection from fire, C2.2** The maximum surface temperature of combustible building materials close to fixed appliances using controlled combustion and other fixed equipment when operating at their design level must …

   Not exceed 90°C

Activity 5

1. Which Act oversees the management of our air, water, land and soil in Zealand?

   ☒ *Resource Management Act 1991*

   ☐ Conservation Act 1987

   ☐ Reserves Act 1977

   ☐ Public Works Act 1981

2. Who prepares the regional plans for the management of our air, water, land and soil in New Zealand?

   ☐ The Ministry for the Environment

   ☒ *The Regional Council*

   ☐ The District or City Council

   ☐ The local IWI

3. Identify whether the following statements are true or false by crossing out the incorrect answer.

Resource consents only apply to new buildings	***True***	False
Compliance with New Zealand Standards is generally voluntary	True	***False***
If a standard is sited in an Act, regulation or other legislative instrument, it still remains a voluntary option for compliance.	***True***	False
An acceptable solution outlined in a standard becomes mandatory if referenced in a regulation	***True***	False

4. Write the number of the standard that relates to each of the following subjects. Choose from; 3500.1, 3500.2, 3604, 4219, 5601

Standard	**Subject**
4219	Timber-framed buildings
5601	Gas Installations
3500.2	Sanitary plumbing and drainage
3604	Seismic performance of engineering systems in buildings
3500.1	Water services

Activity 6

1. Fill in the missing spaces for each statement below.

   Our statistics show that every year:

   52 people die on the job, hundreds more are seriously injured, and

   600-900 die from work-related diseases.

2. There are new terms to describe different people/entities under HSWA. Write beside each person/entity below, what the new term is.

Business	*PCBU*
Managing Director	*Officer*
Employee	*Worker*
Contractor	*Worker*
Visitor	*Other Person*
Sole Trader	*PCBU*

3. Refer to the chart in the last section (common injuries in the plumbing, gasfitting and drainlaying industry), to choose the correct word to complete the statement below.

   The most days off work were for injuries related to:

   ☐ Ears
   ☐ Fingers/Thumbs
   ☒ *Lower Back/Spine*
   ☐ Hands/Wrists
   ☐ Knees
   ☐ Shoulders/ clavicle

Activity 7

ABC Ltd. Scenario 1

As this is a scenario based question with a range of possible answers, no fixed answer is given. However, typical points to consider could include the following:

- ***Confined spaces:*** *The employer or person responsible for the work should issue a written authority (confined space entry permit), have a trained stand-by person outside the confined space to monitor safety. Monitor and maintain control measures (air testing for changes). If conditions change, evacuate the confined space.*
- ***PPE/RPE:*** *Use appropriate PPE for the task at hand. For example, hard hats, eye protection, face protection, gloves, footwear. Select appropriate breathing apparatus if necessary.*
- ***Tools:*** *Only use power tools that are safe for a wet environment with a residual-current device (RCD) / residual-current circuit breaker (RCCB). Suitable training should be provided so the person using power tools e.g. to drill the hole in the concrete tank is competent to do so.*

- ***Contaminants/Biohazards:*** *Test the atmosphere for toxic and combustible contaminants. Test the atmosphere for oxygen. Make sure you are familiar with any biohazards that are present at a site you are working at.*
- *Never eat or drink while working in a potentially contaminated area. Always wash your hands before meals.*
- *Avoid exposure to biohazards by wearing appropriate PPE. For example, gloves, overalls, rubber boots, eye protection.*
- *Always decontaminate your equipment after use if working at a site where biohazards are present. When you finish work, wash immediately with antibacterial soap and water. Change out of work clothes before leaving the work site.*

ABC Ltd. Scenario 2

As this is a scenario based question with a range of possible answers, no fixed answer is given. However, typical points to consider could include the following:

- ***Working at heights:*** *Can the hazard of working at height be eliminated?*
- *Can the hazard of working at height be isolated? For example, use of edge protection / can work be done from a suitable scaffold or a mobile elevated platform?*
- *Can the distance and impact of the fall be minimised? Could use equipment such as total restraint harness system, fall arrest system, nets or air bags.*
- *Ensure access is safe by having a secure, stable and suitable ladder.*
- ***Lifting heavy objects:*** *Use mechanical load shifting devices such as cranes, hoists and hand trucks to move materials around the worksite.*
- *Learn safe lifting techniques. Fit temporary lifting points or handles to heavy or awkward loads. Make sure you have adequate help.*
- *Reduce the size and / or weight of the load if possible.*

Got questions?

If you have any questions, please contact your assessor directly.

www.skills.org.nz