

Competency level – commercial 1

| COMPETENCY – COMMERCIAL 1 | |
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| Commercial, industrial and communal non-residential buildings and their associated outbuildings and ancillary buildings equal to or less than two storeys and an occupancy load of equal to or less than 100 people. | |
| Regulation 10(3)(a) ¹⁹ : Understanding the philosophies and principles of building design and construction. | |
| <p>Performance indicators:</p> <ol style="list-style-type: none"> 1. Comprehends and has satisfactory knowledge of sections 3, 4 and 5 of the Building Act 2004. 2. Comprehends and has satisfactory knowledge of design and construction techniques and construction sequencing for this type of building work. | <p>Guidance for assessors and candidates:</p> <ol style="list-style-type: none"> 1. Knowledge areas may include, but are not limited to: <ol style="list-style-type: none"> a. the purpose of the Building Act 2004 (the Act) b. TAs' functions, duties and powers under the Act, particularly as they relate to commercial, industrial and non-residential building work c. can discuss the hierarchy of New Zealand building legislation and the various compliance paths provided for under the Act d. can discuss building design, construction techniques and sequencing of building work as its relates to this competency level. <p>Note this information is covered in Sections 2.1, 2.2, 2.3, 3.0, 3.1, 3.2, 3.3, 3.5, 3.6 and 3.7 of the Preface to the Building Code Handbook.²⁰</p> |
| Regulation 10(3)(b): Understanding and knowledge of building products and methods. | |
| <p>Performance indicators:</p> <ol style="list-style-type: none"> 3. Comprehends and has satisfactory knowledge of proprietary systems and building products for this type of building work. 4. Demonstrates the ability to research, analyse and assess building methods and products associated with this type of building work. | <p>Guidance for assessors and candidates:</p> <ol style="list-style-type: none"> 2. Knowledge areas may include, but are not limited to: <ol style="list-style-type: none"> a. commonly used building materials and systems (eg, pre-nailed truss and frames, conventional commercial cladding and flashing systems) b. product literature, testing and Verification Methods, appraisals and producer statements c. portal frame, tilt-slab, common bracing, fire rating, sound rating systems. |

¹⁹Building (Accreditation of Building Consent Authorities) Regulations 2006.

²⁰A Compliance Document prepared by the Department of Building and Housing. Available at: <http://www.dbh.govt.nz/UserFiles/File/Publications/Building/Compliance-documents/building-code-handbook.pdf>

COMPETENCY – COMMERCIAL 1

Regulation 10(3)(c):
Knowledge and skill in applying the Act, the Building Code, and any other applicable regulations under the Act.

Performance indicators:

5. Comprehends and can apply knowledge of the application of the Building Act 2004.
6. Comprehends and can apply knowledge of the roles and responsibilities of a BCA and TA.
7. Comprehends and can apply knowledge of the linkage and interface between the Resource Management Act 1991 and the Building Act 2004.

Guidance for assessors and candidates:

3. Demonstrates knowledge and skill in applying:
 - a. the building control framework²¹
 - b. the Building Act 2004
 - c. purpose
 - d. principles
 - e. application
 - f. the New Zealand Building Code
 - g. compliance paths
 - h. producer statements
 - i. the Department of Building and Housing
 - j. territorial authorities
 - k. building consent authorities
 - l. project information memoranda
 - m. building consents
 - n. code compliance certificates
 - o. certificate of acceptance
 - p. compliance schedules
 - q. building warrant of fitness
 - r. certificates for public use
 - s. can define the term 'natural hazard' and can describe the requirements for granting or refusing to grant building consents on land that is subject to a natural hazard
 - t. can describe the legislative process for building over two or more allotments (eg, sections 75 and 76 of the Act)
 - u. can assess alterations to existing buildings in accordance with section 112 of the Act
 - v. has a working knowledge of waivers and modifications and provides an overview of how a TA grants a waiver or modification of the Building Code
 - w. can explain how the classified uses and the change the use provisions are used in the legislation
 - x. can explain and interpret building legislation and demonstrates thorough understanding of sections 7–9 of the Act and Clause A2 Interpretation of the New Zealand Building Code
 - y. NZS 4211 and the limits on the application of the Building Code for industrial and commercial buildings
 - z. demonstrates a clear knowledge of the provision for access and facilities for people with disabilities in accordance with sections 117–120 and Schedule 2 of the Act
 - aa. has knowledge of the Hazardous Substances and New Organisms Act and the processes to follow
 - bb. demonstrates knowledge of the Fire Service Act 1975, sections 21A–21I, and the Fire Safety and Evacuation of Buildings Regulations 2006
 - cc. can apply DRU requirements in accordance with the *Gazette* notice in section 26 of the Act
 - dd. can apply knowledge of specified systems and compliance schedule requirements in accordance with sections 100–111 of the Building Act 2004
 - ee. understands owners' requirements in relation to building warrants of fitness in accordance with sections 108–111 of the Act
 - ff. can demonstrate knowledge of change of use requirements in accordance with sections 114–115 of the Act and the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005
 - gg. understands requirements to issue a notice to fix in accordance with sections 163–168 of the Act and the BCA's policies and procedures (within their authority)
 - hh. can demonstrate an understanding of the determinations process in accordance with section 176–190 of the Act
 - ii. can demonstrate an understanding of certificates for public use and where they are required in accordance with sections 362A–363C of the Act
 - jj. if inspecting, understands the Minor Variations Regulations and understands the process for formal amendments to building consents
 - kk. the provision for inspections by a BCA as described in section 90 of the Act
 - ll. if inspecting, the provisions on inspecting and requirements for entering land in accordance with sections 222–228 of the Act.

²¹Guidance on items a.-r is provided in the Building Code Handbook.

COMPETENCY – COMMERCIAL 1

Regulation 10(3)(d)(i):
Ability to process applications for building consent.

Performance indicators:

8. Process building consent applications (plans and specifications) to establish compliance with the New Zealand Building Code for this type of building work (building related processing only).

Guidance for assessors and candidates:

4. Knowledge areas may include, but are not limited to:
- a. NZS²² 3604, NZS 3602, NZS 3640, NZS 4229 and AS/NZS 1170 as they relate to two storey commercial construction. Understands how to determine compliance requirements for corrosion zones, ground bearing, piles, footings, Foundations, reinforcing, concrete strength, fill and compaction, bracing demand and design, subfloor framing, wall framing, roof structures, timber treatment, load paths, fixings and connections, underlay and wraps, cladding systems, internal linings and durability
 - b. B1, B1/VM1 – excellent understanding of how this Verification Method and referenced Standards are used for structural design, B1/VM4 – as it relates to foundation design, B1/AS1 – as it relates to the standards and items raised in item 4.a above
 - c. B2, B2/VM1 and B2/AS1 as they relate to 5, 15 and 50 year durability requirement of nominated building elements
 - d. can assess building ‘importance levels’ in relation to different building types and the relevant risk analysis of these buildings as is identified in AS/NZS 1170
 - e. can identify issues relating to the Acceptable Solution for fire compliance for this type of building work by identifying the design sequence referred to in C/AS1 Part 1
 - f. can apply commonly used fire rating systems for walls built in close proximity to boundaries and separating residential household units and other tenancies achieving compliance with clauses C2 and C3; and C/AS1 Spread of Fire
 - g. C4 and C/AS1 as they apply to structural elements of household units and other buildings within the scope of this competency
 - h. can assess accessibility to enable safe and easy movement of people as required by D1, D1/VM1 and D1/AS1 (eg, steps, handrails, ramps, non-slip provisions, and understands safe stair geometry and construction)
 - i. can assess mechanical installations for D2, D2/AS1, D2/AS2 and D2/AS3, NZS 4332, EN81 Part 1 and 2 (passenger and service lifts)
 - j. can apply weathertightness principles and knowledge to assess compliance with E2 External Moisture and can identify the differences between the Acceptable Solution and specific design (eg, complex junctions, flashing requirements, technical knowledge of cladding systems, vented cavity systems). Is able to assess specifically designed cladding systems (outside the scope and limitations of E2/AS1)
 - k. internal moisture management within buildings as required by E3 and E3/AS1 (eg, understands ventilation, temperature, thermal resistance, condensation, impervious surfaces for floor and wall linings)
 - l. hazardous agents or contaminants on site as required by F1 and F1/AS1 and knows how to read a PIM and check hazard files in the absence of a PIM
 - m. F2 and F2/AS1 using NZS 4223: Part 3, and is able to assess the compliance of glazed barriers and identify the required locations for safety glass, manifestation of glass etc for commercial buildings. Understands and is able to assess the health and safety requirements for asbestos and other hazardous building materials
 - n. F3, F3/VM1 (interface with HSNO Act and storage of hazardous substances in buildings) and F3/AS1 (depot construction, buildings component-doors, windows venting of gas storage etc) and understands the interface between G4 (as specified systems) and F8
 - o. requirements for safeguarding people from falling as required by F4 and F4/AS1 (barrier construction, barrier height and the correlation between B1, B2 and F4, SED Barriers, B2 implications)
 - p. site safety requirements – can determine site hazards and understands compliance requirements for managing these in accordance with F5 and F5/AS1
 - q. F6, F6/VM1 (acceptable luminance in buildings) and F6/AS1 (lighting for emergencies) and understands the interface with F8 (as specified systems)
 - r. F7 and F7/AS1 and has a higher level of understanding of NZS 4512 (fire alarm systems in buildings) and NZS 4541 (automatic fire sprinkler systems)
 - s. F8 and F8/AS1 (luminance, sign layout, size, proportions, colours, wording etc) and understands the interface with F6 (as specified systems)
 - t. G1 and G1/AS1 for location, sizing and number of sanitary fixtures
 - u. G2 and G2/AS1 for spatial laundering requirements
 - v. G3 and G3/AS1 (eg, impervious surfaces, food storage, cooking and refrigeration)

²²All references to Standards are to the current cited version of the quoted Standard (eg, NZS 3604:1999).

COMPETENCY – COMMERCIAL 1

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| <p>Performance indicators required for plumbing and drainage compliance:</p> <p>9. Process building consent applications (plans and specifications) to establish compliance with the New Zealand Building Code for this type of building work (plumbing and drainage related processing only).</p> | <ul style="list-style-type: none"> w. natural and mechanical ventilation requirements for commercial buildings as required by G4 and G4/AS1. Can assess compliance pathways for mechanical installations for access for this type of building work (eg, producer statements, peer review in accordance with the BCA's policies and procedures) x. G5 and G5/AS1 requirements for accessibility heating, listening systems and temperature control for certain building types y. can define STC and IIC and assess commonly used solutions to determine compliance with G6 and G6/AS1 Airborne and Impact Sound between occupancies; and exhibits an understanding of the interface between C3 and G6, particularly in relation to penetrations to fire and sound rated areas z. can assess natural light and visual awareness as required by G7 and G7/AS1 aa. requirements for providing artificial lighting to enable safe movement as required by G8 and G8/AS1 (eg, access routes and minimum lux levels) bb. requirements for certifying compliance with electricity provisions as required by G9, G9/AS1 and sections 19 and 94(3) of the Act cc. understands requirements for protecting people from extreme temperatures or hazardous substances associated with building services in accordance with G10 Piped Services or provides a compliance pathway to determine compliance (eg, producer statement, peer review in accordance with the BCA's policies and procedures) dd. requirements for certifying compliance with gas as an energy source as required by G11, G11/AS1 and section 19 and 94(3) of the Act ee. understands the requirements to store solid waste for this type of building work in accordance with G15 Solid Waste ff. requirements for assessing energy efficiency for commercial buildings as required by H1, H1/AS1 and H1/VM1. Good working knowledge of NZS 4243 gg. can identify inspection requirements necessary to confirm compliance for this level of building work hh. can compile accurate compliance schedule information that meets the requirements of section 103 of the Act ii. has a strong comprehension of their individual limitations and the wider BCA's internal technical capability. Is able to identify when external technical assistance is required for alternative solutions and can outsource work for technical review when required. <p>Guidance for assessors and candidates:</p> <p>5. Knowledge areas may include, but are not limited to:</p> <ul style="list-style-type: none"> a. requirements for protecting people and other property from adverse effects of surface water as required by E1, E1/VM1 and E1/AS1 (minimum floor heights, design, construction and conveyance of storm water catchment) b. can assess compliance with G1 and G1/AS1 for location, sizing and number of sanitary fixtures c. laundering and spatial requirements to satisfy G2 and G2/AS1 d. understands requirements for protecting people from extreme temperatures or hazardous substances associated with building services in accordance with G10 Piped Services or provide a compliance pathway to determine compliance (eg, producer statement, peer review in accordance with the BCA's policies and procedures) e. understands requirements for specification and installation of commercial water supplies as required by G12, G12/VM1 and G12/AS1 for this type of construction (identifying non-potable water pipes and outlets, temperature requirements, cross connection hazards and backflow protection devices) f. requirements for provision of sanitary fixtures and appliances and for conveying foul water to drainage systems as required by G13, G13/AS, G13/AS2, G13/VM1 and AS/NZS 3500 Part 2 as they relate to two storey commercial construction (system design principles – avoid odour, design loading, falls, venting, materials, connections, access and maintenance and imposed loads) g. identification of inspection requirements necessary to confirm compliance for this level of building work h. can identify fire walls and determine a compliance path for plumbing and drainage piping penetrating these walls i. can explain and competently demonstrate inspection procedures for stack systems. Understands requirements for provision of grease traps in accordance with G13/AS2 f. can identify inspection requirements necessary to confirm compliance for this level of plumbing and drainage work. |
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COMPETENCY – COMMERCIAL 1

Regulation 10(3)(d)(ii):
Ability to inspect building work.

Performance indicators:

10. Inspect building work relating to foundation type inspections to establish whether compliance with the New Zealand Building Code (building only) has been achieved for commercial 1 buildings.

11. Inspect building work relating to preline type inspections to establish whether compliance with the New Zealand Building Code (building only) has been achieved for commercial 1 buildings.

12. Inspect building work relating to final type inspections to establish whether compliance with the New Zealand Building Code (building only) has been achieved for commercial 1 buildings.

Guidance for assessors and candidates:

6. Knowledge areas for inspections may include, but are not limited to:

- a. demonstrated ability to read and interpret plans and specifications
- b. use of technical equipment (eg, moisture meters, cameras, thermometers) and administrative resources (checklists, copies of technical information eg, NZS 3604) to establish compliance.
- c. NZS²³ 3604, NZS 3602, NZS 3640, NZS 3622, NZS 4229 and the Compliance Documents as they relate to commercial construction; and in particular:

Foundations

- requirements for corrosion zones – concrete strength requirements (different zones and different foundation types), fixing materials
- ground bearing – determination methods, fill and compaction requirements
- pile foundations – types (including bracing types), sizes and dimensions (ground clearance, maximum heights, foundation depths etc), siting, fixings for different pile types, treatment and identification, how bracing is calculated for subfloors, point load piles
- concrete foundations (includes concrete masonry) – reinforcing (laps and size), reinforcing type (identification of deformed and round, high tensile or normal, mesh and mesh support), pipe penetrations, point load pads, bond beams, wash outs 'A', 'B' and 'C' grade masonry
- concrete slabs – reinforcing (laps, size, supplementary reinforcing requirements, cover), control joint and slab size limitations, pipe penetrations, thickness and thickenings of slab, DPM
- certificate requirements including producer statements, geotechnical reports, compaction certificates, concrete docketts

Preline

- timber floor systems
- framing and truss requirements – size span and spacing, timber grade and treatment, load paths, moisture content, fixings and connections, truss design and layout information, penetrations, bracing systems, including diaphragm ceilings and fixings
- cladding requirements – underlays/wraps, wind barriers and rigid air barriers, fixings, penetrations and flashings, complex junctions, sill tapes, air seals, cavity systems, direct fix systems, penetrations, brick veneer requirements, mixed cladding systems, compartmentalisation of cavity systems over two storeys
- membrane roof and deck requirements including substrates, penetrations, fall and overflows
- access and facilities for people with disabilities including fixing requirements (handrails), sizes, dimensions and lengths and accessibility including gradients
- sound and fire rated walls and building components – installation requirements, including isolation, insulation, penetrations, fixings
- fire treatments (eg, intumescent coatings and seals)
- insulation installation – type, rating, installation requirements (refer to NZS 4246 Energy Efficiency – Installing Insulation in Residential Dwellings)

Final

- access to building – steps (and isolated steps), stairs, ladders and ramps – installation, tread, riser, handrails, non-slip provisions, accessible car parks and avoidance of conflict with vehicles and associated signage
- accessible requirements including locations and dimensions of fixture, fittings and counters and spatial requirements of areas
- internal linings and surfaces, including impervious surface requirements, waterproof membranes, water splash areas
- smoke detectors – placement and location
- ventilation – mechanical and natural
- fire rated walls and other building components
- assessment of airborne sound (STC)
- glazing requirements, safety glass identification, locations,
- finished ground level and ground clearances to claddings and floor levels
- knowledge and Identification of specified systems including identification of installation, commissioning and certification requirements for specified systems
- third party verification (eg, producer statements, energy work certificates)

²³All references to Standards are to the current cited version of the quoted Standard (eg, NZS 3604:1999).

COMPETENCY – COMMERCIAL 1**Performance indicators required for plumbing and drainage compliance:**

13. Inspect building work to establish whether compliance with the New Zealand Building Code (plumbing and drainage related inspections only) has been achieved for this type of building work.

- d. can follow manufacturer requirements for installation of freestanding and in-built solid fuel heating appliances, requirements for: appliance clearances, hearth, insulation barrier, shielding, restraints, flue heights, flashings, finishes and furnishings, ventilation and associated prescribed electrical work (if applicable)
- e. identification and management of risk from hazardous agents or contaminants on site
- f. can identify when external technical assistance is required and can outsource work for technical review when required.

Guidance for assessors and candidates:

7. A good working knowledge of AS/NZS 3500, G12/AS1 and AS2, G13/AS1 and AS2, E1/AS1, E2/AS1 (pipe penetrations, deck drainage etc), E3/AS1, G1/AS1, H1/AS1 as they relate to residential construction; and in particular:

Foundations

- pipe material, gradients, size, bedding, backfill, protection, insulation, access points, jointing and sleeving, testing, supports, changes of direction, conveyance to approved outfalls, bridging
- HW relief drain and discharge outlet, drain access points, amendments to plans and specifications

Preline

- pipe materials, thermal movement, sizing, compatibility, insulation, testing, penetrations through envelope, roof flashings, soil stacks (graded), elevated drainage principles, waste pipes, venting systems
- hot water/cold water expansion relief drain discharge outfall point
- hot water supply:
 - mains, low pressure, wet back, solar
 - tank supply – structural support/safe tray/overflow/seismic restraint
 - solar – structural support – penetrations
 - wetback – open venting of HWC exhaust
 - network utility cold water supply connections
 - floor waste
- drainage:
 - maintenance of water trap seals – floor waste gullies/gully traps, sewer surcharge gully
 - venting (open or air admittance valves)
 - pipe inspection points, protection including pipe trench and foundations, materials, jointing, bedding, outfall, testing
 - septic tank/sewer (NUO)/other/soakage system SW
 - grease traps and separators

Final

- HWC seismic restraint, hot and cold water – valves, tempering device, cold water expansion relief, tundish, safe tray
- HWC water supply temperature checks (personal hygiene, legionella)
- wetback/HWC height above wood burner, flow and return pipe insulation, exhaust vent – pipe penetration flashing
- solar relief valve discharge position – structural support – position – pipe insulation, installation same as building consent – penetrations flashed
- test sanitary fixtures trap seal retention
- equipotential bonding
- gully dish/grating height, waste pipe connections to gully riser or gully dish, surface water ingress
- pipe penetrations watertight
- main drain vent
- drainage as-built plan – amendments to plans/specifications
- swimming pool backflow prevention
- can identify fire walls and determine a compliance path for plumbing and drainage piping penetrating walls.

COMPETENCY – COMMERCIAL 1

Regulation 10(3)(d)(iii):
Ability to certify building work.

Performance indicators:
 14. Can issue certification (building consent or code compliance certificate) for this type of building work.

Guidance for assessors and candidates:
 8. Knowledge areas may include, but are not limited to:
 a. candidate can compile and review information received during the processing of a building consent or information received during the inspections/construction process and determine and record the outcome to issue, suspend, request further information and/or refuse to issue a building consent or code compliance certificate (within their authority) for commercial 1 building work.

Regulation 10(3)(e):
Ability to communicate with internal and external people.

Performance indicators:
 15. Communicates with internal and external customers.
 16. Can use phone, email, internet and fax.
 17. Demonstrates good active listening, questioning and assertiveness skills in dealing with day-to-day tasks and responsibilities.

Guidance for assessors and candidates:
 9. Knowledge areas may include, but are not limited to:
 e. correctly prepares letters, memos and short reports under review of senior staff
 f. appears confident and has a good understanding of building-related subject matter when dealing with customers and colleagues
 g. communicates effectively with other team members, consent applicants and other members of the public
 h. accurately inputs written/electronic data on internal forms, checklists, databases etc; and completes prescribed forms in accordance with the Building Forms Regulations 2004.

Regulation 10(3)(f):
Ability to comply with the building consent authority’s policies, procedures and systems

Performance indicators:
 18. Observes the building consent authority’s policies, procedures and systems for this type of building work.

Guidance for assessors and candidates:
 10. Knowledge areas may include, but are not limited to:
 b. an ability to accurately and carefully follow established procedures for completing work tasks.