

National Certificate in Building, Construction, and Allied Trades Skills (BCATS)

**Demonstrate knowledge of the
carpentry industry within a
BCATS environment**

Unit Standard – 25319

Level 2, Credit 2

Name: _____





What you need to do

By the end of this module, you should be able to demonstrate knowledge of the carpentry industry covering:

- major industry sectors
- industry work processes
- industry clients, supply and inter-trade relationships
- the impact of regulatory and trade bodies on the industry and
- industry jobs and their training requirements.

How you will be assessed

Your teacher/tutor will give you a worksheet that you need to complete, which your teacher/tutor will mark.

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Glossary of Terms

Term	Meaning
Apprentice	A person who works for another under a legal agreement in return for instruction in a trade, art or business.
Building code	Prescribes the functional and performance criteria requirements which buildings must comply with.
Building consent	The formal document issued by a Building Consent Authority, confirming that a proposed construction project complies with the building code and allows the specific project to proceed.
Building work	All work relating to the construction, alteration, demolition or removal of a building.
CGL (cleared ground level)	The height of the ground after the clearance of all vegetation etc.
Code compliance certificate	A certificate issued by a building consent authority confirming that the completed building complies with the building consent.
Competent	The ability to complete a task when measured against a set standard
Datum	A permanent and defined point from which can be used as a reference to establish levels on a building site.
DPC (damp proof course)	A horizontal moisture barrier which prevents moisture rising into a structure through capillary action.
Industry bodies	Organisations that play a role within an industry in a regulatory, support or advisory capacity. This includes regulatory bodies, industry training organisations and trade or professional associations.
ITO (Industry Training Organisation)	A tertiary education organisation which develops qualifications and arranges training for a specific industry.
Licensed building practitioner	A person who has demonstrated that they have met the standards for licensing and registered to carry out restricted building work.
Regulation	An official rule, law or order stating what may or may not be done or the way something must be done.
Regulatory body	An official group set up to organise and control an activity or process by making it subject to rules or laws.
Restricted work	Any building work, which requires a building consent and relates to an element of the building envelope that is critical to the integrity of the building and the health and safety of its occupants.

Introduction

The carpentry industry covers many different construction methods and occupations.

Carpenters can construct, erect, install, repair and maintain structures and fixtures made from timber, steel and other materials.

Carpenters must also be able to read, interpret and communicate clearly, the detailed information from plans, specifications and technical information relating to wide range construction products and materials.

In New Zealand the building industry comprises of three major sectors:

- Residential
- Commercial
- Maintenance

Residential building

The residential trade sector is primarily centred on the construction of single and multi storey houses, flats and additions to existing buildings. These can be built in a wide range of shapes and sizes.

In New Zealand modern house construction is generally carried out using the light timber frame construction method, reflecting the availability of a large resource of plantation grown timber.

The light timber frame construction method is a building technique based on a stable structural timber frame - or alternatively using a light gauge steel frame - to which a range of exterior, interior wall and roof coverings are attached.

Other residential construction methods include:

- **Solid Timber** – A system which usually consists of a single or double layer of solid timber.
- **Straw bale** – A method using baled straw as the main material for the walls.
- **Rammed earth** – A technique which uses a compacting a mixture of cement and moist earth into formwork to produce a solid wall.

Commercial building

The commercial building sector is made up of all non-residential type construction including:

- High-rise apartment or office buildings
- Schools
- Hospitals
- Bridges

In New Zealand commercial building provides particular design and structural challenges for designers and builders because of the relatively high possibility of a major earthquake.

Building maintenance

The on-going maintenance of a building may require a carpenter to carry many different tasks. The principles of good building practice that apply to the construction of new buildings will also apply to the maintenance of buildings.

Older houses in particular may be constructed quite differently from modern homes and the materials and construction techniques used are often not those used today. They may not comply with modern building standards and code requirements; therefore the maintenance work will require the expertise of a suitably qualified carpenter in order to bring it up to code compliance.

To support the maintenance carpenter, various other services and trades such as plumbers and electricians may be required to assist in a maintenance project.

Work Processes

The successful completion of any building project will require careful preparation, planning and attention to detail before any on site work can be started.

Building consent

All building work in New Zealand must comply with the Building Act 2004.

Building Consent Authorities (BCA) have the responsibility for the administration of the Building Code within its geographical area. The BCA (usually a city or Regional Council) will only issue a Building Consent for work that complies with the building code.

A building consent is also required to alter, demolish or move an existing building.

Plans and specifications

Plans and specifications are the principal means of communication between all parties involved in a building project and are required to:

- show compliance with the functional and performance requirements of the building code so that a building consent can be issued.
- allow all building work to be correctly constructed and form part of the contractual agreement between the owner and the builder.
- allow all aspects of the work to be accurately priced.

Working drawings

To obtain a Building Consent the working drawings must include:

- Site Plans will indicate the correct position of the land boundaries, any existing buildings, site datum and levels and all other relevant information.
- Foundation Plans show the size and position of the concrete footings and the location of concrete or wooden piles.
- Floor Plans are drawings, usually to scale, showing the sizes of rooms, spaces and other physical features on one level of a building.
- Dimensions are usually drawn to indicate room sizes, wall lengths and door and window sizes. Floor plans will also include details of fixtures like sinks, hot water cylinders and symbols for electrical items.
- External wall elevations indicate relative heights of a building including positions and heights of doors and windows.
- A cross-sectional view is a common method of showing the internal construction details and their relative positions of a building from the base of the foundation through to the apex of the roof.

Specifications

Specifications are the detailed written instructions which complement the working drawings and contain the specific details of work to be done and the materials to be used in the construction of a building.

Site preparation

Site preparation is the work necessary to be carried out before the building is set out.

The carpenter's first step in the construction of any building is to ensure that it is to be built on the correct land or section. To do this the pegs defining the actual land area will need to be located using the information on the site plan.

These pegs are usually called boundary or survey pegs, are accurately surveyed, and positioned where there is any change in direction in the boundary lines, which define the area of land.

Once the boundary lines have been established the carpenter will locate the approximate position of the building and have that area cleared of all vegetation.

Before any construction work can begin there are a number of operational matters a carpenter will need to consider.

These include:

- suitable access to the site
- temporary telephone or cell phone service
- toilet and washing facilities
- a water supply
- a temporary power supply
- health and safety issues
- location of any existing underground services
- security fencing
- protection for adjoining properties.

Setting out

A carpenter will find the information relating to the set out in the working drawings and the specifications.

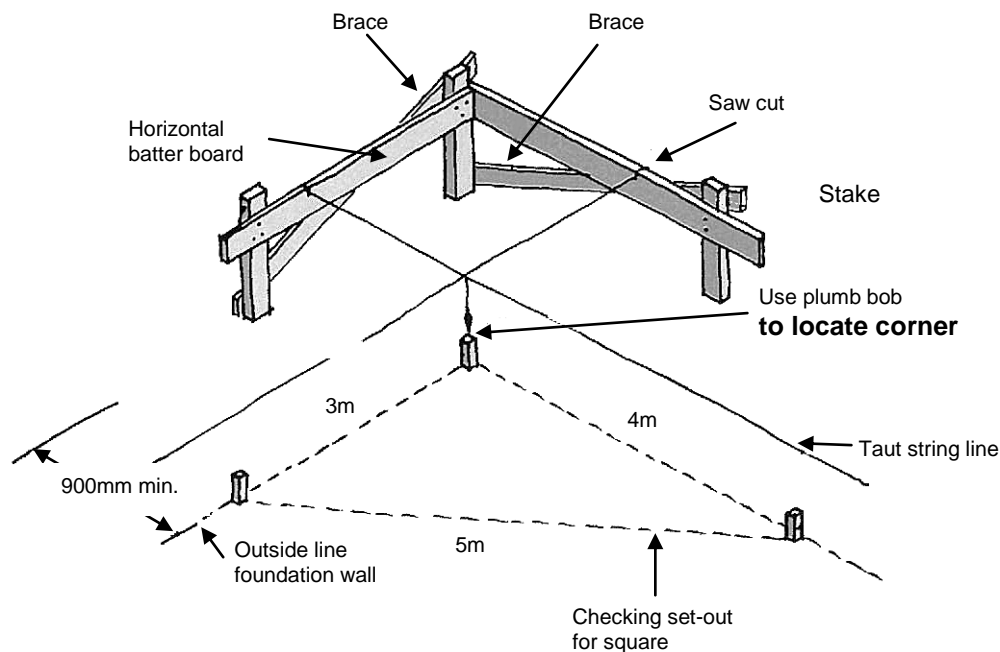
The first important step in the erection of a building is to ensure that the foundation is located accurately on the correct building site.

When setting out any building a carpenter will use four main processes.

- positioning a line representing the front or longest side of the building;
- locating the exact position of the corners at each end of that line;
- setting out the two adjacent lines at right angles to the first line; and
- finding the location of all other lines usually at right angles or parallel to the first line.

Building profiles

Once the position of the building has been located, the carpenter will erect temporary structures or profiles. The purpose of these is to support the building lines once the required levels have been established.



Levelling

Levelling is the process which determines the vertical heights of the building foundation and is established from a permanent mark called a datum.

It is extremely important for the carpenter to ensure that the levelling process is carried out accurately because any inconsistencies in the level of a building foundation can have serious construction and financial consequences as the building progresses.

For small jobs, such as a garden shed, the levels can be determined with a spirit level and a straight edge. For larger jobs, the carpenter will need to use a more accurate method such as a telescope level or a laser level.

Foundations

The foundation is the substructure which supports a building and transmits static structural loads and external environmental forces from the building into solid ground.

The foundation is one of the most important structural elements of a building.

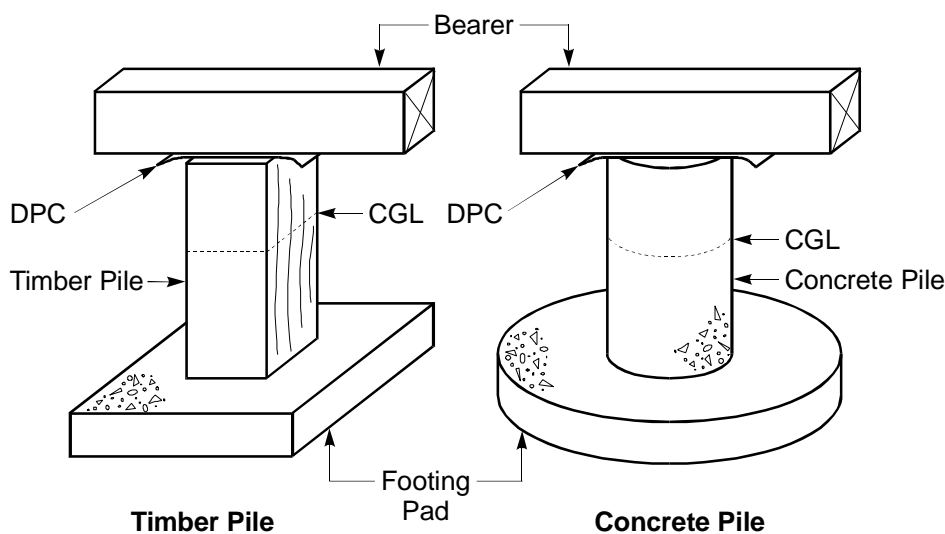
Foundations in general can be identified as one of four common types:

- pile only
- continuous reinforced concrete external walls with internal piles
- reinforced concrete corner walls with both internal and intermediate external piles
- concrete slab floors

The type of foundation to be constructed will depend on a range of economic, environmental and design factors.

Pile foundations

A pile foundation consists of a series of concrete or timber columns set firmly in the ground and designed to resist both static and environmental loadings that may be applied to it. To achieve this there is a range of different types of piles available specifically designed to meet specific bracing requirements.



The carpenter is responsible for ensuring that the appropriate type of pile is selected and correctly set in place according to information obtained from the plans and specifications.

Reinforced concrete external walls

A reinforced concrete foundation usually consists of two separate parts, the footing and the foundation wall.

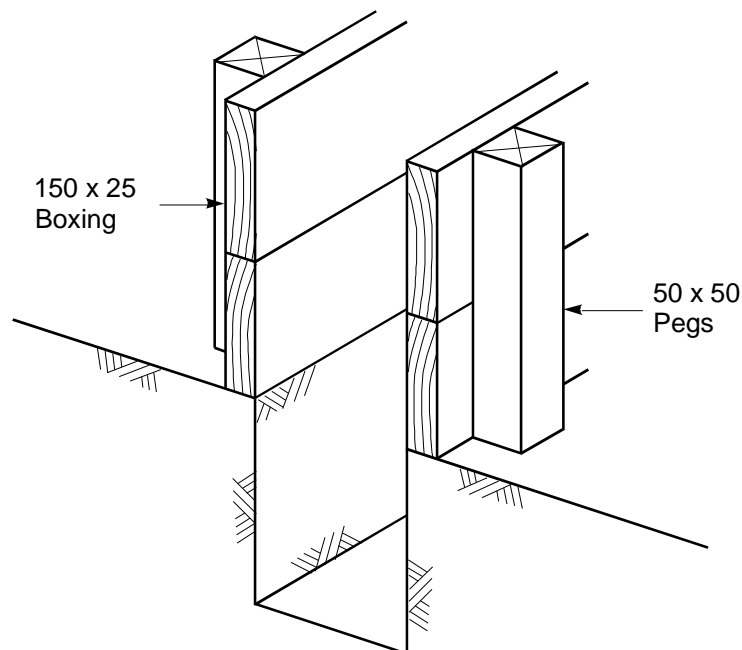
- The footing is the lower and wider part of the foundation wall which transfers the loads and forces imposed on a building into the ground below.
- The foundation wall is the narrower section on which the building is constructed.

Once the position of the building has been established, a carpenter will excavate the footings either manually or using mechanical means. The excavated material can either be stockpiled on site for future use or transported to a suitable disposal area.

A carpenter is responsible for the construction of the formwork which will contain the wet concrete and ensuring that it will:

- support the expected loading placed on it
- be easy to erect and dismantle
- remain rigid and straight while and after the concrete is placed

Concrete in its plastic state can be moulded into almost any desired shape. It is therefore important that any temporary formwork is strong enough to support the combined weight of the steel reinforcing and wet concrete and any other loadings that may be applied to it.



Floor framing

Sub floor timber framing is the timber members above the foundation which will support the timber flooring.

The carpenter is responsible for the construction of the sub floor framing to the requirements identified in the plans and specifications.

The selection of the construction method for the sub floor system for any building will depend on a range of environmental and design factors including:

- the layout of the structure above the floor and the predicted loading
- potential environmental loads such as wind, snow and earthquakes
- the sub floor bracing requirements
- the minimum sub floor clearance, access and ventilation requirements

It is important that care is taken when constructing the sub floor framing to ensure that:

- there is adequate cross floor ventilation to allow moisture to escape. Dampness can distort and lead to the failure of flooring supports and damage to floor coverings.
- the finished floor is level, clean, dry and smooth as possible as any imperfections will be visible once the floor coverings have been laid.

Wall framing

Wall framing is the basic skeleton of the building and performs a number of important roles including:

- providing support for the roof structure
- transferring both the vertical and horizontal forces through to the foundations
- providing a true surface to fix both the external cladding and internal lining materials
- providing a cavity to support the wall insulation
- allowing concealed access for services such as electrical, plumbing, telephone etc
- providing support for doors and windows

Wall framing has many different roles and is almost inaccessible once the building has been completed.

Therefore, before the framing process is started, it will be extremely important for a carpenter to read carefully and fully understand the plans and specifications for the building. This will ensure that the construction methods, bracing requirements and the selection of materials to be used are of a standard that will meet the demands that will be placed on them.

Once the frames have been set out and erected, each corner of the building will need to be plumbed and the walls straightened.

Any failure or imperfections in the framing components can be difficult and extremely costly to repair once the building has been completed and decorated.

Roof framing

There are two main methods of roof construction:

- roof truss construction and
- pitched roof construction.

Truss Roofs

Most modern residential roofs will be built using commercially manufactured truss construction,

Trusses are triangular roof structures which have been specifically designed to be framed together to form a light, strong rigid structure.

The principle of truss construction is triangulation. This means that each truss is divided up into a series of triangles which transfer static and environmental forces through the load bearing walls to the buildings foundations.

The individual components of a standard truss are held together with proprietary nail plates and assembled in a mechanical press.

Trusses are specifically designed for each individual building to meet the expected environmental loads such as:

- Wind
- Snow
- Roof cladding loading.
- Rain
- Earthquakes

Truss Installation

All roof trusses are designed and manufactured to precise engineering standards to meet the requirements of a specific building.

To ensure that roof trusses perform as designed, it is essential that they be handled, erected and braced correctly.

When the trusses arrive at the building site, the carpenter will be required to inspect the trusses and any damage reported to the manufacturer.

If the trusses need to be stored for an extended period of time, it is important that they be stored in a flat position, clear of the ground and protected from the weather.

Using the truss layout drawing as a guide the carpenter will need to mark the truss positions on the top wall plate.

Before locating the trusses in position the carpenter will also need to check that the supporting load bearing framing and install reinforcing where necessary.

Once in position, the trusses will need to be temporarily braced in a vertical position. The purpose of this bracing is to hold the trusses straight and plumb until the permanent bracing is fixed in position.

Pitched Roof Construction

This method of roof construction will often require a carpenter to calculate the lengths and cuts of the rafters and other roof framing members

The right angled triangle is the basis of all roof geometry and it is important and necessary for a carpenter to correctly identify each right angled triangle in a specific roof.

To calculate the true lengths of the rafters, the angles of the rafter cuts and the lengths of other roofing members, the carpenter will need a sound knowledge of roof geometry.

When the framing members have been set out and accurately cut to length, the carpenter will assemble the roof framing using the pre-determined positions on the top plate of the wall framing.

Once in position, the complete roof structure will need to be braced with both internal timber bracing and diagonal galvanised strap bracing across the roof plane. The purpose of this bracing is to hold the roof structure firmly in position and to resist external environmental forces.

Exterior cladding

Exterior wall claddings provide a weathertight shield that protects the structural components and the interior of a building from the elements.

They also provide security and comfort for the people living inside and have a major influence on the final appearance of the building.

The Building Act 2004 requires that all buildings must be designed and constructed to prevent the penetration or accumulation of moisture. Methods of construction and the durability of the cladding materials must meet the requirements of the Building Code.

The failure of the building envelope to prevent the penetration of water can have serious and costly consequences not only to the structure of the building but also through serious long term health risks to the occupants.

There is a wide range of external wall claddings available in New Zealand. While most of them provide excellent protection against the weather, not all are effective against noise incursion and extremes of temperature.

The various types of wall cladding materials available include:

- timber
- fibre cement
- vinyl
- metal
- plaster

Before the cladding is fixed a breather type building paper or synthetic wrap is fixed to the wall framing. This underlay reduces air movement and the risk of moisture passing into the wall framing and internal linings.

As all cladding materials have the potential to leak it is vital that the manufactures installation instructions are followed carefully to ensure long term weather-tightness of the building.

Interior linings

Interior wall linings provide a backdrop to everyday living where surfaces can be decorated to look attractive but also kept clean and hygienic.

While the internal walls of most new residential buildings will be lined with plasterboard there are a wide range of alternative materials available, each with its particular properties and requirements.

Regardless of the lining material, the first step in achieving a quality finish is the careful attention to the construction of the support framing. There are a number of key pre-lining checks which need to be done prior to the installation process:

- All framing members are checked for straight and true, both horizontally and vertical.
- The building is weathertight
- All internal wiring is installed (electrical, telephone, television etc)
- All plumbing located within the walls is completed and tested
- Insulation is correctly installed
- Check that the preparation work of all trades is of a sufficient quality not to compromise the completed work.
- The moisture content of the wall framing meets the manufacturer's requirements.

Building Consent Authorities are required to conduct a pre-lining inspection before approval to install the linings is given.

The installation process

Interior linings can be fixed to the framing by using:

- screws
- adhesive
- nails
- a combination of screws and adhesive or nails and adhesive
- proprietary fasteners

The project plans and specifications will identify the product type, structural requirements, fixing methods and surface finish. When fixing linings it is important to use and follow the manufacturers' current detailed fixing instructions as there are significant differences between the types of material and their specific installation requirements

The cost of repairing poor quality lining work can be many times the cost of preventing it, it is important to follow the manufacturer's instructions and recommendations.

Finishing

Once the lining material has fixed the joints between the sheets of some materials such as plasterboard can be filled to provide a flat surface ready for decorating. Flush stopping is an operation normally carried out by a specialist tradesperson to the requirements and standard identified in the project plans and specifications.

Joinery installation

Both exterior and interior joinery units have important roles to play in any building. External doors and windows provide the necessary protection from the weather and security from unwanted visitors while allowing adequate light, access and ventilation for the people who live in or use the building.

Most exterior doors and windows are assembled, fitted with the correct amount of clearance, squared and hinged before leaving the joinery factory.

After checking that the opening size is correct, the carpenter will remove the door from the frame and temporarily fix the frame in position with the inside of the door jambs flush with the interior linings and the hinge jamb plumb.

The door can then be fitted back into the frame, the clearances checked and the assembly permanently fixed in position.

External windows can be positioned in their respective openings but it is not necessary to remove the sashes from the frames. The frame must be positioned level and flush with the interior linings. The window is then fixed permanently with nails and with packing blocks between the jamb and the opening studs.

Modern interior joinery is usually prefabricated by professional joiners and cabinet makers from the details in the project plans and specifications.

The interior joinery can be installed either by the on-site carpenter or the manufacturer of the units.

 **Client Base****Subcontractors**

A **subcontractor** is a tradesperson, company or business contracted by the main contractor to do specialised work such as plumbing, electrical wiring or painting as part of an overall project.

The subcontractor will take instructions from, is paid by and is responsible to the main contractor and in turn to their on-site representative.

Subcontractors, in many cases, restrict their work to the same companies rather than with a number of different ones. This not only provides a continuity of work for the subcontractor but also an established relationship between both parties based on the quality of work.

The main reasons the main contractor will engage subcontractors is:

- to reduce costs by using the tendering process to obtain the best price to complete the work
- that main contractor does not employ the specialised people who have to carry out the work
- to minimise the risk of the product failure and the associated costs involved to remedy the problem.

Direct to client

Many carpenters have clients who aren't "in the trade" but who choose to manage the building process themselves and engage directly with the trades or professions whose skills they need to hire.

In this situation, they are working directly for the client and will take instructions from, be paid by, and responsible to them.

For example, a homeowner is renovating their kitchen and employs a local carpenter to coordinate the work. The two parties agree on the supply of materials the method of payment, the timing of the job and any subcontractors that may be required. From the beginning of the project through to its completion, the carpenter will continue to work directly with the homeowner as the client on all matters relating to the renovation.

Supply Relationships

Trade accounts

The type of account used by a building contractor or individual carpenter will largely depend on the nature of their operations.

However, the most common type of account operated by these people is a trade account. This is where a manufacturer or supply merchant agrees to sell trade goods to approved customers on the basis that the customer promises to repay on or before a stipulated date in the future.

(Generally, the 20th of the month following invoice.)

This will provide their customers access to a wide range of quality building and hardware products at competitive prices.

A trade account allows a building contractor to obtain materials without having the money up-front – therefore benefiting from the credit given to them by the supply company. Suppliers also benefit by selling more of the products they supply compared to the same or similar products that may be supplied by their competitors.

Realistically, the relationship has to be mutually beneficial for it to work and requires both the contractor and the supplier to work together to ensure that they both get the maximum benefit from the arrangement.

Trade discounts

Most suppliers reward their loyal customers with a discount – and this is certainly true of those suppliers to the construction industry. From a supplier perspective, they want repeat business and the ability to sell larger quantities than the average retail shopper might buy.

Trade discounts are usually expressed as a percentage of the retail price and will vary depending on the type of product and quantity ordered. For example, with a 10% trade discount, goods worth \$100 would be reduced to \$90.

There is no guarantee that the trade-discounted price will always beat “specials” or other discounts that may be available from time to time on standard retail stock.

Manufacturers guarantee systems

A guarantee is a written assurance by manufacturer or vendor that their goods or services meet a certain standard of quality and durability.

- Sometimes the manufacturer guarantees only their products/systems to be **manufactured** to a specific quality level.
- Sometimes the manufacturer also guarantees the use of their products/systems in their **installed state** by a contractor whose work they are prepared to stand behind.

Either way, manufacturers will have a vested interest to ensure their good name remains at the forefront of people's minds.

In New Zealand, the Consumer Guarantees Act protects consumers. This Act of Parliament sets out the guarantees that goods and services must meet when they are sold or provided and gives consumers rights when faulty goods are purchased or the work paid for is not completed to an acceptable standard.

Accredited supply networks

Many manufacturers and suppliers to the construction industry have accredited supply networks whereby a manufacturer or supplier of products and systems is prepared to stand by certain contractors work provided they satisfy the manufacturer's accreditation criteria.

There are no set criteria when it comes to the various accredited supply networks of the different manufacturers associated with the construction industry, but mostly they develop long-term relationships with those contractors who have a good standing in the industry and are known for the quality of their work.

An accredited supply network will ensure that transportation, storage and installation of their products will comply with the manufacturers specific quality control systems.

Product training

Modern construction methods and products have become more complex and require specialist knowledge and skills in order to ensure that the finished job meets the required quality standard.

Most manufacturers will have a vested interest to ensure their products and systems are installed correctly. Many larger companies offer technical training (often free) on the use of their products and systems to ensure that they are used and installed the way they were designed to be.

This training is often delivered by the manufacturers specialist technical training team or alternatively by sales representatives who provide training as a part of their role. In some larger projects, in-house engineers and designers will also be involved in training, although this is generally limited to designers and specifiers within the construction industry who want to incorporate the manufacturer's products and systems in the buildings they are creating.

Relationships with other Trades

The successful completion of any modern construction project, large or small, relies on bringing together people with a wide range skills and expertise together with good organisation, quality control, coordination and clear lines of communication. All trades have a duty of care to respect and avoid damage to the work of other trades that have preceded them.

The responsibility for organising and coordinating all construction operations for the project will usually rest with the main contractor, who may in turn delegate to the Project Manager or Foreman Carpenter. For larger projects, there will be a team of people in overseeing roles, and for smaller jobs it may just be the builder themselves.

The complex task of planning and organising the various construction trades relies on the cooperation of all the various construction trades working on the project. This will also include material suppliers and other companies and individuals associated with the project.

Example- For a typical residential project the Carpenter will have to have completed all set out and boxing prior to a concrete placer pouring the concrete floor (pad). But, also, the plumber will have to have placed their sub-floor pipes. Further, plumbers often supply metal flashings for exterior joinery and, of course, these will have to be onsite prior to fixing the exterior joinery. When the plumber returns to “plumb out”, the frames will have to have been erected but prior to the internal linings being fitted. A plumber may have to get the carpenter to fix a few mounting blocks or brackets in the frames to support taps, shower heads etc. Thus there is a great deal to inter-trade cooperation and timing required for a successful project.

Activities and responsibilities for other trades (sub-contractors) on a construction site will vary from project to project depending on the type of work under construction. To ensure a quality job, regular quality checks need to be carried out throughout the building programme to ensure the required quality is maintained. The findings from these checks must be communicated in writing to the respective contractor so that any non-compliance issues can be promptly remedied.

On site carpenters may from time to time be required to provide their construction skills to assist sub trades with the installation of solid fixing for their product, materials or services.

It is important that all subcontractors are kept fully informed of the progress being achieved and their role in the overall smooth running of the project. All contractors, material suppliers and other interested parties must also be aware of their individual responsibilities and requirements so that any delay or overruns in providing their services are communicated and where possible eliminated.

Construction sites can be extremely dangerous places, so a carpenter’s role may also include the overall responsibility for the development, management and coordination of Health and Safety procedures.

Requirements of Industry Bodies

Construction work in New Zealand is primarily governed by the following legislation:

- The Building Act 2004
- The Building Regulations (which includes the Building Code)

This Act describes what is covered by building controls and sets down the law for building work in New Zealand.

All new building work must comply with the Building Code. Its purpose is to ensure that buildings are safe and healthy for the people who use them and identifies the minimum requirements to be met to guarantee this.

Regulatory bodies

There are a number of government departments which are charged with the administration and compliance of the legislative controls for the building industry.

Ministry of Business, Innovation and Employment (MBIE)

MBIE is responsible for the functions that used to be done by many other departments, including the Department of Labour and the Department of Building and Housing.

The Ministry is responsible for administering many Acts of Parliament that relate to the construction industry, such as:

- Building Act 2004
- Construction Contracts Act 2002
- Fencing of Swimming Pools Act 1987
- Plumbers, Gasfitters, and Drainlayers Act 2006
- Weathertight Homes Resolution Services Act 2006
- Consumer Guarantees Act 1993
- Employment Relations Act 2000
- Minimum Wage Act 1983
- Holidays Act 2003
- Health and Safety at Work Act 2015

MBIE is also responsible for occupational licencing. Occupational licensing aims to ensure that people in the building industry who are responsible for the work done are competent and accountable so that homes and buildings are designed and built right the first time. The main occupational licensing that impacts on the carpentry trade is the Licensed Building Practitioners scheme. The Building Practitioners Board is closely related to the scheme.

Licensed Building Practitioners Scheme

The Licensed Building Practitioners Scheme was introduced in November 2007. There are a range of license classes covering carpenters, site supervisors, construction managers, designers and architects. There are also a number of specialist license classes for other trade areas including external plastering, roofing, brick and block laying.

Carpenters need to be a licensed building practitioner to carry out or supervise certain restricted building work on homes and buildings. Restricted building work is work that by its nature is important to the building, is complex to do, needs to be done right, and must therefore be done by a competent person.

This means a license holder will be responsible for ensuring all work on the project complies with the Building Code, and required to sign-off each stage as it is completed.

Building Practitioners Board

The Building Practitioners Board plays a key role in the Licensed Building Practitioner Scheme.

The Board's role is to:

- recommend to the Minister for approval, rules relating to licensed building practitioners, including license standards,
- consider appeals against decisions made by the Registrar
- hear complaints about licensed building practitioners.

WorkSafe New Zealand (WorkSafe)

WorkSafe is the work health and safety regulator and is responsible for implementing the Health and Safety at Work Act 2015.

WorkSafe's functions include:

- Monitoring and enforcing compliance with work health and safety legislation
- Providing guidance, advice and information on work health and safety
- Fostering a co-operative and consultative relationship between the people who have health and safety duties and the persons to whom they owe those duties and their representatives.
- Collecting, analysing and publishing statistics and other information relating to work health and safety.

Regulatory Agencies

Building Consent Authorities

A Building Consent Authority (BCA) is an organisation or individual accredited to administer building control functions which is most commonly done by Territorial Authorities (local authorities or councils).

All building work in New Zealand is governed by The Building Act 2004 and must comply with the building code.

The purpose of the Building Act is to provide for the regulation of building work, the establishment of a licensing regime for builders and setting of performance standards for buildings.

BCAs administer the requirements of the Building Code and ensure that all construction work complies with the Code.

Using the working drawings and specifications, BCA's are required to check the details of the proposed project for compliance with the Building Code. Once the documents have been approved, a Building Consent is issued to allow construction work to start. Once the project is underway, there are a number of specific stages during the construction process where inspections are required. This is shown in the table below.

What the BCA does	When	What they are checking
Issue building consents	Before any building work can start	The details shown on the working drawings and specifications comply with the Building Code
Carry out inspections	At specific stages during the construction process	Checking that foundations, framing, insulation, lining, bracing, weather tightness, plumbing, roofing and electrical work complies with the Building Code
Issues Code Compliance Certificate	When the building is completed	Verifies that all aspects of the project are in accordance with the specific building consent and meet the requirements of the Building Code.

Building Research Association of New Zealand (BRANZ)

BRANZ is an independent and impartial research, testing, consulting and information company providing services and resources for the building industry.

Their two main areas of activity are to:

- research and investigate the construction and design of buildings that impact the built environment in New Zealand
- enable the transfer of knowledge from the research community into the commercial building and construction industry.

Their core purpose is to improve people's lives through research and to inform, educate and motivate those who shape the built environment.

BRANZ produce a wide range of publications that translate building-related research into practical, useable information about trends and best practice, making it accessible to the wider construction industry.

These include:

- Build Magazine. A bi-monthly magazine for the Building and Construction Industry.
- BRANZ House Building Guide. A manual which contains practical guidelines for good house building.
- Good Practice Guides (GPG). A comprehensive series of informative publications relating to key aspects of the construction process. They include titles such as *Selecting timber*, *Concrete floors and basements*, *Interior linings*, and many others.

Standards New Zealand

Standards New Zealand is the operating arm of the Standards Council, an autonomous Crown entity operating under the Standards Act 1988.

The Standards Council is the governing body for Standards New Zealand.

What is a Standard?

Standards are agreed specifications for products, processes, services, or performance.

A diverse range of organisations and trades use New Zealand Standards to enhance their products and services, improve safety and quality, and meet industry best practice.

What are Standards for?

- Standards help to keep homes, buildings, playgrounds, and health services safe. They help to prevent accidents and injuries in a broad range of areas.
- Standards minimise the impact of potential disasters such as earthquakes, or fires and electrical hazards, and also improve the quality of goods and services. They help to protect the environment, boost our country's economic growth and enhance our trade opportunities.

The most important NZS for the residential construction industry is NZS3604:1994 with the two Amendments A1 and A2.

Trade Associations

There are two major trade associations which represent builders in New Zealand. They are:

- Registered Master Builders Association of New Zealand and
- New Zealand Certified Builders Association

Registered Master Builders

Registered Master Builders, formed in 1892, is a membership organisation representing a significant part of New Zealand's building and construction community.

The membership entry requires builders to meet a broad range of criteria around qualifications, period of service, references and the financial stability of the business.

Certified Builders

The New Zealand Certified Builders Association of Inc. (CBANZ) was established in 1998 to recognise and promote qualified builders.

The fundamental aim of the Association is to promote the skill of its members, establishing a clearly identifiable level of competence, consistency and excellence for the building public and the profession.

Job Roles and Training

Carpenter

A carpenter (or chippie as they are sometimes called) is a skilled person who performs a wide range work operations involved in the construction of buildings.

The work generally involves a significant amount of manual labour and outdoor work.

To become a qualified carpenter, people in New Zealand can gain the National Certificate in Carpentry by completing a formal apprenticeship. This usually takes between three and five years to complete depending on previous experience and personal motivation.

Once qualified as a carpenter there are a variety of career paths to choose from.

Career options include:

- Specialising in residential (housing) or commercial construction.
- Working for a large construction company.
- Starting up in business as a sole trader

Labourer

A labourer is usually the least qualified person in the construction trade. They do most of the general basic unskilled manual work around a building site such as digging, lifting, loading and unloading.

There is no formal qualification required to be a labourer however a person with a good record of on-site experience can be a valuable asset to a construction company. It may also lead to an opportunity to do a carpentry apprenticeship.

Apprentice

An apprentice is a person who has signed into a Training Agreement with an employer to learn the range of knowledge, skills, and competencies that are required for a career in the construction industry.

Qualified carpenters have completed a carpentry apprenticeship and been awarded a National Certificate of Carpentry (Level 4). This is a comprehensive certificate that gives apprentices experience in all aspects of the industry. There are choices for those that wish to follow residential or commercial construction.

During this period an apprentice will receive on the job training and be assessed for a range of theory and practical construction work. Apprenticeships are "competency based" which is all about demonstrating the ability (both in terms of knowledge and skill) to complete a range of tasks to a recognised industry standard.

A National Certificate in Carpentry will usually take 3 to 5 years to complete depending on previous experience, and personal commitment.

Construction Foreman – Leading hand or supervisor

A construction foreman is usually a carpenter with many years of experience and specialist knowledge who is in charged with the day to day organisation of construction gang generally made up of carpenters and labourers.

The National Certificate in Construction Trades (Supervisor) (Level 4) is designed to recognise the skills and knowledge required to be a supervisor in the construction industry. This qualification is for people already working as a construction supervisor, or for people who want to move into the role.

Construction Project Manager

On larger constructions, the project manager (also known as the main contract supervisor) is the person responsible for the planning, execution and the completion of a project on time and within budget. The National Certificate in Construction Trades (Main Contract Supervision) (Level 5) is designed to recognise the skills and knowledge required to be the main construction supervisor. The qualification is for people already working as a main contract supervisor, or for people who want to move into the role. The project manager is considered the main contract supervisor because they are responsible for negotiating and liaising with a wide range of people and agencies involved in the construction of the project including:

- clients,
- architects
- Building Consent Authorities
- contractors and subcontractors
- other trades
- engineers

They will also be responsible for coordinating all work on site to ensure the smooth running of the project and dealing with the necessary paper work.

Construction management

The National Diploma in Construction Management is designed to provide people with the skills and knowledge required by the industry to become a successful construction manager.

Construction Management is a totally theory based qualification. There is only one option available for those wishing to do construction management training and that is to complete the qualification through one of the Polytechnics accredited to deliver the programme.

Industry Training Organisations

Industry training organisations (ITOs) set the skill standards and arrange training for people employed in the industries the ITO is responsible for. Almost all apprentices in New Zealand are enrolled with an ITO.

The ITO that serves the construction sector is the Building and Construction industry Training Organisation (**BCITO**). Aside from as carpentry, the BCITO is the ITO that serves:

- Interior Systems
- Flooring
- Tiling
- Frame and Truss Manufacturing
- Cement and Concrete
- Proprietary Plaster and Cladding Systems
- Solid Plastering
- Joinery
- Painting and Decorating
- Kitchen and Bathroom Design
- Brick and Block Laying

During the apprenticeship, a registered assessor will carry out periodic assessments on the apprentice. Both the employer's and apprentice's responsibilities are detailed in the Training Agreement and many of these will flow on to the Assessor - who is after all the person determining an Apprentice's/Trainee's competence.

The National Certificate in Carpentry together with the knowledge and skills accumulated over the training period will provide a person with a sound foundation for a successful and challenging career in one of the many areas of the construction industry.

Training enquiries

If you are interested in a career in the carpentry industry contact the BCITO:

Phone: 0800 4BCITO
0800 422 486

Web: www.bcito.org.nz
getacareer@bcito.org.nz

For more experience at school contact your school Gateway supervisor or careers advisor.