Competency level – residential 1

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Outbuildings and ancillary buildings as defined by the Building Regulations 1992 as they apply to Residential. Detached dwellings (SH) designed to a common Standard (eg, NZS 3604, NZS 4229) that are single storey and have an E2/AS1 risk matrix score less than or equal to 6.	
Regulation 10(3)(a):[4] Understanding the philosophies and principles of building design and construction.	
Performance indicators: 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.	Guidance for assessors and candidates: 1. Knowledge areas may include, but are not limited to: a. the purpose of the Building Act 2004 (the Act) b. TAs' functions, duties and powers under the Act, particularly as they relate to household units 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 it relates to this competency level. 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.[5]
Regulation 10(3)(b): Understanding and knowledge of building products and methods.	
Performance indicators: 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.	Guidance for assessors and candidates: 2. Knowledge areas may include, but are not limited to: a. commonly used building materials and systems (eg, pre-nailed truss and frames, conventional cladding and flashing systems) b. product literature, testing and Verification Methods, appraisals and producer statements.
Regulation 10(3)(c): Knowledge and skill in applying the Building 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 Act. 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 framework[6] 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

4 Building (Accreditation of Building Consent Authorities) Regulations 2006.
5 A 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
6 Guidance on items a.-q. is provided in the Building Code Handbook.

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	n. code compliance certificates o. certificates of acceptance p. notices to fix q. can define the term 'natural hazard' r. assessment criteria for alterations to existing buildings in accordance with section 112 of the Act s. demonstrates an understanding of type of national multiple use building approvals (MultiProof) that fall within the scope of this competency level t. if inspecting, understands the Minor Variations Regulations and understands the process for formal amendments to building consents u. understands building legislation, in particular sections 7–9 of the Act and Clause A2 Interpretation of the New Zealand Building Code v. section 37 requirements and how to identify RMA and district plan requirements w. the provision for inspections by a BCA as described in section 90 of the Act x. if inspecting, the provisions on inspecting and requirements for entering land in accordance with sections 222–228 of the Act.
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. NZS[7] 3604, NZS 3602 and NZS 3640 for single storey residential dwellings. Includes how to determine compliance requirements for corrosion zones, ground bearing, piles, footings, foundations, reinforcing, concrete strength, fill and compaction, bracing demand and design, sub-floor 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 – general 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 they relate to the Standards and items raised in item 4.a above, B1/AS2 and B1/AS2 – as they relate to barrier construction, B1/AS3 c. durability requirements B2 and B2/AS1 as they relate to this type of building work (eg, 5, 15 and 50 year durability requirement of nominated building elements) d. compliance with C1 – including manufacturer requirements for installation of freestanding and in-built solid fuel heating appliances, clean air requirements, appliance clearances, hearth, insulation barrier, shielding, restraints, flue heights, flashings, finishes and furnishings, ventilation and associated prescribed electrical work (if applicable) e. 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. C3 and C/AS1 fire separations from adjacent household units g. C4 and C/AS1 as they apply to structural fire rated elements for carports, garages and household units h. access to and from buildings for D1 and D1/AS1 (eg, steps, handrails and non-slip provisions) i. weathertightness and the external envelope of outbuildings and ancillary buildings as required by E2. Has a good technical knowledge of E2/AS1 (eg, understands the scope of E2/AS1 and can determine compliance with E2/AS1 up to a risk score of 6). Understands and is able to evaluate commonly used alternative solution cladding systems (such as fibre-cement bevel-back weatherboards) j. 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) k. identifying hazardous agents or contaminants on site as required by F1 and F1/AS1 and knows how to read a PIM and/or check Council hazard files in the absence of a PIM l. human impact for glazing as required by F2 and F2/AS1 using NZS 4223: Part 3 m. site safety requirements in accordance with F5 and F5/AS1 n. requirements of F7, in particular the placement and installation of domestic smoke detectors as required by F7/AS1 o. G1 and G1/AS1 for location, sizing and number of sanitary fixtures p. G2 and G2/AS1 for spatial laundering requirements q. spatial, hygiene, storage and preparation requirements for cooking and food as required by G3 and G3/AS1 (eg, impervious surfaces, food storage, cooking and refrigeration) r. natural and mechanical ventilation requirements for domestic buildings as required by G4 and G4/AS1 (eg, 5% floor area/window ratio, sizing of natural venting for occupied spaces) s. requirements for natural light and visual awareness as required by G7 and G7/AS1 (eg, 10% floor area/ratio for visual awareness)

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

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	t. requirements for providing artificial lighting to enable safe movement as required by G8 and G8/AS1 (eg, access routes and minimum lux levels) u. requirements for certifying compliance with electricity provisions as required by G9, G9/AS1 and sections 19 and 94(3) of the Act v. requirements for certifying compliance with gas as an energy source as required by G11, G11/AS1 and sections 19 and 94(3) of the Act w. requirements for assessing energy efficiency for domestic dwellings as required by H1 and using the schedule method in H1/AS1 (ceilings, walls, windows/doors, hot water etc) x. identification of inspection requirements necessary to confirm compliance for this level of building work.
Performance indicators required for plumbing and drainage compliance: 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).	**Guidance for assessors and candidates:** 5. Areas of knowledge may include, but are not limited to: a. requirements for protecting people and other property from adverse effects of surface water as required by E1 and E1/AS1 (minimum floor heights, design, construction and conveyance of storm water catchments) b. laundering and spatial requirements to satisfy G2 and G2/AS1 c. requirements for specification and installation of domestic water supplies as required by G12, G12/AS1 and G12/VM1 (potable water requirements, hot water supply systems, venting/valving/restraint) d. requirements for provision of sanitary fixtures and appliances and for conveying foul water to drainage systems as required by G13, G13/AS1 and AS/NZS 3500 Part 2 (system design principles – avoid odour, design loading, falls, venting, materials, connections, access and maintenance, and imposed loads) e. identification of inspection requirements necessary to confirm compliance for this level of building work.
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 residential 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. NZS[8] 3604, NZS 3602, NZS 3640, NZS 3622, NZS 4229 and the Compliance Documents as they relate to residential 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, max heights, foundation depths, etc), 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 dockets

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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 residential 1 buildings.	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 and fixings • cladding requirements – underlays/wraps, wind barriers and rigid air barriers, fixings, penetrations and flashings, sill tapes, air seals, cavity systems, direct fix systems, penetrations, brick veneer requirements • membrane roof and deck requirements, including substrates, penetrations, fall and overflows • insulation installation – type, rating, installation requirements (refer to NZS 4246 Energy efficiency – Installing Insulation in Residential Dwellings
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 residential 1 buildings.	Final • access to building – subfloor and ceiling, steps, stairs installation – tread, riser, handrails, barriers non-slip provisions • internal linings and surfaces, including impervious surface requirements, waterproof membranes, water splash areas • smoke detectors – placement and location • ventilation – mechanical and natural • fire rated boundary walls and other building components • glazing requirements, safety glass identification, locations • finished ground level and ground clearances to claddings and floor levels • third party verification eg, producer statements, energy work certificates 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.
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 residential 1 buildings.	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 and H1/AS1 as they relate to residential construction; and in particular: Foundations a. pipe material, gradients, size, bedding, backfill, protection, insulation, access points, jointing and sleeving, testing, supports, changes of direction, conveyance to approved outfalls, bridging b. HW relief drain and discharge outlet, drain access points, amendments to plans and specifications Preline c. pipe materials, thermal movement, sizing, compatibility, insulation, testing, penetrations through envelope, roof flashings, soil stacks (graded), elevated drainage principles, waste pipes, venting systems d. hot water and cold water expansion relief drain discharge outfall point e. 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 f. 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 • rainwater tank supply (potable)/overflow within consented property/pump/gravity (air locks) • network utility cold water supply connections

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	Final g. HWC seismic restraint, hot and cold water valves, tempering device, cold water expansion relief, tundish, safe tray h. HWC water supply temperature checks (personal hygiene, legionella) i. wetback/HWC height above wood burner, flow and return pipe insulation, exhaust vent – pipe penetration flashing j. solar relief valve discharge position, structural support, position, pipe insulation, installation same as building consent, penetrations flashed k. test sanitary fixtures trap seal retention l. equipotential bonding m. gully dish/grating height, waste pipe connections to gully riser or gully dish, surface water ingress n. pipe penetrations watertight o. main drain vent p. drainage as-built plan, amendments to plans/specifications q. can identify boundary fire walls and determine compliance for pipe penetrations.
Performance indicators: 14. Can issue certification (building consent or code compliance certificate) for this residential 1 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 residential 1 building work.
Regulation 10(3)(e): Ability to communicate with internal and external persons.	
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: a. preparation of simple letters, memos and short reports under review of senior staff b. a good understanding of building related subject-matter when dealing with customers and colleagues c. effective communication with other team members, consent applicants and members of the public d. accurate inputting of written data on internal forms, checklists, field inspection records etc; 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: a. an ability to accurately and carefully follow established procedures for completing work tasks.

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