Competency level – residential 3

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Detached dwellings (SH) or other dwellings (SR) that are less than or equal to three storeys but limited to vertical plane fire separation and direct egress to the outside. E2/AS1 risk score of 13–20 (level also includes specifically designed residential cladding systems, components, detailing and junctions where a risk matrix score of greater than 20 has been calculated).	
Regulation 10(3)(a):[14] 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 level 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.[15]
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 level of building work. 4. Demonstrates the ability to research, analyse and assess building methods and products associated with this level 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 and bracing systems) for this level of building work b. product literature, testing and Verification Methods, appraisals and producer statements.
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 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[16] 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

[14] Building (Accreditation of Building Consent Authorities) Regulations 2006.
[15] 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
[16] 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). 9. Demonstrates an understanding of type of national multiple use building approvals (Multiproof) that fall within the scope of this competency level.	Guidance for assessors and candidates: 4. Knowledge areas may include, but are not limited to: a. NZS[17] 3604, NZS 3602, NZS 3640 and NZS 4229 as they relate to three storey residential 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 – higher level 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 4a above and B1/AS2 – as it relates to barrier construction c. B2, B2/VM1 and B2/AS1 as they relate to 5, 15 and 50 year durability requirements of nominated building elements d. NZS 4229 concrete basement construction (eg, B grade and C grade masonry requirements and masonry retaining walls) e. compliance with C1. Understands manufacturer requirements for installation of freestanding and in-built solid fuel heating appliances. Understands clean air requirements and can assess compliance requirements for: appliance clearances, hearth, insulation barrier, shielding, restraints, flue heights, flashings, finishes and furnishings, ventilation and associated prescribed electrical work (if applicable) f. can apply commonly used fire rating systems for walls built in close proximity to boundaries and separating residential household units achieving compliance with clauses C2 and C3; and C/AS1 Spread of Fire g. C4 and C/AS1 as they apply to structural fire rated elements for carports, garages and separation of residential household units h. accessibility to enable safe and easy movement of people as required by D1, D1/AS1 and D2/AS2 (eg, steps, handrails, non-slip provisions, and understands safe stair construction and the definitions of private and secondary private stairs, and lifts if relevant i. can apply weathertightness principles and knowledge to assess compliance with E2 External Moisture and demonstrates excellent working knowledge of E2/AS1 and E2/VM1 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) 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. 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

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

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	l. 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 m. requirements for safeguarding people from falling as required by F4 and F4/AS1 (eg, barrier construction, correlation between B1, B2 and F4, SED Barriers, B2 implications and swimming pool fencing requirements) n. site hazards identification and understands compliance requirements for managing these in accordance with F5 and F5/AS1 o. F7, in particular the placement and installation of domestic smoke detectors as required by F7/AS1 p. G1 and G1/AS1 for location, sizing and number of sanitary fixtures q. G2 and G2/AS1 for spatial laundering requirements. r. 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) s. 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) t. 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 u. natural light and visual awareness as required by G7 and G7/AS1 (eg, 10% floor area/ratio for visual awareness) v. artificial lighting to enable safe movement as required by G8 and G8/AS1 (eg, access routes and minimum lux levels) w. requirements for certifying compliance with electricity provisions as required by G9, G9/AS1 and section 19 of the Act. x. requirements for certifying compliance with gas as an energy source as required by G11, G11/AS1 and section 19 of the Act y. requirements for assessing energy efficiency for domestic dwellings as required by H1, H1/AS1 and H1/VM1. Good working knowledge of NZS 4218, NZS 4305 and the BRANZ House Insulation Guide (ceilings, walls, windows/doors, hot water etc) z. can identify inspection requirements necessary to confirm compliance for this level of building work aa. 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 and can outsource work for technical review when required.
Performance indicators required for plumbing and drainage compliance: 10. 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. Knowledge areas 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, E1/VM1 and E1/AS1 (minimum floor heights, design, construction and conveyance of storm water catchment) b. spatial laundering requirements to satisfy G2 and G2/AS1 c. requirements for specification and installation of domestic water supplies as required by G12 and G12/AS1 (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 as they relate to three storey construction (system design principles – avoid odour, design loading, falls, venting, materials, connections, access and maintenance and imposed loads) e. can identify fire walls and determine a compliance path for plumbing and drainage piping penetrating these walls f. can assess/explain soil stack systems in accordance with G13/AS1 and AS/NZS 3500.2 g. identification of inspection requirements necessary to confirm compliance for this level of building work h. can mentor and/or provide technical oversight to others assessing Building Code compliance for residential (competency) 1 and 2 type building work.

COMPETENCY – RESIDENTIAL 3

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

Performance indicators:	Guidance for assessors and candidates:
11. 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 3 buildings.	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 etc) and administrative resources (checklists, copies of technical information eg, NZS 3604) to establish compliance c. NZS[18] 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), 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 dockets
12. 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 3 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, 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 • sound and fire rated walls and building components – installation requirements, including isolation, insulation, penetrations, fixings • insulation installation – type, rating, installation requirements (refer to NZS 4246 Energy Efficiency – Installing Insulation in Residential Dwellings)
13. 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 3 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 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 • third party verification (eg, producer statements, energy work certificates) • swimming pool fencing installation, gates, fence heights, sizes, openings etc

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

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	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. is able to identify when external technical assistance is required and can outsource work for technical review when required.
Performance indicators required for plumbing and drainage compliance: 14. Inspect building work to establish whether compliance with the New Zealand Building Code (plumbing and drainage related inspections only) has been achieved for residential 3 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, G1/AS1 and 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 • rainwater tank supply (potable)/overflow within consented property/pump/gravity (air locks) 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 – RESIDENTIAL 3	
Regulation 10(3)(d)(iii): Ability to certify building work.	
Performance indicators: 15. Can issue certification (building consent or code compliance certificate) for this residential 3 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 3 building work.
Regulation 10(3)(e): Ability to communicate with internal and external persons.	
Performance indicators: 16. Communicates with internal and external customers. 17. Can use phone, email, internet and fax. 18. 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. correctly prepares letters, memos and short reports b. appears confident and has a good understanding of building related subject-matter when dealing with customers and colleagues c. communicates effectively with other team members, consent applicants and members of the public d. accurately inputs written data on internal forms, processing checklists and electronic databases, 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: 19. 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. accurately and carefully follows established procedures for completing work tasks.