

ModelDocs: Transforming Building Consenting Behaviour for Better Housing

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Project LR16305

University of Auckland, funded by the Building Research Levy



ModelDocs



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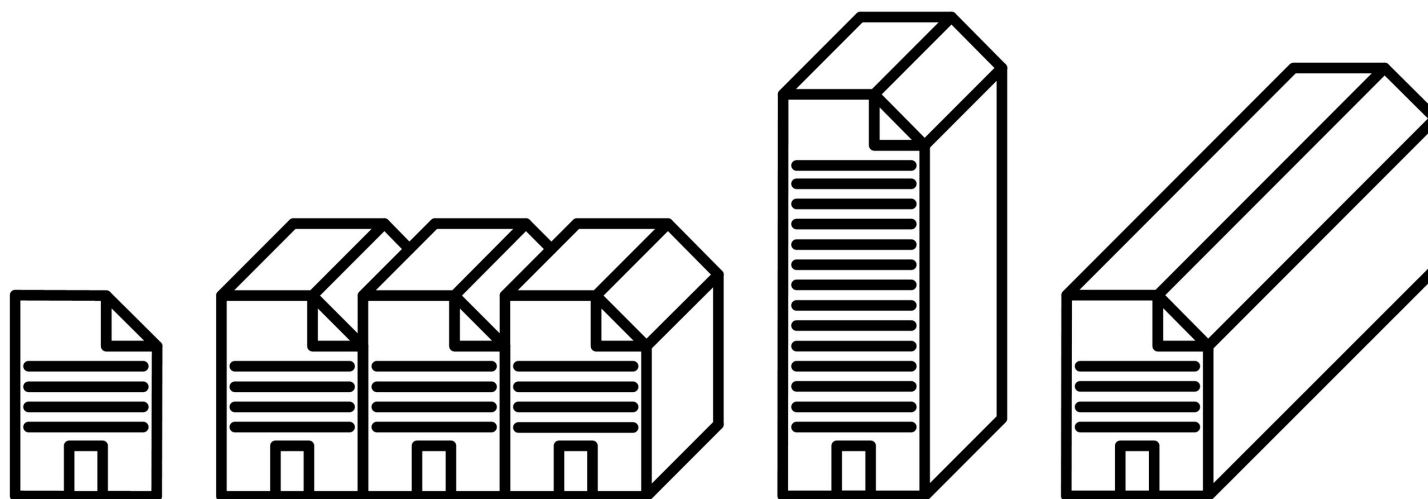
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ModelDocs

**Transforming Building
Consenting Behaviour
for Better Housing**

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Behaviour for Better Housing 2023
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Figure 0.1 – Model housing: Devonport, Auckland, reimagined with the housing density of Barcelona



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Contents

p.2	1. Acknowledgements
p.3	2. Glossary
p.5	3. Executive Summary, Key Findings and Recommendations
p.12	4. Background
p.15	5. Building Regulatory System
p.17	6. Research Methodology
p.18	7. Stakeholders
p.21	8. Senders
p.27	9. Receivers
p.34	10. National Survey
p.45	11. Data Deep Dive
p.66	12. Principles for change
p.82	13. Key Findings
p.83	14. Recommendations
p.84	15. Notes

2. Glossary

Acronym	Name	Definition
ADNZ	Architectural Designers New Zealand	ADNZ is a professional body for architectural designers and architects in New Zealand.
BCA	Building Consent Authority	Under the Building Act 2004, only BCAs are permitted to perform building consenting and certifying functions. The Act provides for Territorial Authorities and private organisations to apply for registration as BCAs.
BCO	Building Consent Officer	A Technical Officer at a BCA who is tasked with processing and inspecting building consents and ensuring they comply with the requirements of the New Zealand Building Code.
BOINZ	Building Officials Institute of New Zealand	BOINZ is a non-profit registered charitable organisation which encourages members to develop a better understanding of the responsibilities and duties imposed by Acts and regulations.
CPEng	Chartered Professional Engineer	Government-backed mark of quality indicating the individual has proven their current competence to practice as a professional engineer within New Zealand. This could be by knowledge-augmented diploma or tertiary level degree.
DINZ	The Designers Institute of New Zealand	DINZ exists to serve NZ's design community and represent its interests to the wider world. Formed in 1991 by a merger of the NZ Society of Industrial Designers (1960), and the NZ Association of Interior Designers (1968).
ENZ	Engineering New Zealand	ENZ is a non-profit professional body that promotes the integrity and interests of members, the profession, and the industry.
IANZ	International Accreditation New Zealand	IANZ has been appointed by MBIE as the accreditation body that undertakes assessments against the requirements of the Building (Accreditation of Building Consent Authorities) Regulations 2006.
LI	Line Item	A Request For Information is often made in the form of a letter with a list of Line Items enquiring about a specific aspect of the project or building element.
LBP	Licensed Building Practitioners	LBPs are building practitioners assessed as competent in the building work essential to residential buildings' structure or weathertightness.

Acronym	Name	Definition
MBIE	Ministry of Business, Innovation and Employment	MBIE is New Zealand's public service department charged with "delivering policy, services, advice and regulation, " contributing to New Zealand's economic productivity and business growth.
NZBC	New Zealand Building Code	NZBC establishes minimum standards for building design, construction, and performance, ensuring safety and quality in buildings across New Zealand.
NZIA	New Zealand Institute of Architects	Te Kāhui Whaihanga NZIA is a membership-based professional organisation that represents registered architects and promotes architecture in Aotearoa, New Zealand.
NZRAB	New Zealand Registered Architects Board	Established under the Registered Architects Act (2005), NZRAB is required to register, review and maintain architects who have been assessed as competent.
RFI	Request for Information	Issued in response to building consents that require more documentation before being approved.
SED	Specific engineered design	SED works have had specialist input, usually from a structural engineer.
SLI	Sub-Line Item	A Request For Information is often in the form of a letter with a list of LIs enquiring about a specific aspect of the project or building element. Sometime within an LI is more than one request, hence SLI.
TA	Territorial Authority	Territorial authorities are the second tier of local government in New Zealand, below regional councils. There are 67 territorial authorities: 13 city councils, 53 district councils and the Chatham Islands Council. Territorial authorities are based on community of interest and road access.
VM	Verification Method	Verification Methods are tests or calculation methods that prescribe one way to comply with the Building Code. They can include calculation methods, laboratory tests and tests-in-situ.

3. Executive Summary

The Context:

Over the last 20 years, New Zealand has experienced faster growth in real house prices than any other OECD country. In the space of a generation, “housing has gone from being abundant and reasonably affordable, to being scarce and prohibitively expensive” (Source: [NZ Infrastructure Commission Research Insights March 2022](#)). Based on an average of 2.6 people per dwelling, the BNZ’s Chief Economist suggests NZ needs between 45,000 and 50,000 new homes in 2024 (Source: [BNZ Eco Pulse](#)). Auckland has the most serious supply shortage and based on current growth and occupancy rates, 320,000 new dwellings will need to be built there by 2050 (Source: [the Auckland Plan 2050](#)).

The Minister for Housing has said, “Housing affordability is arguably the single most pressing economic, social and cultural problem facing this government” (Source: [RNZ](#)). “Our country’s collective failure to build enough houses has significantly impacted almost every aspect of New Zealand society” (Source: [beehive.govt.nz](#)).

Furthermore, the Minister for Building and Construction has said that “Delays in the building consent system increase the cost of building and make it harder for the sector to deliver more affordable homes for Kiwi families.” Source: [Beehive.govt.nz](#)

The Research Constraints:

ModelDocs seeks to understand the behaviour of those who prepare a consent application (Senders) and those who process it (Receivers). The research constraints were:

- behavioural, not legislative nor technological, transformation. This makes the research potentially a fast-follower of existing policy, enabling ‘quick wins’.
- focused on processing, not inspections or certification
- limited to dwelling consents within May 2023
- granted by two metropolitan Building Consent Authorities (BCAs), medium-sized Tauranga City Council and the larger Auckland Council.

The Research Method:

To establish a behavioural baseline between Senders and Receivers, we undertook a national survey. Then, we undertook our ‘data deep dive’ into dwelling consents over three stages. Using the metric on an RFI as an indicator of behaviour in/efficiency, in Stage 1, we looked to see where and how RFIs were generated. In Stage 2, we examined the two types of RFI revealed and which related to either general and documentation matters and/or NZ Building Code Clauses. In Stage 3 we scanned Sender-Receiver communications from the time the RFI was initially issued to its final resolution, to determine responsibility. Finally, we proposed some ‘principles for change’ to improve consenting. A summary of Recommendations can be found on page 10.

So, what is driving consenting behaviour?

The Research Findings:

What did we learn from the ModelDocs National Survey?

- From a sample of over 200 respondents, overwhelmingly (by, say, 4x), Receivers tended to think that more documentation is required for a dwelling consent application than Senders did.
- This was particularly acute for Producer Statements, Manufacturer Warranties and Codemark Certifications.
- The survey predicted that missing documents would be a key driver of RFIs as Senders’ behaviour showed less documentation was considered necessary.

What did we learn from the data deep dive?

- In 2023, NZ consented 37,329 dwelling units over 20,177 consents (Stats NZ). That averages out as 1.85 dwellings per consent (1.85 : 1). This is a 35% increase in dwelling units per consent since 2018 (1.37 : 1)
- Tauranga TGA (2%) and Auckland AKL (42%) represent 44% of those of 20,177 dwelling units consented in 2023.
- The data demonstrated similarities between the two BCAs. Every building consent application generates 2.3 (TGA) to 2.5 (AKL) RFI letters. These RFI letters contain 27 (TGA) and 30 (AKL) subline items, each requiring a response.

Where are the delays in the building consenting system?

Our evidence-based data trawl shows:

- Average statutory processing days required by the Receiver: TGA took 21.3 days and AKL 18.9 days.
- Average days on hold taken by the Sender to respond: TGA averaged 18.4 days and AKL 36.0 days.
- Total time combined to grant consent: TGA 39.7 days and AKL 54.9 days.
- For Tauranga, the time on hold (18 days) was, by 3 days, slightly less than the processing time (21 days).
- For Auckland, nearly twice as much time was required to respond to an RFI (36 days) as to process the application (19 days). If each consent averages 36 days on hold and 30 RFI subline items, then each item is taking 1.2 days for the Sender to respond.
- It is the Sender's response time that creates consenting delays. However, the type of reporting requested by the Government in their recent requirement for BCAs to publish consenting data will, unfortunately, not show that delays are not due to processing.
- In 2023, the 20,177 dwelling consents granted would equate to over 600,000+ RFI line items across the country. That's half a million days lost, at a cost of over a \$NZ billion.

How critical is the consenting timeframe within the wider timeframe of building a house?

Data from [Stats NZ \(April 2024\)](#) reveals the number of days to key milestones from the date building consent is granted:

- first inspection – 163 calendar days
- final inspection – 533 calendar days
- code compliance certification – 569 calendar days

Consent processing time adds to these building timeframes but how significantly?

With regard to the research data around BCA processing times:

- TGA 21 days = 29 calendar days, an additional 5% of time to final inspection
- AKL 19 days = 28 calendar days of time to final inspection

With regard to the data around Council processing plus awaiting Sender response:

- TGA 40 days = 56 calendar days, an additional 11% of time to final inspection
- AKL 55 days = 77 calendar days, an additional 14% of time to final inspection

Who's responsible for the delays?

This evidence-based research reveals:

- 86% of RFI items are related to Sender behaviour and 14% to Receiver behaviour
- Of this 86%, missing documentation accounts for 66%, incorrect docs 10%, and coordination issues (say, between Architect and Engineer) 5%, with obscured docs both a Sender and Receiver responsibility, and thus shared at 5%.
- The now-defunct Productivity Commission used to report how NZers worked longer, not smarter. (Source: [Treasury.govt.nz](https://www.treasury.govt.nz)) The Minister is right to be concerned about delays, but if the focus is to improve consenting behaviour and increase productivity, NZ needs to work smarter and increase design intelligence in the Sender space.
- One Sender myth is a belief that the 20-day clock is being used by BCAs to delay time (say, to aid resourcing). Stage 3 of our Data Deep Dive followed every communication between a Sender and a Receiver across n=160 consents. We found little evidence of systemic delays or the mythical stop-clock.
- Where the research revealed incidences of processing beyond the Statutory 20 days this was either by:
 - An extra three days in the case of Auckland Council in relation to the more complex R3 dwellings.
 - Three consents in the case of TGA could all be considered outliers, as the remaining 97% of consents (R1-C1) were processed within 20 days. These three consents (C2, C3) represented 3% of the applications, yet 100% of the BCAs total of 56 days 'overspent' on processing beyond the statutory period.
- This suggests that the consenting system needs greater agility with variable consenting timeframes between simpler (R1-R3) and more complex (C1-C3) projects rather than the 'one size fits all' currently provided by [Section 48 of the Building Act 2004](#). Complex projects might need more processing time.
- Sender disgruntlement with 'consenting delay' appears to be misplaced anecdotal behaviour.
- To reduce days on hold, reducing the number of RFI line items would be recommended.

So who were the Senders?

This evidence-based research shows similarities in Sender profiles between TGA and AKL.

- LBPs far exceed any other Sender profile by the number of consents granted. For TGA, this was 87%, and in AKL, it was 70%.
- Architects were the second largest profile, representing 8% of TGA and 25% of AKL.
- Engineers were the third largest profile with 3% in both cities.

And what were they working on?

This evidence-based research shows similarities in consents granted by dwelling complexity between TGA and AKL.

- R1 and R2 dwellings (say single or two storey houses or renovations) represent 58% of TGA and 52% of AKL consents.
- R1, R2 and R3 (say three storey or townhouses) represent 93% of TGA and 95% of AKL consents.
- C1, C2, and C3 (say apartments and towers) represent just 7% of TGA and 5% of AKL consents.
- Simpler dwellings represent by far the lion's share of consenting. Streamlining consenting behaviour thus should have an R1-R3 dwelling focus.

What types of RFI were evident in the Deep Data Dive?

Guided by the structure of the BCAs' RFI letter, ModelDocs recognised two types of RFI:

- those of a generic nature relating to General and Documentation issues, and those that related to specific NZ Building Code (NZBC) clauses.
- The split between the two types was similar between Tauranga (19.9% Gen & Doc and 80.1% Code Clauses) and Auckland (25.4% Gen & Doc and 74.6% Code Clauses).
- The distribution of line items per NZBC clause was also similar, with B1 Structure the most common in Tauranga (31%) and Auckland (32%), and E2 External Moisture the second most common (TGA 25%, AKL 19%). If the research targeted these two code clauses, then it could potentially resolve over half of the line items!

What advice can be offered around Gen&Docs RFIs?

This research identifies that R1-R3 dwellings represent 90% of consents. Any advice needs to focus on this complexity of work, from alterations to townhouses. In order to transform consenting, recognition of poor past documentation behaviour is vital. Unless Senders and/or Receivers accept the findings, then little changes.

Under [Section 49 of the Building Act](#), a building consent authority "must grant a building consent if it is satisfied on reasonable grounds that the provisions of the building code would be met if the building work were properly completed in accordance with the plans and specifications that accompanied the application".

What the Act does not specify is the documentation that a Sender should provide to meet the requirement. Model Documents already exist.

MBIE have clear guidance on their website relevant to building consent applications. Documentation will generally fall into four main sets of information:

1. Application form information
2. Plans (drawings)
3. Specifications
4. Supporting documents

This website also included a [Standard Order of Documents Checklist](#).

Auckland Council has a more detailed [AC1011 Lodgement Checklist - Residential](#).

The **Coordinated Building Information (CBI)** is a classification system designed by and for members of the construction industry, to co-ordinate the five main information sources: drawings; specifications; quantities; technical and research information; trade information and publications. The [CBI-Overview](#) reflects this and follows the building sequence.

Regardless of the project size, the drawings, specifications, and supporting documentation submitted as part of a consent package should have:

- documentation logically structured (e.g. CBI)
- hierarchy of information within the drawing / document
- clarity of presentation for legibility and navigation

What advice can be offered around NZBC Clause B1 Structure RFIs?

Given that B1 Structure represented the most common cause of Missing documentation amongst RFI line items, what forms of documentation ought to be included in R1-R3 dwellings?

While the [Standard Order of Documents Checklist](#) provides a consenting checklist, it is aimed at R1-R2 dwellings which can be achieved under NZS3604:2011 Timber framed Buildings - “NZ’s most sought after standard”. In the time since NZS 3604 was last revised, the building industry has changed immensely. Our evidence shows R3 dwellings to be increasingly common (35% and 43% of TGA and AKL consents respectively). Thus NZS3604 will be extending its scope to cover R3 buildings, of three full storeys.

Within the Standard order, pages 3-4 refer to Supporting Documents that, “should be provided as a single PDF and organised in the order shown in the table below. You should also include any producer statements that design or engineering professionals have provided you – these should be placed with the relevant supporting document.” That order is:

- A. Ground bearing testing/soil report(s)
- B. Geotechnical Reports
- C. Truss design and bracing details
- D. Bracing calculations and fixing details
- E. H1 calculations
- F. Alternative solutions evidence
- G. BRANZ appraisals and CodeMark certifications
- H. Supporting technical product literature
- I. Other relevant supporting documents requiring Specific Engineering Design

Engineering New Zealand, in partnership with BCAs, is producing Structural Design Documentation Guidance to reduce the number of RFI line items issued by BCAs. The Guidance seeks to increase efficiency and productivity and decrease friction between clients, engineers and regulatory bodies.

What advice can be offered around NZBC Clause E2 External Moisture RFIs?

When Acceptable Solution E2/AS1 was introduced in 2005, it was partially a response to leaky buildings. Twenty years later, the housing landscape has changed. For example, in 2018, townhouses comprised 19% of all dwelling units consented, by 2023, townhouses comprised 45% (Figure 9.1).

- E2/AS1 is limited in scope and needs refinement as new products and innovations emerge.
- The Alternative Solution pathway is a valid pathway in the legislation but is perceived as difficult for a Sender to navigate and tends to result in BCAs requesting information, which deters Senders due to time-cost implications. We need innovation in cladding design to disrupt high build costs, yet the alternative pathway is an impediment. Source: [MBIE Building Performance E2 compliance](#)
- Normalise the so-called ‘Alternative Solution’ so that it becomes standard. Improved demonstration of compliance of E Moisture Performance Criteria and the four 4Ds principles ([BRANZ](#)) is needed. Senders argue that Receivers prefer the Acceptable Solution pathway to facilitate risk management.
- The architectural profession did not appear to have a collective, rigorous methodology to demonstrate compliance. Senders are in need of a template.
- Since the 1990s, cavity wall construction has become normalised, so a more holistic picture of E2 needs to be drawn, including internal moisture (E3), ventilation, insulation, structure, and fire. For example, internal moisture is also a function of external factors such as greater development densities leading to buildings with less direct sunlight exposure, as well as internal factors such as cooking, bathing and breathing! The downside of a well-insulated house is that the airflow in and out of the building is reduced. This means the humidity levels can rise higher than in an environment where air is exchanged more readily.
- In Australia, Alternative Solutions are normalised as Performance Solutions.

For E2 External Moisture for acceptable solution design, MBIE has a good [Guide to using the risk matrix](#). Whilst the templates work on a 2D elevational basis, with the increasing number of projects documented in 3D, a simple 3D template ought to be provided in the consent package which immediately provides overview of the complexity of the building proposal.

Six Key Findings

This research, ModelDocs, looked into Building Consenting behaviour relating to New Zealand housing. We extracted data from building consents granted by Auckland and Tauranga Councils during May 2023.

1. On average, the processing of a consent generates 30 RFI Line Items. Each needs a Sender response. As there were more than 20,000 dwelling consents granted in NZ in 2023, this means over 600,000 items would need resolving annually (Fig 11.8).
2. This behaviour results in Auckland Council taking, on average, 55 days to grant a consent. Of this time, the council waited for a response from the Sender for 36 days, meaning the actual processing time of 19 days was less than the 20 day statutory time frame (Fig. 11.10).
3. Of the multitude of RFI line items that needed resolution, 20-25% related to general and documentation issues, while 75-80% related to NZ Building Code clauses (Figs. 11.11 & 11.12).
4. Of the code clauses issues, the majority of RFI line items (66%) relate to 'missing' documents. The remaining items related to 'incorrect' (10%), 'correct' (9%), 'obscured' (10%) and 'coordination' (5%) documentation issues (Fig. 11.46).
5. The majority of the Missing documentation related to New Zealand Building Code clauses B1 Structure (31%) and E2 Weathertightness (19%) issues (Figs. 11.15 & 11.16).
6. In terms of Senders, LBPs (Design Class) dominate housing consent applications, representing 87% of Tauranga (Fig. 11.23) and 70% of Auckland (Fig. 11.24) applications. Architects represented 25% and 8% of Senders respectively, with engineers representing 3% consistently.



Research Question:

“Does a building consent application with missing documents indicate a poor quality submission?”

Receiver behaviour:

“The rules keep changing... we don't know what to send.”

“There is variability because the councils are inconsistent. 69 BCAs, each doing their own thing”

Source: anecdotal



Recommendations

1.

A 43% win! Missing documents from Senders represent greatest RFI cause

Each Sender group needs to be specifically addressed. As LBP (designers) comprise the greatest number of Senders, the message of MissingDocs can be communicated by the LBP registrar and, ultimately, the LBP Board. Unlike architects and engineers with their NZIA and ENZ, respectively, the absence of an LBP collegial body to attend to critical professional development means that the LBP newsletter, editions of Codeword, and mandatory CPD skills maintenance are currently the available channels

Win calculated: 66% of line items relate to missing info of which 65% was LBP responsibility (Figs. 11.46 and 11.48)

Implementation:

- 1.1 Disseminate research findings to LBPs via Codeword and CPD
- 1.2 Establish an organisation (e.g. ADNZ) to socialise LBPs and develop CPD that attends to existing behaviour
- 1.2 Strengthen the rules such that LBPs licence classes are enforceable to ensure competency
- 1.3 Report poor Sender behaviour. As LBP scheme is 'complaint-based', under [Regulation 17\(3\)](#), BCAs can make complaints about practitioners who repeatedly submit poor quality applications

2.

A 20% win! Transform architects' behaviour through CPD re-education

Win calculated: 66% of line items relate to missing info, of which 31% was the architect's responsibility (Fig. 11.48).

Implementation:

- 2.1 Disseminate research findings to Architects via Architecture NZ magazine, NZRAB CPD Network, NZIA regional roadshow and EBOSS's specified event for the construction industry
- 2.2 Promote general & doc learnings regarding readable drawings (e.g A3 PDF file sizes for R1-R3 projects) (Fig. 12.7)
- 2.3 Reduce B1 structure line items by embracing forthcoming ENZ Structural Design Documentation Guidance
- 2.4 Absorb and integrate Sender behaviours into forthcoming NZS3604 consultation on three-storey dwellings
- 2.5 Improve demonstration of E2 compliance via alternative solution pathways that, in their Compliance Reports, clearly identify the specific areas of alternate design, including performance criteria and 4D principles

3.

A 14% win! Transform Receiver behaviour through CPD education

Win calculated: 14% of RFIs need not have been sent as the Sender documentation was either originally correct (9%) or present (albeit obscured, 5%) (Fig 11.46)

Implementation:

- 3.1 Implement accessible research and resources around 'How to Write an RFI' to provide urgent BCA consistency
- 3.2 Implement one unified checklist, for both Sender & Receiver, for use with any Consent Management System
- 3.3 Implement a NCAS Review on RFI writing and checklisting
- 3.4 Provide a formal education pathway for future BCOs such as the new Bachelor of Building Surveying (Bldg Controls)

Research:

“New technologies, new materials, and new ways of doing things mean laws and guidance will change: consenting is a living process.”

“This evidence-based research shows most Code Clause line items referred to entrenched behaviours towards old knowledge. Such as NZS3604”

“Quality appears to be quantum based. The more RFI items the less robust the application. The magic number for efficiency is significantly less than the current 30 items.”

Figure 3.1 – Mount Maunganui reimagined with the housing density of Costa del Sol.
The high rise beach dwelling (C3) affords everyone with a sea view and limits suburban sprawl.



4. Background

This research is called ModelDocs. The genesis of the project speculated that dispersed across the myriad archives of the nation's 68 Building Consent Authorities (BCAs) lies a trove of documents that could form a set of ideal Model Documents. If compiled, these documents would represent a perfect building consent application. A consent that is unambiguous. A consent that requires no requests for further information from its senders. This would make granting a building consent within the 20-day processing period stated in the Building Act 2004 a certainty. Given the growth in building consents issued – in 2023, NZ consented 37,329 dwelling units across 20,177 consents - this vast digital archive contains every design permutation of any consent documentation ever submitted to build a house in NZ. This mythical building consent archive would look a lot like an architectural '[Library of Babel](#)' which holds every letter, of every word, of every language, of any found in any book ever written. For books, read consents.

To give some sense of the background to this research, we offer two recent viewpoints from February 2024. The first is from the Minister for Building and Construction, Chris Penk. The second is from the Ministry of Business, Innovation and Employment (MBIE) and their Review of the Building Consent System.

The Minister has stated that, "Delays in the building consent system increase the cost of building and make it harder for the sector to deliver more affordable homes for Kiwi families." Yet as there was, "no consistent nationwide data on building consent timeframes..." how do we know what these supposed delays look like or what is causing them? From April 2024, Building Consent Authorities are required to submit timeframes for building consent applications with the data published quarterly on MBIE's website. Collecting this data, says the Minister, will help, "inform future changes in the government's ambitious plan to streamline the building consent system and make it easier to build." Source: [Beehive.govt.nz](https://www.beehive.govt.nz) A desire for data to drive evidence-based transformation also underpins the ModelDocs methodology.

In a recent National Business Review article, the Minister promised to cut building costs. The cost of building a house in NZ has, apparently, increased by 41% since 2019 and today is, reportedly, 50% more expensive than in Australia. MBIE calculated the per square metre cost of building a home in NZ at \$2,591 compared with \$1,742 across the Tasman. Source: [NBR 15 Feb 2024](#)

While the research does not want to comment on build rates in Australia, those 2022 rates quoted for NZ seem questionably low. According to EBOSS, no builder in NZ can build at these rates. Group house builders report build costs today at between \$3,300 - \$3,800. One explanation for why MBIE's build costs are low is that the data MBIE sourced is from Stats NZ which excludes external works (land, driveways, landscaping, fences and earthworks such as drainage and retaining walls). Furthermore Stats NZ collates build costs from building consent applications which are related to the BRANZ levy. To reduce this levy, the applicant can understate build costs.

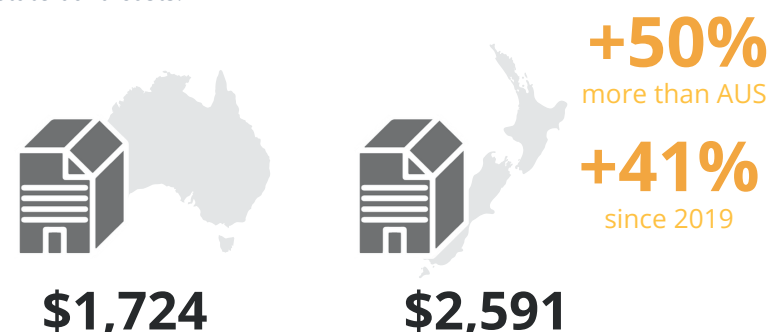


Figure 4.1 – MBIE's 2022 average price not of a house but of the cost per square metre to build one (excl. external works) in Australia versus NZ

Clearly, house build costs need to be reduced. The Government's strategy includes much from the MBIE review. Will reform of the consenting system through clarifying roles and responsibilities increase the number of building consents granted? The Minister asked for greater consistency between BCAs and wondered if the number of BCAs might be optimised. By sharing workloads and increasing specialisation to make consenting more efficient, this can easily be achieved now through digital solutions.

The national building supply chain is considered an impediment to increasing the housing supply. The sourcing of materials from abroad merits consideration in the building of scale. Could credible overseas jurisdictions with approved products – e.g. Australia – be applied to the NZ market? This would require consistent BCA interpretation of the Building Act. And there is still a lack of fiscal support for offsite manufacturing and modularised prefabrication, particularly with wood processing.

To contextualise the Minister's views, we now look at MBIE's review of the building consent system and its relevance to ModelDocs.

December 2022 MBIE Review of the Building Consent System: Issues

1. Across the building consent system, **roles and responsibilities are only partially understood and accepted**. The Review queried the ability of those preparing (LBPs, architects, etc) and consistently those processing (Building Consent Authorities) applications to interpret the Building Act and the Building Code.
 2. As the volume and complexity of building work increases, **capability and capacity constraints are undermining the system**. Purported delays are influencing project timelines and leading to cost increases. The Review thought that improving the qualifications available to the building sector could improve the skill level of the workforce.
 3. There is **a lack of system agility** as all consent applications currently go through a 'one size fits all' process, regardless of risk, complexity or type. A house alteration, for example, is allocated the same 20-workday processing time frame as a high-rise residential tower. There should also be less dependence on following 'tried and tested' methods of construction (Acceptable Solutions) and ways of testing (Verification Methods), as this stifles innovation. Alternative solutions are considered risky because demonstrating compliance is seen as more time-consuming and thus expensive. The current consent system is not sufficiently responsive to the building needs and aspirations of Māori.
 4. The review considered the current system's performance **insufficiently monitored**. More data and precise information is required to improve understanding, including greater analysis of RFIs.
 5. Variability and unpredictability within and between BCAs have **fragmented implementation** and led to inconsistencies around:
 - application requirements, processes, timeframes and fees
 - consent management systems (with multiple login accounts and diverse checklists)
 - decisions and outcomes
 - application of the Building Act 2004, Building Code and acceptable solutions
- Source: MBIE: Review of the Building Consent System Issues Discussion Dec 2022



Sender behaviour:

“Some Building Consent Officers might need more technical competence to understand and assess an Alternative Solution adequately.”

- Sender, Source: 2022 MBIE Review

Receiver behaviour:

“What’s the point of issuing our internal checklist? This will just make the Council liable for a box-ticking application”

- Receiver, Source: overheard



The relevance of the Review to ModelDocs research:

- ModelDocs will try to examine the competencies of both those who prepare and those who process applications. This is could be easier with regard to Receivers as there is a National Competency Assessment System for Building Consent Officers.
- The lack of system agility requires legislative change which is beyond the scope of this ModelDocs research. Nonetheless, it ought to happen. More complex projects need more time.
- The desire for better monitoring shifts our understanding of consenting from the anecdotal and experiential to research which is data driven analysis. Data can 'myth bust' much of the anecdotal misinformation which is influencing political behaviour.

- By identifying where and why RFIs arise, the research can co-design prototypes that provide more targeted guidance to the consenting process.
- Inconsistency between BCAs can also be a function of risk appetite. Some BCAs may spend more time (money) checking all provided information before issuing an RFI, while some might do a quicker review and, if they can't find something, will ask the applicant to provide it. This results in more work for the applicant, especially where the application is substandard, but ultimately, there is less work for the BCA and less cost. So, does the quantum of RFIs really measure efficiency, or is it a measure of the risk approach of the BCA?

February 2024 MBIE Review of the Building Consent System: Options

1. There was **little industry support for changes to the Regulatory System** and MBIE's preferred approach to including competition in performing duties and exercising powers under the Building Act. There was also little support for statutory change to promote and give prominence to competition in the building regulatory system.

2. The Review noted **strong support for New Products** and the removal of impediments to make this happen, such as demonstrating careful consideration of product performance when substituting. Suggestions included the creation of a national product register to make it easier for Senders and Receivers to know which products are considered suitable alternatives. As the liability for emerging products can fall on BCAs (and thus ratepayers), compulsory design insurance for 'non-approved' building products would make the designer/developer liable for potential building failures.

3. The Review had strong support for **resolving the knowledge gaps in roles and responsibilities** through a non-regulatory approach to publishing further guidance. This included strengthening the responsibility of designers for the sequencing of building works. Greater clarity was also sought regarding Producer Statements (PS), which currently have no legal status in the Building Act. The Review noted that Senders could provide a declaration of design compliance as a means to enable faster, more streamlined consenting.

4. The Review mooted the introduction of **new assurance pathways** through self-certification pathways for approved professionals and accredited companies as well as a new consent pathway for commercial buildings. Greater national direction and consistency between BCAs could be obtained through **streamlined centralised consenting** via, say, a national web portal and a Centre of Excellence for the training of Building Control Officers. The sharing of workflows and services between BCAs could also reduce variability as well as boost capability and capacity of BCAs through greater economies of scale.

5. The establishment of a Centre of Excellence for Māori-led construction projects received the most support to address the **issues that Māori face in the building consent system**.

The relevance of this Review to this research:

- ModelDocs research seeks a non-regulatory approach to behavioural transformation. The research looks for change within the system, not to change the system itself. That is so 'quick wins' can be implemented to 'fast follow' existing policy and legislation.
- The responsibility for a building consent application in New Zealand is shared by multiple parties and a wronged party may sue any or all of them under 'joint and several liability'. As designers and builders can elect to go bust, the Council is ultimately the 'last man standing' and assumes all the risk and little of the developer gain. A shift in insurance regime to one such as that in the UK with its developer '10-year structural warranty' insurance is beyond the scope of ModelDocs.
- ModelDocs is solely concerned with the processing stage of consenting, not Inspections or Code Compliance Certification (CCC). Designer responsibility for sequencing of building works is thus not relevant.
- The research sees the desire for a declaration of design compliance as a need for more prescriptive guidance around compliance for the most problematic code clauses. Thus ModelDocs prototypes will attend to those code clauses which attract most RFIs.
- New products and new International Standards will provide more solutions but will also increase consenting complexity.
- While a national consent portal is welcome, the research seeks a non-regulatory behavioural approach. (Refer Stakeholders: the Planning Portal)

5. Building Regulatory System

Most readers of this chapter will declare themselves to be 'well aware' of the building regulatory system in New Zealand and, thus, might think there is little to be learnt here. Yet the MBIE reviews queried the ability of those preparing (LBPs, architects, etc) and those processing (Building Consent Authorities) applications to interpret the Building Act and the Building Code consistently. This chapter is not about 'awareness'; it is about 'application'.

How does one apply the Act, the Regulations and the Code to a consent application?

All building work in New Zealand must meet certain requirements. These are set out in legislation and regulations that determine how work can be done, who can do it, and ensure the system has checks and consumer protection in place. The legislation and regulations work together as the building regulatory system:

- Building Act 2004 – primary legislation governing building and construction industry.

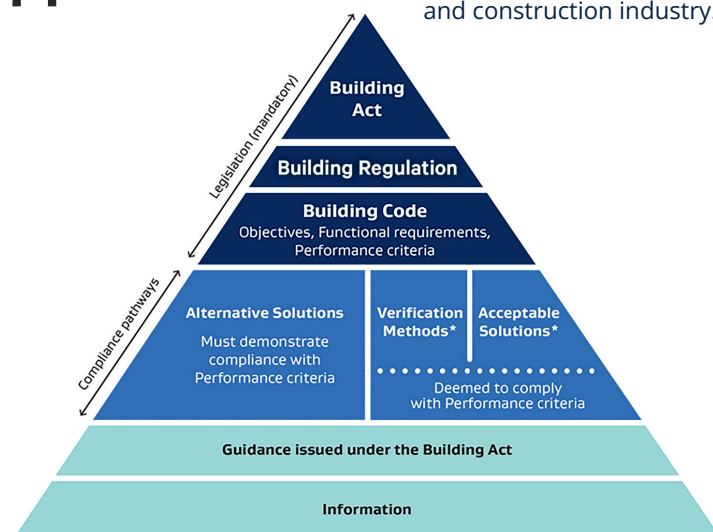


Figure 5.1 – The Building Regulatory System

- Building Regulations – details particular building controls (e.g. prescribed forms, specified systems, 'change the use', levies, fees and infringements).
- Building Code – contained in Schedule 1 of the Building Regulations 1992, sets the minimum performance standards buildings must meet.

3.1 Building Act (2004)

When the Building Act 2004 ("the Act") came into effect on 31 March 2005, the changes aimed to better protect homeowners with a focus on safety. The Building Act sits at the top of a tiered triangle and sets out the rules that every building must meet. The Act is the primary legislation of the building industry and ensures that buildings:

- Are safe, sanitary and have suitable means of escape from fire; and
- Contribute to the physical independence, health and well being of people who use them
- Are designed, constructed and able to be used in ways that promote sustainable development

The Building Act and its regulations work alongside other legislation, including:

- The Resource Management Act
- Laws specifying that certain plumbing, gas and electrical work must be done by qualified professionals
- Fire and Emergency New Zealand Act (2017)
- Council bylaws

3.2 Building Code

The Building Code is secondary legislation and sits below the Building Act. It outlines the minimum requirements for buildings to achieve. The Building Code includes Objectives, Functional requirements and Performance criteria. This is a performance-based system, which means the Code states how a building must perform; it does not describe how it must be designed and constructed. By focusing on how buildings perform rather than how they are built, designers, architects, and builders can meet the building standards in flexible and innovative ways. A building owner has to achieve the minimum performance criteria set out in the Building Code.

3.3 Building Regulations

Given that the Building Code only states how a building must perform, rather than describe how it must be designed and constructed, do Building Regulations establish compliance with the Code? Or do Building Regulations moderate how the Code complies with the Act?

The Building Code is contained in Building Regulations under the Building Act 2004. The Act governs the building sector and also sets out the rules for the construction, alteration, demolition and maintenance of new and existing buildings in New Zealand. It works alongside other legislation for health, safety, consumer protection and land use.

All building work in New Zealand must comply with the Building Code, even if it doesn't require building consent. This ensures that buildings are safe, healthy and durable for everyone who may use them.

Plans and specifications are assessed by Building Consent Authorities (BCAs) to ensure the proposed building work will comply with the Building Code. When the BCA is satisfied, it will issue a Building Consent for the work to proceed. If the work is built to the consented plans and receives a Code Compliance Certificate (CCC), it confirms that the requirements of the Building Code have been met.

Those submitting Building Consent Applications, such as architects, designers, engineers and Licensed Building Practitioners (the "Senders"), submit the Building Consent Application along with all supporting material to their regional Building Consent Authority. Applications are processed by Building Consent Officers (the "Receivers") who assess whether the proposed work complies with the NZ Building Code.

A step-by-step guide to the Building Consenting process:

Design and pre-application

1. Sender engaged to carry out the design and act as the agent and representative.
2. Sender applies for Project Information Memorandum (PIM) report containing land info, existing utility services, resource consents, approvals and special features.
3. Sender undertakes the design documentation intending that proposal complies with performance criteria of the Building Code.

Building Consent Application

4. The council vets application. This is not done by a Technical Officer or BCO.
5. If rejected, more documentation is required before the application is accepted.
6. Once the complete application is received, under Section 48 of the Act, BCA has 20 working days to process.

Building Consent Processing

7. BCA processes the consent, checking the design documentation for compliance.
8. If the BCO notes missing or incorrect documentation, then a RFI is issued.
9. Clock is stopped, and days on hold start while Sender prepares documents.
10. Clock re-starts once documentation received.
11. BCO continues processing the consent, checking documentation for compliance.
12. If further RFI's required, repeat as above.
13. If not, BCA grants Consent and informs Sender nominated in application.
14. Consent is issued once the processing fees are paid.
15. Building work can proceed providing no planning issues / S37 matters.

Site work and inspections

16. Builder has consented plans on site at all times to ensure building works are completed in accordance with consented works.
17. Builder books building inspections
18. Minor changes sometimes made which are recorded by the inspector; engineer's observations and inspections carried out, if required
19. Final inspection is a milestone.

Code Compliance Certificate

19. Owner applies for Code Compliance Certificate (CCC) once works complete.
20. Council issues CCC within 20 day statutory time frame.

ModelDocs is only concerned with the processing part of the Building Consenting procedure. Therefore, only steps 7 to 14 are relevant to the research.

6. Research Methodology

The research investigates building consents for dwellings only, seeks behavioural (not technological or legislative) transformation, and investigates the processing phase of consenting, not Inspections or Code Compliance Certification.

4.1 Ethics

As the ModelDocs research involves human participants, an application was made to the University of Auckland Human Participants Ethics Committee (UAHPEC). The Ethics application was undertaken through an expedited review pathway as the research has a low risk of physical and psychological harm.

4.2 Identification of Stakeholders, Senders, and Receivers

The primary stakeholders for ModelDocs belong to one of the following groups:

- Stakeholders invested in transformations to the building consent system
- Those preparing a Building Consent Application (the “Senders”)
- Those processing a Building Consent Application (the “Receivers”)

The first step of the research was to understand who each of these groups are. We contacted all stakeholders to confirm the purpose of the research, the expected outcomes, and the milestones we were working towards within our timeframe.

4.3 National Survey

An online survey was undertaken to establish a baseline reading of existing behaviours:

- within the Sender group
- within the Receiver group, and
- between the Sender and Receiver group

The Matrix Survey invited Senders and Receivers to share their views about what sort of documentation is required for a Building Consent Application across six levels of dwelling complexity (R1-C3).

4.4 Deep Data Dive

The research undertook detailed data analysis of Building Consents granted by Tauranga and Auckland Councils during May 2023. Auckland was chosen because of its size, the fact that it has a University, and the existing professional relations between the research team. Tauranga offered a counterpoint, as a regional BCA and through its Consent Management System.

Due to the housing affordability crisis, this research focuses on dwellings including:

- New builds
- Alterations where the amount of net inhabitable space is increased
- Major alterations due to the complexities of re-cladding
- Prefabricated Buildings

and excludes: installation of wood burners, pools and fences, remedial works due to flooding or fire repairs, retaining walls, relocated dwellings, garages and Master and Dependent applications (where multiple units of similar design are covered by one application). The deep data dive was split into the following stages:

Stage 1: A consent application can produce RFIs with line item queries. These queries relate to either General and Documentation (Gen&Doc) issues or specific NZBC code clauses. Stage One mapped line items against Gen&Doc and Code clauses, the fault with documentation provided, the type of documentation required, and who was responsible.

Stage 2: Where Stage One identified where the line items were located, Stage two dug deeper to find the causes. This stage as looked into the most frequent issues found in Gen&Doc and the two most common NZBC clauses.

Stage 3: In this stage, the research investigated the correspondence between Senders and Receivers to track how their communications progressed towards resolving the issue so as to determine responsibility at resolution.

4.5 Principles

Based on the results of the Matrix Survey and the evidence-based RFI Deep Dive, some principles were identified which would make the consenting process more efficient.

7. Stakeholders

For this ModelDocs research, our stakeholders are those organisations who have an interest in the research and are involved in its development to varying degrees. Stakeholders can affect and be affected by the research outcomes. They include those who are both supportive of the research as well as those who may be less supportive or indeed critical of it. With respect to the ModelDocs research, the purpose of our stakeholder analysis was to:

1. Identify project stakeholders
2. Determine what interest each stakeholder has in the research
3. Assess how much influence stakeholders will have over the research
4. Consider how to manage and communicate with each stakeholder



**Building Research
Association of New Zealand
(BRANZ)**

The Building Research Association of New Zealand (BRANZ) was established in the late 1960s to improve New Zealand's building system performance through independent research, deep knowledge of the systems, and strong networks across the building industry, government and building users. BRANZ administers the Building Research Levy Act 1969, which authorises the levying of building contractors to raise money for research into the building system. Under the ACT, 0.1% of the contract value of each construction project put forward for building consent (from July 2024, if \$65,000 or above), is payable by the consent applicant to BRANZ. In practice this is paid through the Building Consent Authority. BRANZ undertake and commission research to form practical, applicative knowledge that makes a positive impact across the building industry, from the performance of buildings to policy and legislation. BRANZ also offers independent product testing, assurance, and consultancy services.

Involvement: ModelDocs is funded by BRANZ and they have considerable influence over the research through regular communications based on reporting, structured around seven bi-monthly milestones.



**Ministry of Business,
Innovation & Employment
(MBIE)**

The focus of the Ministry of Business, Innovation and Employment (MBIE) is to cultivate a strong economy and ensure the sustainable use of resources, skills and knowledge across the country to the benefit of everyone who lives here. MBIE is responsible for the building and construction sector and overarches its regulatory system. Its focus in this role is to *"deliver a robust, agile, and fair regulatory environment"*. MBIE is *"the system steward and central regulator"* of the building regulatory system and works with the wider construction industry, including building practitioners, financial institutions, other regulators, Territorial Authorities, research institutions, and building users, to improve the regulatory system and ensure a safe and trusted environment. As the overarching organisation in charge of movements within the building industry, MBIE is a highly important stakeholder. This research falls firmly within their interests as it seeks to improve the regulatory system to benefit all those in the building industry.

Involvement: MBIE's support of ModelDocs has been a critical driver for the project, and MBIE will be vital in facilitating further development and uptake of ModelDocs. MBIE has a strong influence on many of the other stakeholders and has provided information on the distribution of BCOs and BCAs across the country.



Building Officials Institute of New Zealand (BOINZ)

BOINZ is a charitable organisation that represents and advocates for over 1,200 members engaged in the building control profession. They play a supportive role for their members, providing opportunities for ongoing training and education, and they encourage members to, “develop a better understanding of the responsibilities and duties imposed by Acts and regulations”. This is to ensure that New Zealand’s buildings perform well and serve those who occupy them. Their advisory group makes submissions on behalf of members to facilitate their influence on policy and decision making. They work closely with BCA’s and other industry bodies to provide building compliance training within the wider building industry. Their Accredited Building Surveyors Training Programme enables individuals to demonstrate that they, “have the knowledge, ethics and experience that set them apart within the building survey sector.” The Institute holds networking events and workshops where members can meet and exchange knowledge.

Involvement: BOINZ is interested in this research because it aims to facilitate behavioural change in its members. They have had a level of influence, providing technical expertise during the exploratory stage, and later opportunities to socialise, communicate and engage the research within their SBCO (Blenheim) and Annual Conferences (Auckland and Wellington). BOINZ will also be vital in enabling the uptake of ModelDocs with the 69 BCAs across New Zealand.
<https://www.boinz.org.nz/>



Registered Master Builders Association

Registered Master Builders provide support and services for their members to ensure they deliver, “quality built environments where we live, work and play.” 14 Master Builders can provide information and professional expertise as part of a building consent application, for example, through Producer Statements. Producer Statements are experience-based professional opinions that are used to provide Building Consent Authorities (BCAs) assurance that building work complies with the Building Code. Working with a Master Builder guarantees clients that they are contracting builders that represent, “the best of the industry and uphold the highest standards”. There are over 3,000 Master Builders throughout New Zealand located in branches around the country so that members have local support and connections within the construction industry. Builders are impacted by the delays and cost increases associated with inefficiencies in the current regulatory system.

Involvement: It is in the interests of the NZMBA to improve the consenting process for the benefit of their members. There was a small amount of communication with the NZMBA early in the research, but their influence in the overall project is limited.



New Zealand Certified Builders Association (NZCB)

The New Zealand Certified Builders’ Association was set up in 1998 to actively support and promote the skill of trade-qualified builders. It was established by a group of builders to protect the building industry and homeowners from, “unqualified builders and unethical practices and promote excellence in building standards”. Members are required to hold a qualification equivalent to or better than the National Trade Certificate in Carpentry Level 4. The NZCB also considers references from past clients and suppliers, a good reputation, financial checks and consistently high standards, before granting NZCB membership. These requirements establish a level of quality and consistency visible to both the public and the building profession when choosing a trade-qualified builder. Members benefit from the “Find Your Builder” regional search engine which the public can use to find member profiles based on location and type of work. There are also training workshops, business tools and guidelines, professional development opportunities and helplines available to members.

Involvement: An efficient consenting process will benefit the members of the NZCB. They did not have active influence over the research, but allowed the researchers to deliver a keynote on ModelDocs at the NZCB conference in 2023 (Christchurch).

 Simpli	Simpli is a partnership of 30 BCAs around the country committed to improving the consistency and collaboration of Building Consent Authorities. The Simpli Portal is an innovative online platform for submitting and tracking building consent applications. It aims to make the application process more accessible, consistent and straightforward for those submitting applications and the Building Consent Authorities (BCAs) receiving them. Simpli also provides a joint quality management system (QMS) for BCAs to use including audit support, and training, guidance and collaboration tools to ensure the consistency of technical advice to BCAs and the continued upskilling of Building Consent Officers. All this is with the aim of bringing improvement and future thinking to the building consent process. <u>Involvement:</u> ModelDocs has engaged with Simpli on many occasions throughout the research via online and in-person meetings. Interactions included E2 Alternative Solutions and RFI writing. Simpli has expressed interest in conducting follow up RFI writing research with ModelDocs. https://simpli.govt.nz/
 Suppliers and Manufacturers (via EBOSS)	There are 800 national suppliers and thousands of manufacturers in the New Zealand building industry. Suppliers and manufacturers contribute to building consent applications by providing documentation such as Specifications, Producer Statements, Warranties, and Codemark Certifications. Of all the building materials that are imported into NZ, around seventy per cent are finished and ready for sale. This is done by Suppliers such as Bunnings, Mitre Ten, Placemakers, etc who are marketing-led and act as importers and distributors. Given the scale of imports, this means thirty per cent of building materials are locally manufactured. This being the case, a manufacturer assembles and produces various products (such as plasterboard, lumber, and ventilation systems) from scratch. Given the vast number of contributors within the house-building supply chain, and no unified umbrella organisation, ModelDocs research has positioned EBOSS, with its extensive product library and extensive 3,000 contacts, as a strategic voice offering detailed and critical insight that is representative of suppliers and manufacturers. <u>Involvement:</u> extensive discussions throughout the research regarding the use of evidence-based data analytics within the building industry. Potentially working with ADNZ, EBOSS offers a second collegial association for LBP Designers in the continuation of their professional development.
 Planning Portal (UK)	A centralised portal could address the interface between Resource and Building consenting in NZ. One example is the UK's planningportal.co.uk, which was established in 2002. The Planning Portal is a 'front end' system that allows planning applications in England and Wales to be processed electronically. It provides a conduit between those submitting applications (Senders) and the local planning authority (Receivers), who will determine them. The first planning applications were submitted in 2003. The portal later added guidance and information content, as well as interactive guides. In 2016, an application service for Building Regulations approvals was added. Today, one can purchase site location plans. Their Keychain platform has developed data standards to achieve standardisation, consistency, improved behaviours and certainty within the process for the benefit of all stakeholders. An explanation of the service can be found by clicking here. The Planning Portal was partially privatised in 2015, yet it crucially retains central government ownership as a joint venture between the UK Government and TerraQuest Solutions. <u>Involvement:</u> ModelDocs reached out and engaged with PlanningPortal. Although a 'one-stop, nationwide application drop' is beyond the scope of ModelDocs, their current guidance did overlap with the General and Documentation prototypes found later in this report.

8. Senders

This chapter offers information about the six professional groups that by and large form the Sender profile. The researchers considered engagement and communication with each group to be vital in order to gain insight into behaviour.

An application for Building Consent can be submitted by an owner or by an agent on their behalf. The person or entity submitting the Building Consent Application is the Sender. The design services involved in preparing an application are provided by individuals and business entities, including architects, designers, engineers and Licensed Building Practitioners. ModelDocs defines “Sender” more narrowly as the person listed on ‘Form 2A: Memorandum from licensed building practitioner (certificate of design work)’, that is, the person who supervised or carried out the design work. These are deemed LBPs. Form A2 is restricted to practitioners referred to under Section 45 of the Building Act (2004):

“(2) If an application for a building consent is accompanied by plans and specifications that contain design work (relating to building work) that is restricted building work, that design work must be carried out or supervised by 1 or more licensed building practitioners who are licensed to carry out or supervise that work.”

Senders of a Building Consent Application are likely to be associated with one of the organisations across the following pages. In order to gain some understanding of the scale of variability in Sender-Receiver behaviour, ModelDocs estimates the number of potential senders undertaking dwelling consents in NZ:

- Architects (NZRAB): 2,300
- Licensed Building Practitioners (in the Design class): 2,775
- Architectural Designers: say 400
- Chartered Engineers: say 150 (3% of Senders as per Figures 9.19 and 9.20)

Estimate total practitioners: 5,500

Given the overlap between NZRAB and NZIA members, the research considers that, even though not all these members be actual Senders (Lead Designers) of a consent, this number does hint at the potential variability manifest within the Sender group.

8.1 Licensed Building Practitioners (LBP)

The Licensed Building Practitioners (LBP) scheme was launched in 2007 following an amendment to the Building Act 2004 stipulating that from 2012 onwards restricted building work must be carried out and supervised by practitioners who are licensed. The purposes of licensing as set out in the Building Act 2004 are:

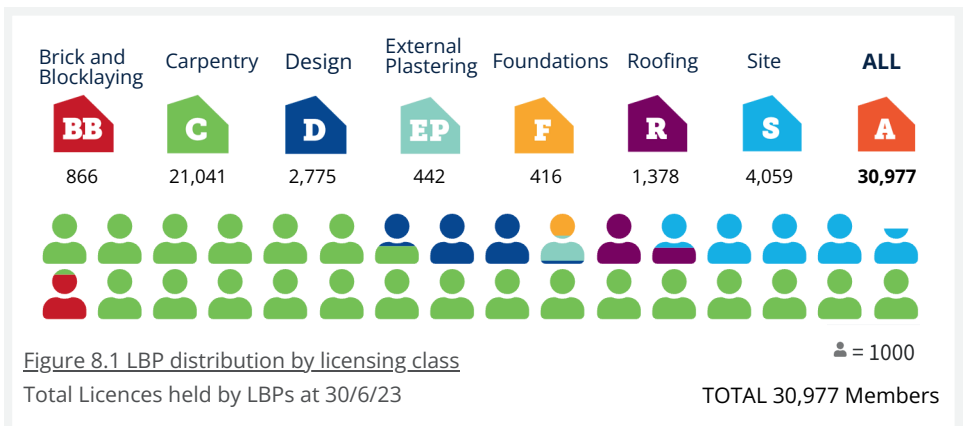
- (a) to assess and record building practitioners as having certain skills and knowledge relevant to building work; and
- (b) to license building practitioners so that, in regard to restricted building work, licensed building practitioners can carry it out or supervise it.

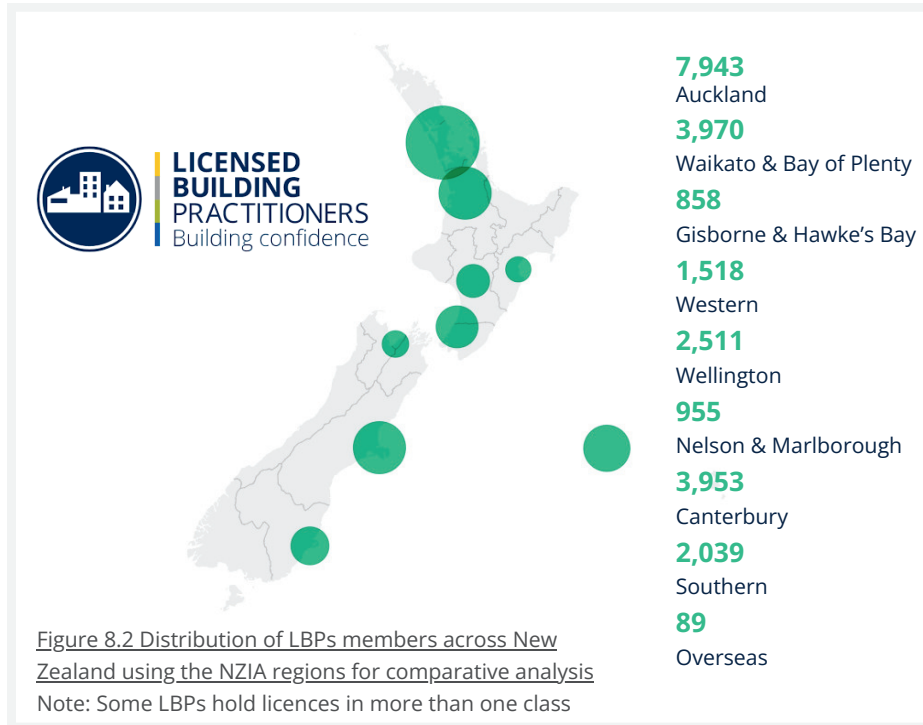
Section 282A: inserted, on 15 March 2008, by [Section 55](#) of the Building Amendment Act 2008 (2008 No 4)

Registered Licensed Building Practitioners are listed on a public register so that the public can access information about practitioners before they engage them. The LBP scheme is overseen by The Building Practitioners Board, a statutory body constituted under Part 4 of the Building Act 2004, which hears appeals regarding licensing decisions, investigates complaints, approves [Rules](#) and submits annual reports summarising its activities and findings to the Minister for Building and Construction.

Membership

According to the 2023 LBP Annual Report there were 30,977 Licensed Building Practitioners. Membership is structured around seven different licence classes:





There were 2,775 LBPs in the Design class. This means there are more LBP Designers than there are Registered Architects and so LBPs have a significant influence in the consenting landscape. Furthermore, unlike architects, only 25% of LBP Designers are based in the Auckland region. Source: LBP Annual Report 2023

Within the Design class there are three recognised Areas of Practice (AOP): Design 1, Design 2 and Design 3. Each area is determined by three building categories representing complexity and level of risk. Category 1 is the least complex e.g. single-storey household. Once licensed, an LBP is not restricted to working within their AOP category. LBPs can undertake all work covered by their licence class, but must only undertake work they are competent to do. This is self-regulatory as an LBP is expected to recognise when supervision or other skills are required. Thus an LBP licence is thus not an indicator of competency. The regulations need to be strengthened so that LBPs licence classes are enforceable to ensure competency. Registered Architects and Chartered Professional Engineers are automatically LBPs (Design class) and can design restricted building work. Source: <https://www.lbp.govt.nz/become-an-lbp/building-categories/>

Engagement:

The LBP Scheme was brought in as part of the Building Act and is regulated by a 'complaints-based' Board. LBPs, however, do not have a public or member facing collegial association or institution to look after their professional development. This means engagement was limited to interactions with the Chair of the Board, the LBP Registrar and technical advisors. A link to an explainer video of the research was forwarded to individual members by email.

Insight

The number of LBPs far exceeds Architects not just by registration but also by the number of dwelling consents submitted, as the research shows in Figures 9.19 and 9.20. Yet the professional socialisation of LBPs (in the design class) is highly problematic. It is simply difficult to contact, communicate and thus disseminate any research findings that could modify LBP behaviour as they have no umbrella organisation. MBIE only undertakes regulatory duties regarding licensing. It is not known how many LBPs in the designer class are also members of ADNZ, DINZ, NZIA, NZCBA or NZMBA. One opportunity uncovered by ModelDocs is the possibility that an existing industry player, such as EBOSS (who demonstrated a willingness and are also involved in BRANZ research) could provide LBPs with a collegial organisation to promote a greater dialogue, educational provision and continuing professional development. Such an organisation could improve communications to Senders, and therefore their behaviour regarding poor quality applications in relation to Missing info.

In their 2018 Builder insights, EBOSS reported that 87% of the Builders they surveyed (n=584) were LBPs, yet over half (56%) belonged to no industry association. Of those who did, an equal share (16% each) belonged to Master Builders and Certified Builders.

An alternative organisation could be the NZIA where LBPs could be offered affiliate membership. This is probably unlikely due to an implied shift in professional identity, from the NZ Institute of Architects to the NZ Institute of Architecture. Such a conversation though would extend the remit of the NZIA to a wider role of professional care for the built environment of Aotearoa NZ.

The LBP Board Chair recommended that the research works with the LBP Registrar to facilitate membership of LBP Designers with a partnering organisation, such as ADNZ.

8.2 New Zealand Institute of Architects

Te Kāhui Whaihanga New Zealand Institute of Architects (NZIA) is a professional organisation established in 1905 that is dedicated to “promoting and celebrating outstanding architecture and to creating greater awareness of the values and benefits well designed buildings and public spaces can bring to our cities and towns”. The core objectives of the institute include the, “dissemination of knowledge relating to architecture, ethical conduct in the practice of architecture and the interests of the profession of architecture in New Zealand and overseas.” The institute focuses heavily on education, supporting the advancement of knowledge of those already involved, and those who are on their way to becoming involved, in architectural practice. It corresponds with government bodies and other stakeholders to address matters relevant to architecture and architects, and it collaborates actively with like-minded professional organisations. With its office based in Auckland, the institute administers an expansive Continuing Professional Development program to empower its members with ongoing education and skill enhancement. It also provides support to graduates pursuing registration, sets industry standards through peer-reviewed awards, and organises events such as the Aotearoa Festival of Architecture to ignite public interest in architecture and urban design.

Membership - Individual Memberships

According to the NZIA 2022 Annual Report, the NZIA comprises 4,666 individual members. Given that only 40% of NZIA members are Architects, might the NZIA be considered the NZ Institute of Architecture? Membership breakdown is as follows:

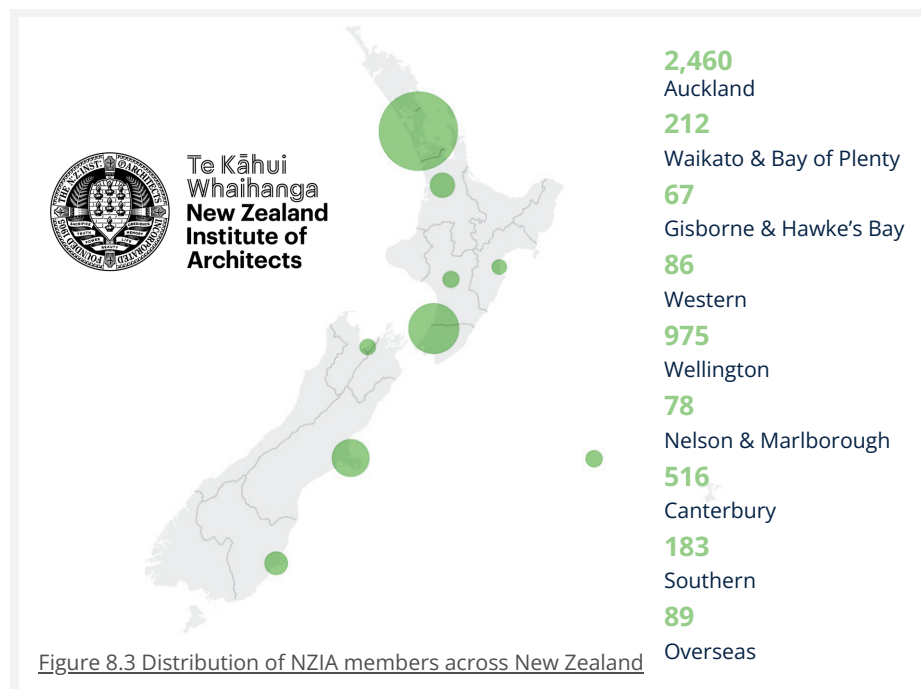
- 39.6% Architects (1,848)
- 20.7% Student (969)
- 15.6% Graduate (736)
- 13.1% Affiliated and Allied Professionals (613)
- 5.0% Fellow and Distinguished Fellow (233)
- 4.5% Retired (209)
- 0.6% Academic (18)
- 0.5% Honorary (25)
- <0.1% Life (4)

From the geographic distribution of its members, it is clear that architects, like most New Zealanders, are highly urbanised. In 2022, 87% of New Zealanders lived in urban areas²⁰ with about a third living in Auckland (1.7m). This predilection for the city holds true for architects too with 86% living in either Auckland, Wellington or Christchurch. However over half of the NZIA membership lives in Auckland (54%).

Practice Memberships

There are 688 architectural practices that have been admitted to the NZIA. Half have fewer than 2 individual members; just 2% have more than 50 members. The four scales of practice appear to be:

- SMALL: < 5 members (21%)
- MEDIUM: 6 - 15 members (27%)
- LARGE: 15 - 50 members (25%)
- X-LARGE: 51+ members (27%)



Engagement: In 2023, a fifteen-point CPD webinar was held with the NZIA. The purpose of the webinar was to introduce NZIA members to the ModelDocs research and to encourage participation in the Matrix Survey.

8.3 New Zealand Registered Architects Board

The New Zealand Registered Architects Board is a statutory body with a critical mandate to oversee and regulate the architectural profession in New Zealand. Established under the [Registered Architects Act 2005](#), the NZRAB is entrusted with, “registering, monitoring, and disciplining architects”, and in doing so safeguarding the interests of the public and upholding the integrity of the field of architecture.²² The NZRAB oversees the registration of architects and is responsible for the protection of the titles of, “registered architect” and “architect” under the Registered Architects Act. This ensures that only individuals who have been granted registration by the NZRAB can represent themselves as architects to the public. Members of the public can determine whether a person is a registered architect or not by checking the list on the NZRAB website. This legal protection of titles distinguishes qualified and accredited professionals from others in the field. Registered architects must undertake ongoing professional development to sustain their skills and knowledge and are reviewed every five years by the NZRAB. The Board also manages the complaints and discipline process against architects to make sure they are appropriately resolved according to the Registered Architects Act 2005. Its role is to “protect the public, which in turn protects the reputation of the architectural profession.”²³

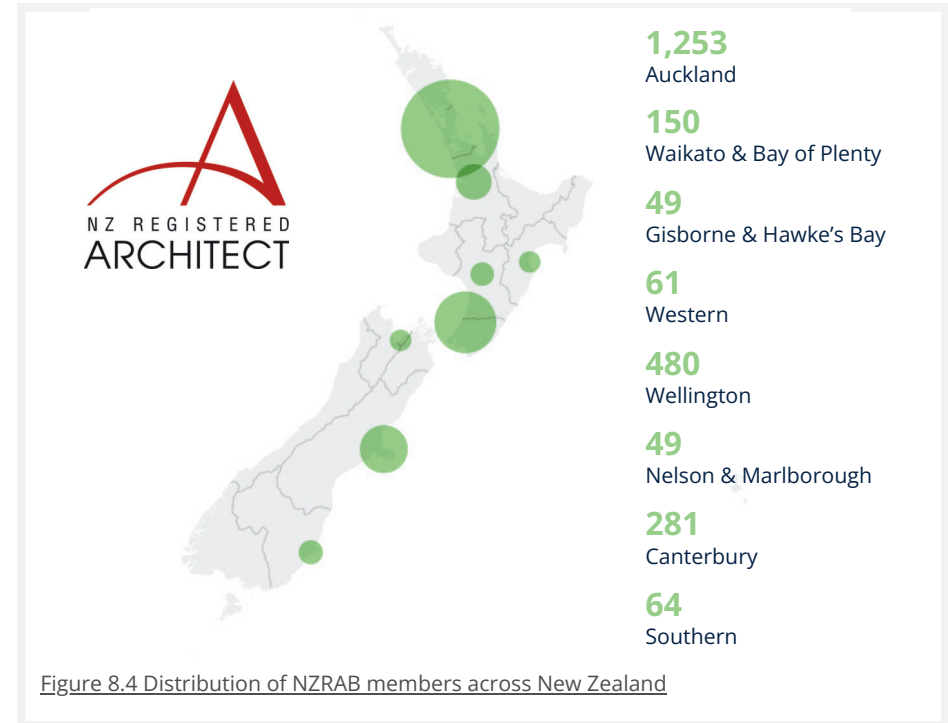
Membership

As of July 31st 2024, the NZRAB had 2,341 registered architects.

Engagement

The NZRAB can potentially discipline both LBPs and Architects for poor behaviour under the 2005 Act regarding Rule 49 (Skill, care, and diligence) and/or Section 25(1)(c) Negligence, Incompetence. Disciplinary Decisions involving E2/AS1 were looked at to understand Sender behaviour.

Given the 2024 MBIE Review includes consideration of a building system more responsive to Māori needs and aspirations, understanding Māori sender representation (as registered architects) was considered.



8.4 Engineering New Zealand

Established in 1914, Engineering New Zealand (ENZ) is a professional organisation with 22,446 members of which approximately 4,300, or 19%, are Chartered Professional Engineers (CPEng). This includes 30 based in the UK, 149 with no branch and 295 who are Chartered but not a member of ENZ. Of those who are Chartered, 1,570 practice structural engineering, which, at 37%, is the largest of the 21 engineering fields. Civil is next with 31%. Source: [ENZ Annual Report 2023](#). As well as promoting the industry, celebrating achievements, advocating and facilitating networks, knowledge sharing and professional development, ENZ maintains an ethical code of conduct and manages competence standards to meet international benchmarks.

Examples from the research of projects where a CPEng was the Sender include: recladding, structural alterations to an existing dwelling, and the construction of multi-unit dwellings.

Engagement:

ENZ hosted a Webinar providing information about the ModelDocs project on August 2023 and encouraged participation in the national survey. The researchers consulted ENZ regarding Producer Statements, coordination and a common standard for structural design documentation. More importantly, the research's relationship to ENZ became more crucial once the results of the Data Deep Dive revealed the current failings of design documentation around NZBC Clause B1 Structures.

To this end, ModelDocs is seeking to work with ENZ on the implementation and professional traction of a forthcoming ENZ Structural Design Documentation Guide to be published in early 2025. The guide will look at the Accuracy, Clarity, Comprehensiveness, Coordination, Constructability, and Manageability of structural documentation. The value of this Guidance is considered significant as it can impact not just Chartered Professional Engineers but also the behavioural transformation of Architects and LBPs with regard to structural documentation in building consenting.

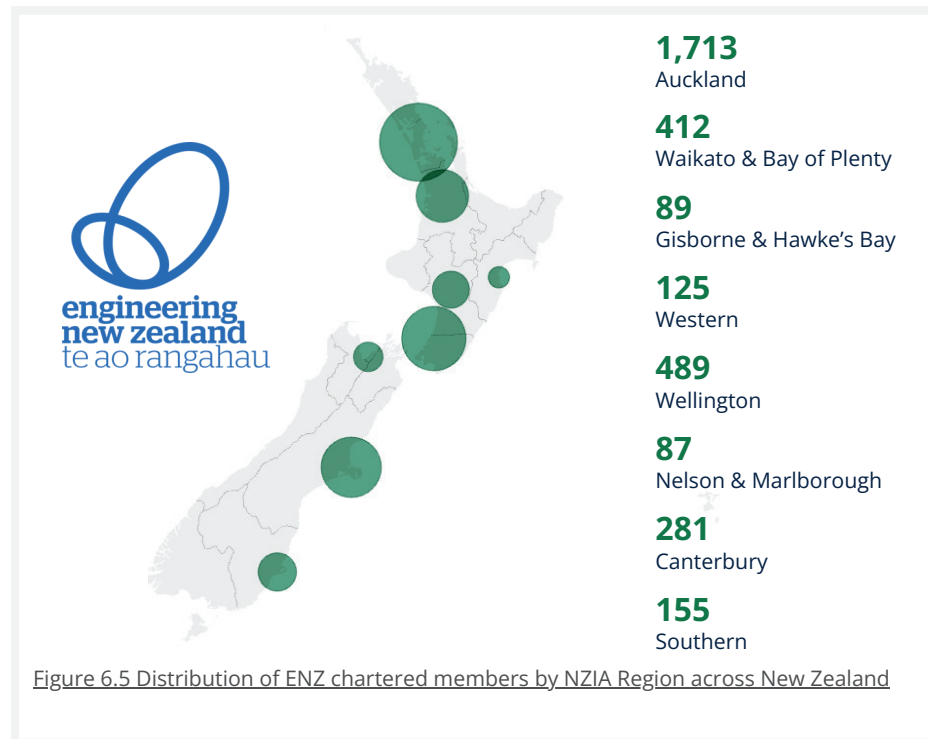


Figure 6.5 Distribution of ENZ chartered members by NZIA Region across New Zealand

8.5 Architectural Designers New Zealand (ADNZ)

As a professional body, ADNZ promotes and advances architecture through the activities of the Society, its members and its educational activities. ADNZ enables members to develop skills and knowledge from CPD opportunities with a focus on its collective ability, "to work together to encourage excellence, create strong networks, and build a better NZ." Source: adnz.org.nz

Membership is individual only, totalling 798, with categories including:

- 500 Professional: 63%
- 97 Intern: 12%
- 128 Student: 16%
- 10 Life: 1%
- 37 Colleague: 5%
- 5 Honorary: 1%
- 21 Retired: 3%

Engagement

A ModelDocs webinar was held on October 2023 followed by participation in the national survey. Further discussions were held about ADNZ becoming the collegial body for L

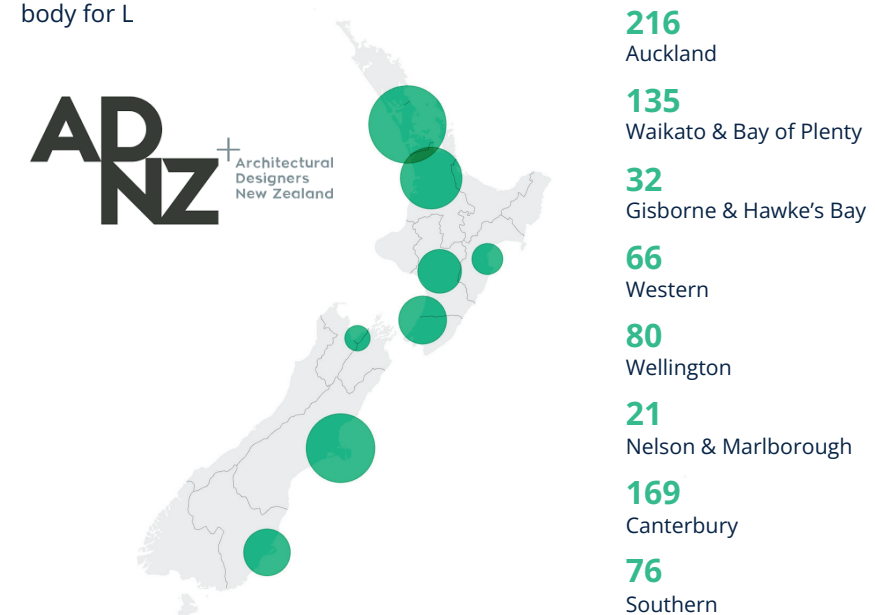


Figure 6.6 Distribution of ADNZ members by NZIA Region across New Zealand

Sender profiles with no engagement:

The following two groups represent Sender profiles with which the research did not engage.

8.6 Designers Institute New Zealand (DINZ)

The Designers Institute of New Zealand was established in 1991 as the amalgamation of the New Zealand Society of Industrial Designers (formed in 1960) and the New Zealand Association of Interior Designers (formed in 1968). DINZ provides members with legal support and Professional Designation (PDINZ) and facilitates a Student Council and mentorship programs. Source:

<https://designersinstitute.nz/>

Membership As at April 2024 DINZ has 1,157 Designers belonging to three classes (Student, Graduate and Member) and distributed across the following fields:

- 337 Graphic Designers: 29%
- 63 Digital Designers: 5%
- 14 Affiliate Designers: 1%
- 415 Spatial Designers: 36%
- 72 Designers in business: 6%
- 90 Design Education professionals: 8%
- 26 User Experience Designers: 2%
- 140 Product Designers: 13%

Of the fields listed above, perhaps only spatial designers, who work in the building industry, through interiors, exhibitions and events, might be expected to be involved in building consenting.

Engagement:

Little engagement occurred with DINZ because while buildings are evident as a design field, particularly with the Best Awards, these buildings appeared to be authored by architects who are accounted for elsewhere as a Sender group.

**The
Designers
Institute.**

8.7 Owner Builders

Owner Builders - homeowners who are not LBP but have signed a statutory declaration as part of their building-consent application and been granted an exemption under Sections 90A to 90D of the Building Act (2004) - are permitted to carry out some forms of restricted building work, including design work. All work by owner-builders must comply with the building code and (for non-design work) be consistent with consented plans and specifications. The owner-builder exemption is available only for homeowners who have yet to use the exemption in the following three years.

Membership

The research did not engage with homeowners but they, nonetheless, represent part of the Sender profile.

9. Receivers

This chapter contains information on who Receivers might be, and how their work is carried out. There are seven sections (9.1 to 9.7). Unlike the preceding two chapters (whose sections are lists), the following sections contain elements (e.g. 9.2 and 9.7) that are not strictly speaking Receivers directly but are included to highlight their potential influence on Receivers.

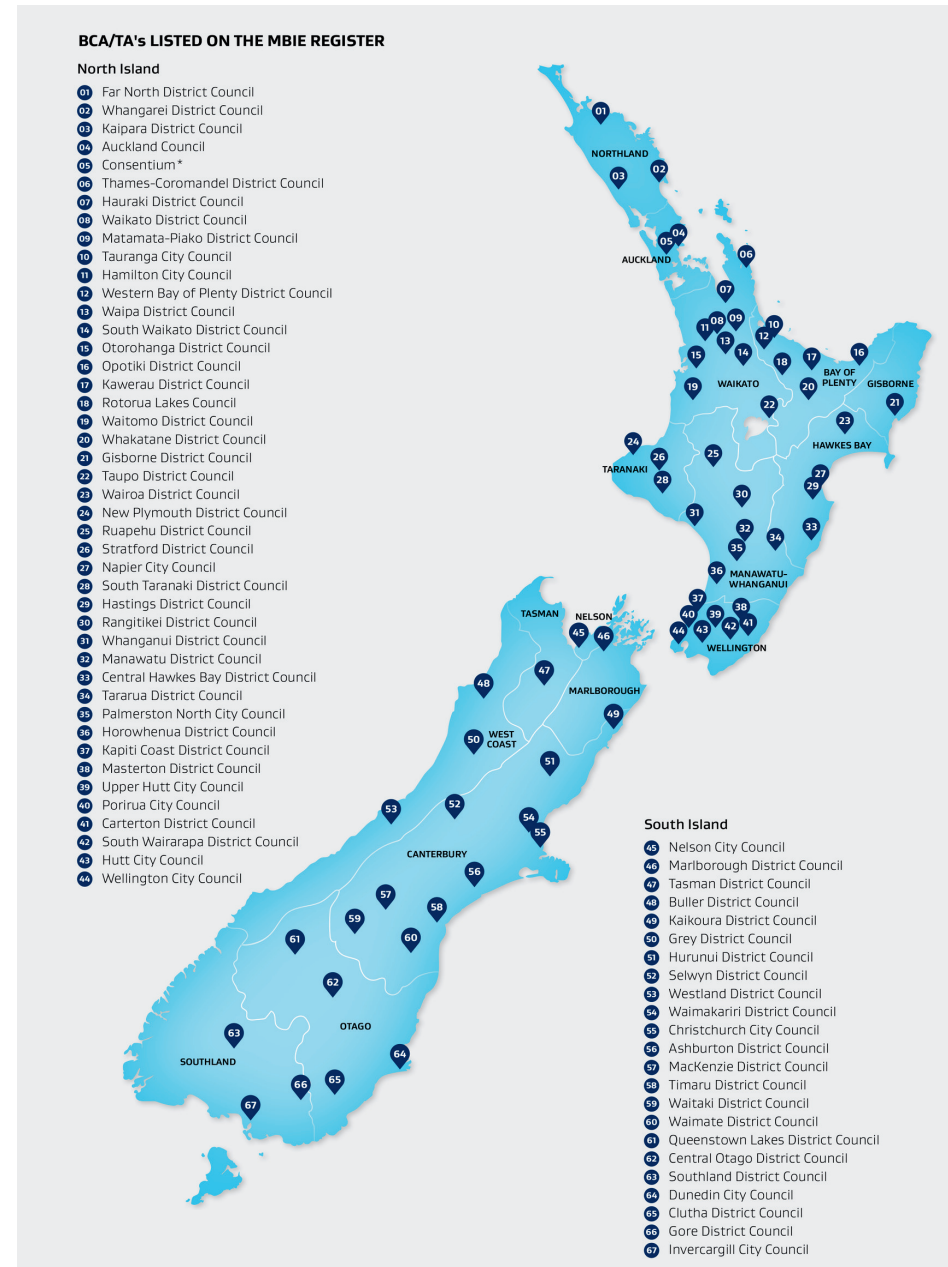
Only Building Consent Authorities are permitted to perform the building consenting and certifying functions in the Building Act 2004.

9.1 Building Consent Authorities (BCAs)

According to MBIE's online register, there are 75 BCAs across the country. This includes nine BCAs that lie beyond the scope of this public-facing research: Consentium (a private BCA of the crown agency for rental housing, Kāinga Ora), three Regional Councils (Waikato, Environment Canterbury, and Otago) which undertake large-scale infrastructural projects, and five former councils (Franklin, Manukau, Papakura, North Shore and Rodney) that merged into Auckland Super City in 2010. That leaves 66 BCAs within the scope of the research. These are all Territorial Authorities. The 67th TA is the Chatham Islands, but Wellington City Council assumes their building consenting.

MBIE has appointed IANZ as the organisation to undertake accreditation assessments of BCAs against the requirements of the Building (Accreditation of Building Consent Authorities) Regulations 2006. There are 75 accreditations on their website. The current Regulations allow for private BCAs to be established. IANZ has six "Accredited Organisations (Building)" who, as private contractors, can perform processing and inspecting roles but not certify, on behalf of BCAs.

Figure 9.1 This map excludes Regional Authorities and Accredited Organisations and represents regions not locations of BCA offices (Source: MBIE Biennial BCA Accreditation Report (April 2024))



9.2 Building Control Officials (BCOs)

Within each BCA, BCOs progress a consent application. They are required to have a recognised qualification, or be working towards one, and undertake one of three technical roles:

- Processing of a consent application
- Inspections, the monitoring of building works on site
- Code Compliance Certification (CCC)

To ensure BCOs have current knowledge and competencies appropriate to the type of building-control work they are undertaking, a BCO attains an R1-C3 competency level. In practice, a Building Control Official is also known as a Building Consent Officer.

The flowcharts on this page are taken from the National Building Consent Authority Competency Assessment System guide (Appendix 4, pp. 118-119). The charts are used to categorise R1-C3 work for allocation to BCO staff. (Source: building.govt.nz)

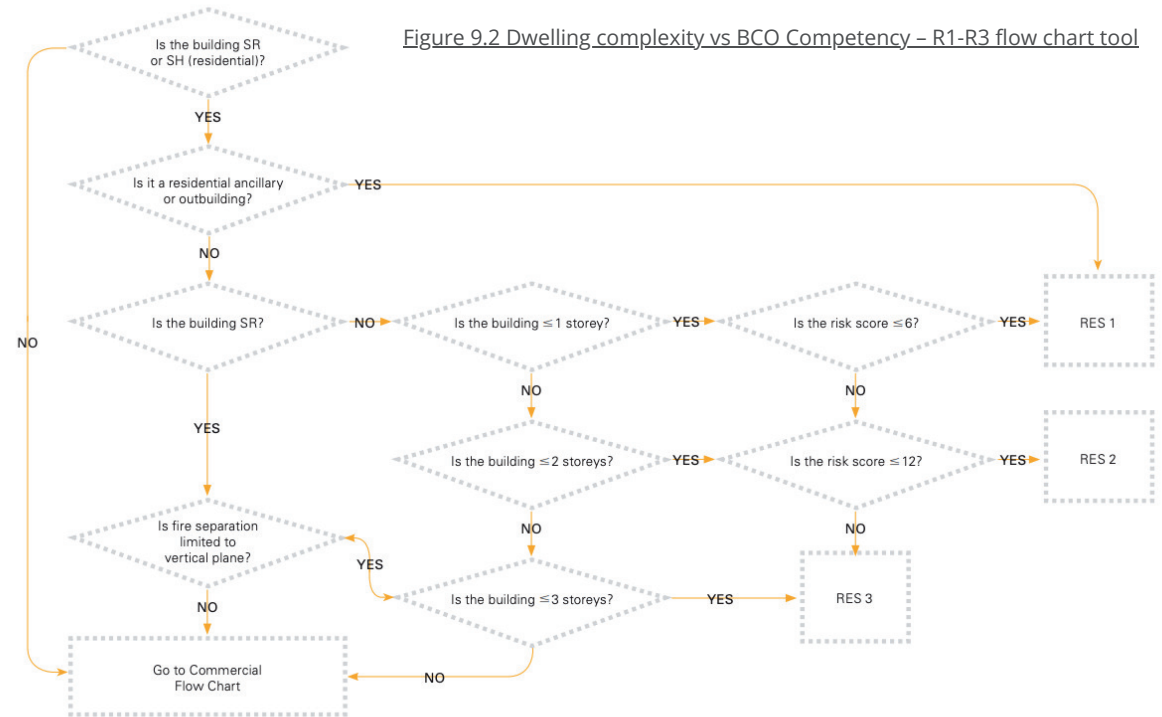
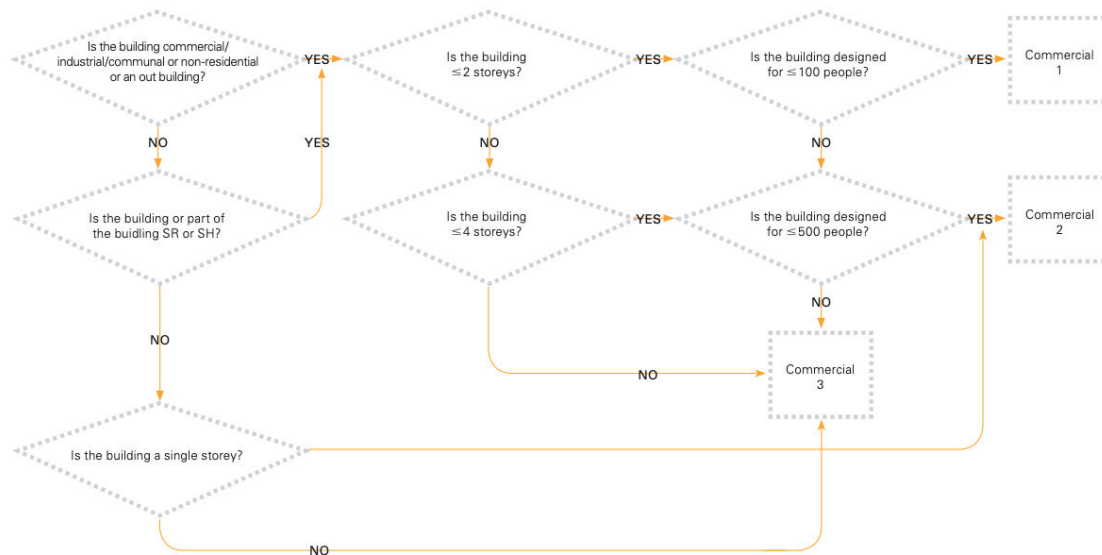


Figure 9.3 Dwelling complexity vs BCO Competency – C1-C3 flow chart tool



9.3 National Competency Assessment System (NCAS 2010)

The NCAS identifies the competencies that BCOs require to perform their jobs and assesses officials against these requirements. There are six levels of competency, each representing significant steps in technical knowledge and building-type complexity. Decision-making becomes increasingly intricate with each increasing competency level. The levels below represent both the complexity of the building and the competency a BCO must have to process the consent unsupervised.

NCAS Classification
R1 / Residential 1: Residential outbuildings and ancillary buildings – as defined by the Building Regulations 1992. Detached dwellings (SH - single household) designed to a common standard (e.g., NZS 3604, NZS 4229) that are single-storey and have an E2/AS1 risk matrix score less than or equal to 6 e.g. single storey state house.
R2 / Residential 2: Detached dwellings (SH) designed to a common standard (e.g., NZS 3604, NZS 4229) that are less than or equal to two storeys and have an E2/AS1 risk matrix score less than or equal to 12 e.g. two storey state house.
R3 / Residential 3: Detached dwellings (SH) or other dwellings (SR - multiunit) 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 matrix score of 13–20 e.g. townhouse, terraced housing
C1 / Commercial 1: 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 or SR or SA residential buildings up to two storeys and with horizontal fire separation e.g. 2-storey walk-up
C2 / Commercial 2: Commercial, industrial, communal residential, and communal non-residential buildings equal to or less than four storeys and an occupancy load equal to or less than 500 people or SC or SD that are single storey. e.g. 3-storey walk-up
C3 / Commercial 3: All uses of buildings that are over four storeys high or contain over 500 occupants or SC or SD greater than a single storey e.g. apartment tower

Figure 9.4 NCAS classification of BCO competency is according to building complexity (R1-C3).

In the research, these competencies will be referenced as R1, R2, R3, C1, C2, and C3.

The NCAS (2010) was developed by the former Department of Building and Housing to help BCAs meet the requirements of The Regulations. The NCAS system is not compulsory. Although it is used by most BCAs in some form, some BCAs use a modified version. BCAs were encouraged to adopt the NCAS for the following reasons:

- encouraging national standardisation
- eliminating duplication
- facilitating shared resources and expertise
- improving risk management
- to align with the LBP Scheme
- reducing operating and compliance costs
- improving the competency of BCOs

Insight

This research has identified a disconnect between how Senders and Receivers classify dwellings. Initially in the research, we classified dwellings from the Sender perspective of the A1 Classified Uses from the Building Code. Under 2.0 three types of Housing are identified: Detached (single household), Multi-unit (more than one household e.g. apartment) and Group dwellings (live as one large extended family e.g. marae).

The NCAS classification, however, classifies housing from the receiver perspective of more categories (six types R1-C3, versus three). One behavioural transformation would be to get Senders to understand and classify housing using the Receiver system.

9.4 BCA vs BCO survey - ModelDocs findings

In order to understand capacity and competency, ModelDocs surveyed the distribution of Building Control Officials across the Building Consent Authorities. This information proved to be more difficult than expected to obtain for the following reasons:

- Under Regulation 18 (of The Regulations), BCAs must ensure each of their BCOs hold, or are working towards, a technical qualification. This information is collated approximately every two years by IANZ. These 'BCA and Assessment Details' record the complexity of Building Consents and the number of Technical Officers (BCOs), but not the specific competencies relating to each BCO.
- There is no nationwide accessible dataset held by BOINZ or MBIE.

The survey involved exhaustive efforts to make meaningful contact with each of the BCAs. This required multiple emails and direct phone calls to get a data set centred on November 2023. For ease of getting information, the data set should be considered as pertaining to a period between November 2023 and March 2024. ModelDocs is grateful for the 100% response rate from all 66 BCAs that are in the scope of this research.

ModelDocs considered the additional capacity the six Accredited Organisations (Building), or private contractors, offer BCAs (refer Fig. 7.7).

National distribution of BCOs (by Equivalent Full Time Employment positions)

- 565.3 Processors - 45%
- 507.0 Inspectors - 40%
- 187.9 CCCs - 15%

Total 1,260 number of BCOs in NZ

The following tables are not to be read simply as an indicator of consenting efficiency. As a BCA consenting capacity grows so do the number of support personnel brought into assist BCOs. It was beyond the scope of ModelDocs to understand the internal efficiencies between BCAs. The purpose was simply to understand existing capacity and competencies.

Figure 9.5 Distribution of BCOs by BCA and distribution (between Nov 2023 and March 2024).

(Table Continues over page)

BCA	Consents Granted 2023	NZ share	Total BCOs	Process	Inspection	CCC
Ashburton District Council	274	1%	6	53%	47%	0%
Auckland Council	15,488	42%	342	44%	42%	15%
Buller District Council	100	0.1%	9	33%	33%	33%
Carterton District Council	56	0.1%	3	100%	0%	0%
Central Hawkes Bay District C	61	0.1%	6	46%	42%	13%
Central Otago District Council	285	1%	29	34%	34%	31%
Christchurch City Council	4,143	11%	77	51%	34%	16%
Clutha District Council	51	0.1%	5	50%	40%	10%
Dunedin City Council	516	1%	38	63%	37%	0%
Far North District Council	362	1%	13	38%	54%	8%
Gisborne District Council	183	0.1%	15	33%	40%	27%
Gore District Council	34	0.1%	4	44%	44%	13%
Grey District Council	52	0.1%	4	45%	45%	10%
Hamilton City Council	1,279	3%	38	26%	34%	39%
Hastings District Council	339	1%	21	57%	43%	0%
Hauraki District Council	104	0.1%	4	50%	50%	0%
Horowhenua District Council	354	1%	6	33%	33%	33%
Hurunui District Council	145	0.1%	6	55%	36%	9%
Hutt City Council	670	2%	15	67%	30%	3%
Invercargill City Council	151	0.1%	3	0%	90%	10%
Kaikoura District Council	30	0.1%	1	40%	40%	20%
Kaipara District Council	122	0.1%	9	44%	56%	0%
Kāpiti Coast District	415	1%	16	50%	19%	31%
Kawerau District Council	3	0.1%	1	50%	40%	10%
Mackenzie District Council	57	0.1%	1	0%	100%	0%
Manawatu District Council	180	0.1%	9	40%	40%	20%
Marlborough District Council	259	1%	17	41%	41%	18%
Masterton District Council	197	1%	22	36%	32%	32%
Matamata-Piako District Cncl	249	1%	10	30%	50%	20%
Napier City Council	410	1%	14	57%	36%	7%

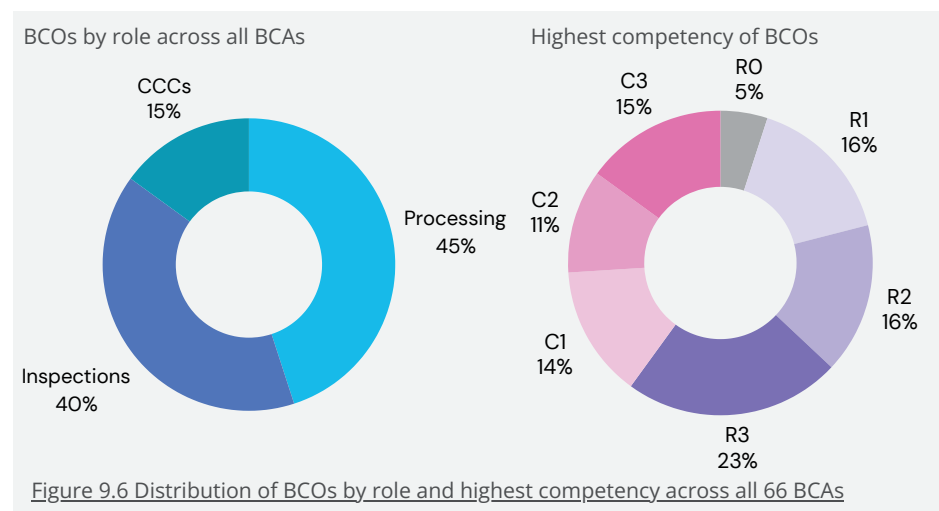
BCA	Consents Granted 2023	NZ share	Total BCOs	Process	Inspection	CCC
Nelson City Council	266	1%	12	34%	56%	10%
New Plymouth District C	401	1%	19	37%	47%	16%
Ōpōtiki District Council	53	0.1%	3	50%	33%	17%
Ōtorohanga District Council	29	0.1%	4	33%	33%	33%
Palmerston North City C	424	1%	17	43%	46%	11%
Porirua City Council	183	0.1%	13	48%	40%	12%
Queenstown Lakes District C	1,035	3%	25	44%	56%	0%
Rangitikei District Council	35	0.1%	2	45%	40%	15%
Rotorua Lakes District	410	1%	16	53%	41%	6%
Ruapehu District Council	35	0.1%	2	50%	50%	0%
Selwyn District Council	1,341	4%	31	65%	28%	7%
South Taranaki District C	85	0.1%	3	43%	40%	17%
South Waikato District C	90	0.1%	16	38%	31%	31%
South Wairarapa District C	127	0.1%	8	25%	38%	38%
Southland District Council	141	0.1%	15	53%	33%	13%
Stratford District Council	36	0.1%	2	44%	44%	11%
Tararua District Council	28	0.1%	3	33%	33%	33%
Tasman District Council	371	1%	13	54%	38%	8%
Taupo District Council	400	1%	13	54%	38%	8%
Tauranga City Council	802	2%	43	42%	51%	7%
Thames-Coromandel District	223	1%	13	54%	38%	8%
Timaru District Council	187	1%	14	40%	40%	20%
Upper Hutt City Council	250	1%	11	55%	45%	0%
Waikato District Council	692	2%	19	42%	58%	0%
Waimakariri District Council	740	2%	24	50%	38%	13%
Waimate District Council	24	0.1%	3	33%	33%	33%
Waipa District Council	458	1%	14	43%	57%	0%
Wairoa District Council	12	0.1%	8	33%	33%	33%
Waitaki District Council	99	0.1%	9	35%	41%	24%

BCA	Consents Granted 2023	NZ share	Total BCOs	Process	Inspection	CCC
Waitomo District Council	17	0.1%	8	25%	38%	38%
Wellington City Council	529	1%	55	56%	40%	4%
Western BoP District Council	299	1%	20	40%	30%	30%
Westland District Council	56	0.1%	10	40%	30%	30%
Whakatane District Council	100	0.1%	13	23%	38%	38%
Whanganui District Council	139	0.1%	20	40%	30%	30%
Whangarei District Council	552	1%	15	40%	53%	7%
TOTAL	37,238	100%	1,260	45%	40%	15%

Insight

The distribution of roles in BCAs between the 1,260 BCOs shows 45% undertake processing, 40% inspecting, and 15% certifying. As ModelDocs has a focus on processing, the competencies of the 565 processing BCOs were:

- 5% No competency (training)
- 16% Residential 1
- 16% Residential 2
- 23% Residential 3
- 14% Commercial 1
- 11% Commercial 2
- 15% Commercial 3



9.5 Accredited Organisation (Building) - AO(B)

To manage workflows, BCAs often engage private contractors. This is increasingly common as the number of consents granted fluctuates considerably. In 2022, 25% more consents were granted for dwellings (49,538) than in 2023 (37,239), whilst in 2014, there were 27% less (27,132). (source: Stats NZ)

Another reason for the use of contractors is cost-related. Even though the recent MBIE Review promote the sharing of BCO resources, the research encountered examples where BCA collaboration was not undertaken as it was deemed not commercially competitive. Anecdotally, “private contractors” were considered cheaper. ModelDocs thus wanted to understand how much additional capacity private contractors offer BCAs.

Insight

“A number of BCOs have been enticed to work for contractors who provide a higher rate of pay and avoid the complexities, distractions, pressures of working for local government. This is a concern with the current downturn where the contractors have lost work so we may lose these people from the industry and when we need them in the next uptick in the economy, they will not be available.” (Source: IANZ email)

Accredited Organisation (Building)	Total BCOs	Process	Inspection	CCC
City Certifying Consultants Ltd	5	100%	0%	0%
ComplyNZ	20	95%	5%	0%
Farsight NZ	9	56%	44%	0%
National Processing Ltd	8	100%	0%	0%
Professional Buildg Consultants	29	59%	34%	7%
Solutions Team	80	49%	44%	7%
	151	62%	33%	5%

Figure 9.8 Distribution of BCOs by role and highest competency across all AO(B)s

Estimated number of BCOs in Accredited Organisations (Building): 151

Given that there are 1,260 BCOs in BCAs, this represents an extra 11% capacity from private contractors.

The highest competency of each BCO with a processor role is:

- 1% No competency (training)
- 1% Residential 1
- 10% Residential 2
- 35% Residential 3
- 17% Commercial 1
- 19% Commercial 2
- 17% Commercial 3

Total 100%

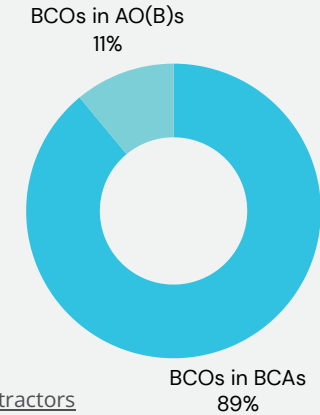


Figure 9.7 Additional capacity provided by private contractors

Private contractors tend to have BCOs qualified at a higher competency with 88% at R3 or 'above' compared to 63% in BCAs.

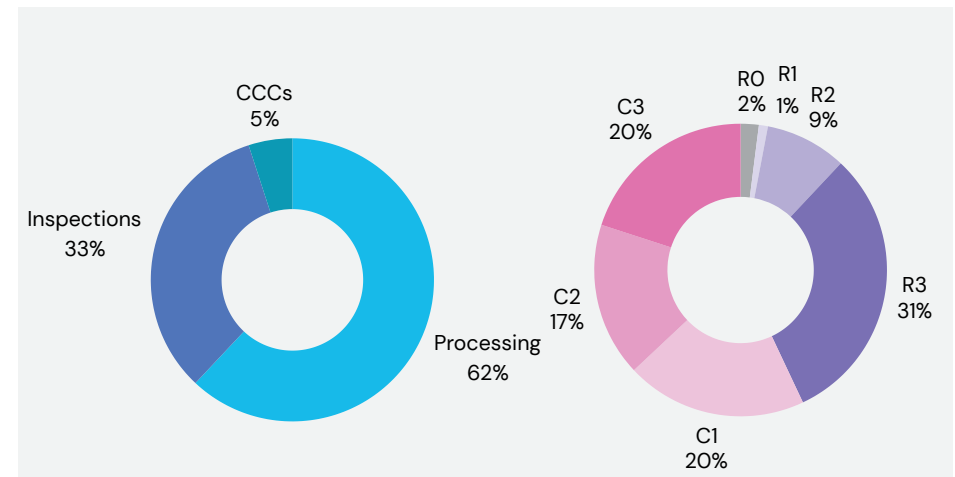


Figure 9.9 Distribution of BCOs by role and highest competency across all AO(B)s (Mar 2024)

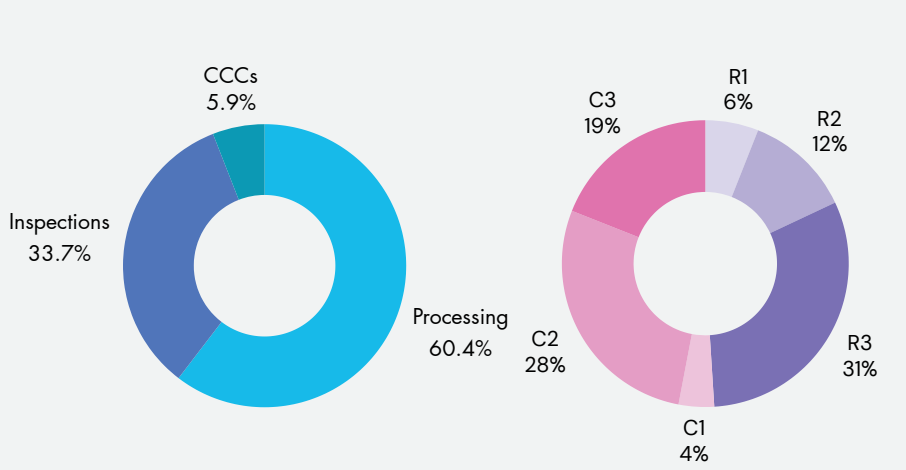
9.6 Consentium

Consentium is New Zealand's first nationally accredited and registered non-Territorial Authority Building Consent Authority. It is a standalone and independent organisation within Kāinga Ora to which it provides building compliance services. Initially focusing on rental homes of up to four levels, today, Consentium undertakes all scales of residential projects (R1-C3) and can now provide compliance services on the largest projects such as its own 276 unit, 13 storey high, Te Mātāwai.

Figure 9.8 Distribution of BCOs by role

BCA	Consents Granted in 2023	Share of BCA consents	Total BCOs	Process	Inspection	CCC
Consentium	2,541	6.8%	64	42%	50%	8%

Figure 9.9 BCOs by role across Consentium and highest competency (Apr 2024)



9.7 Future Skills

Whilst the education of an architect can currently be undertaken from any one of six tertiary institutions (University of Auckland, Auckland University of Technology, Unitec, Victoria University Wellington, Ara Institute and the Dunedin School of Architecture), there are few formal qualifications and pathways open to budding BCOs.

In 2002 the landmark document, the Hunn Report, confirmed NZ had a serious problem with its 'leaky buildings'. This led to the 2006 Building (Accreditation of BCA) Regulations where Regulation 18 (1) requires those performing building control functions to have a technical qualification from one of multiple options (Source: [building.govt.nz](https://www.building.govt.nz)). Prior to this, the education of a BCO was via trade certification and/or tools-based experience. From 2007, the qualification was a RPL (Recognition of Prior Learning). Only in the past decade, from around 2015, has the education of a BCO been formalised as 'taught learning'.

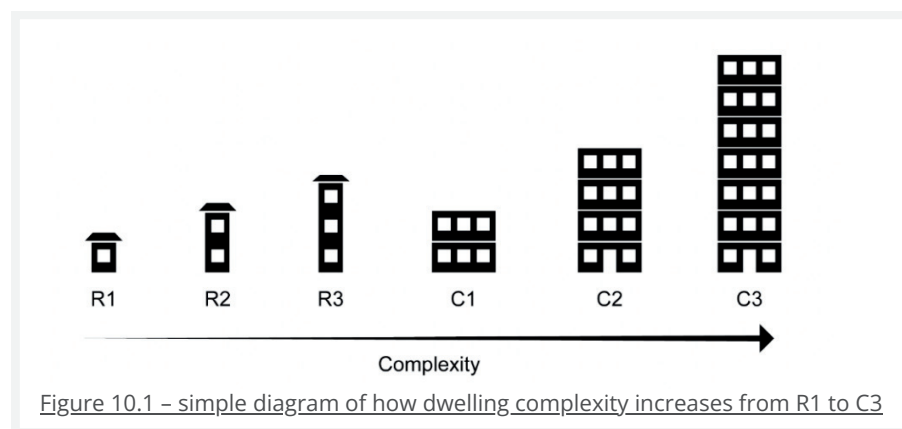
Future Skills is a NZQA Category 1 education provider offering courses in the regulatory duties at a BCA such as a NZ Certificate in Building Regulatory Environment (Level 4). From July 2024, Future Skills introduced a new (Level 7) qualification - the Bachelor of Building Surveying and Control (Level 7) which was developed from its diploma course. It is the first degree of its type in NZ and provides for a consistent educational framework for building consenting. Whilst this option represents consistency, it is not mandatory.

Insight

Given the MBIE review discussion around BCA inconsistency, an educational pathway at degree level for consenting is needed. It provides a new opportunity for a detailed, rigorous, and consistent educational framework for building consenting. ModelDocs hopes this might include formalised RFI writing. Given such tertiary learning is available in the UK and Australia, a degree course represents a new maturity for the NZ construction industry, post leaky buildings. Consenting is now a 'thing'.

10. National Survey

The purpose of the survey was to establish a behavioural baseline that identifies existing discrepancies between Senders' and Receivers' perceptions of the documentation required for a Building Consent Application. ModelDocs asked Senders and Receivers to consider for each of the NZBC Clauses, what types of design documentation should be included in a Building Consent Application. This relationship between NZBC Clauses and documentation was captured across six matrices, one for each of the six levels, R1-C3, of dwelling complexity.



10.1 New Zealand Building Code Clauses (NZBC Clause)

The survey brings together a critical relationship from the Building Code: documentation vs performance criteria (also called requirements). The Building Code sets out performance criteria that building work must meet. It covers aspects such as structural stability, fire safety, access, moisture control, durability, services and facilities, and energy efficiency through Code Clauses. The Building Code does not prescribe how work should be done, but focuses instead on what building work needs to comply with. It is the documentation which must demonstrate compliance.

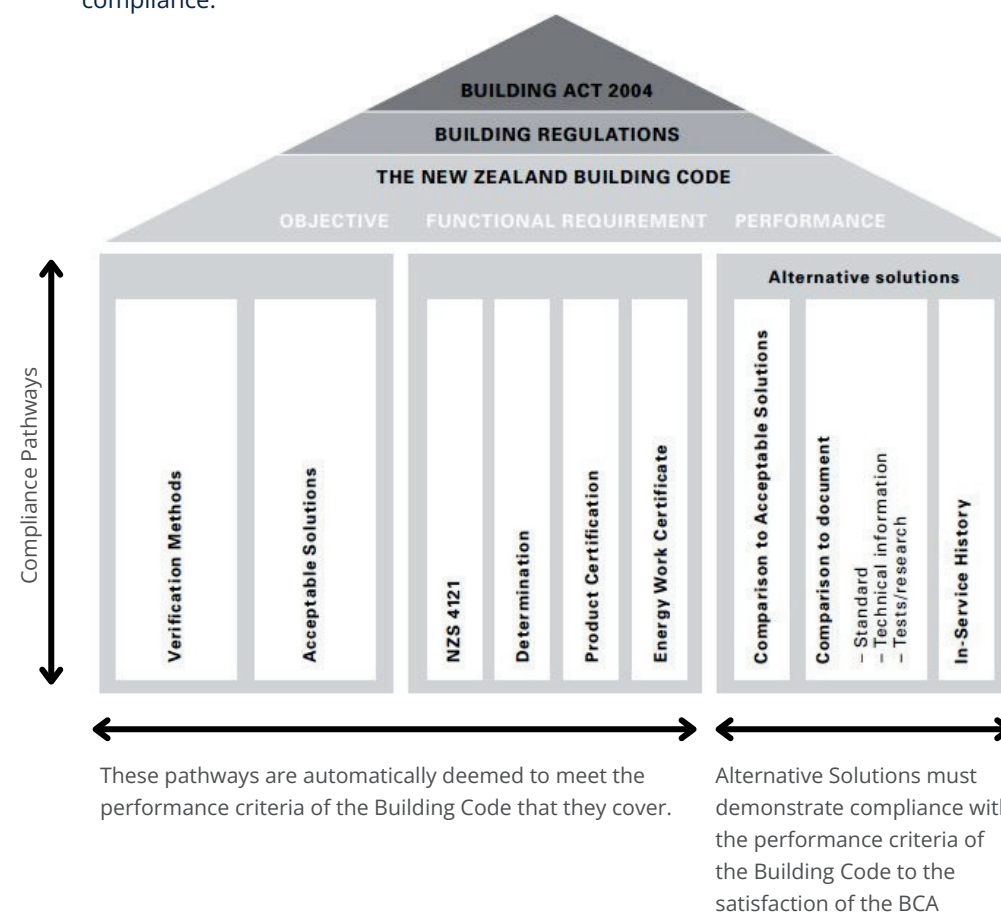


Figure 10.2 – Building Regulatory System showing compliance pathways

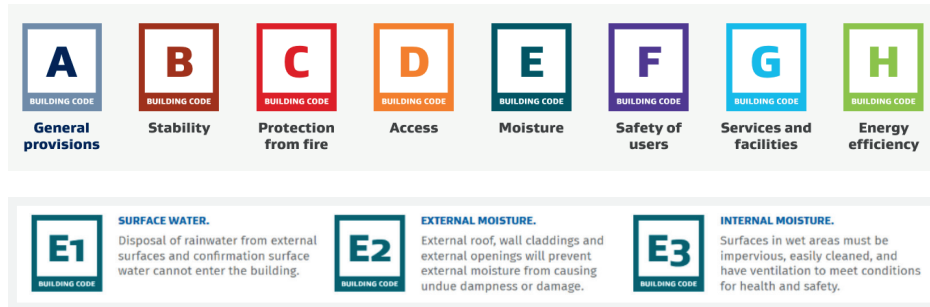


Figure 10.3 – NZBC Clause groupings with group E Moisture clauses E1, E2 and E3

The NZ Building Code groups Clauses by letter:

A General Provisions

- A1 Classified uses, A2 Interpretation, A3 Building importance levels

B Stability

- B1 Structure, B2 Durability

C Protection from fire

- C1 Objectives, C2 Prevention of fire occurring, C3 Fire affecting areas beyond the fire source, C4 Movement to a place of safety, C5 Access and safety for firefighting, C6 Structural stability

D Access

- D1 Access routes, D2 Mechanical installations for access

E Moisture

- E1 Surface water, E2 External moisture, E3 Internal moisture

F Safety of Users

- F1 Hazardous agents on site, F2 Hazardous building materials, F3 Hazardous substances, F4 Safety from falling, F5 Construction and demolition, F6 Visibility in escape routes, F7 Warning systems, F8 Signs

G Services and Facilities

- G1 Personal hygiene, G2 Laundering, G3 Food preparation and prevention, G4 Ventilation, G5 Interior environment, G6 Airborne and impact sound, G7 Natural light, G8 Artificial light, G9 Electricity, G10 Piped services, G11 Gas as an energy source, G12 Water supplies, G13 Foul water, G14 Industrial liquid waste, G15 Solid waste

H Energy Efficiency

- H1 Energy efficiency

10.2 Design Documentation Types

Building consent applications require supporting documentation about the products, methods, and materials to be used in construction. In addition to the Application Form, the application may contain a combination of the following six documentation types:

1	2	3	4	5	6
Drawings Specification	Producer Statement	Manufacturer's Warranty	Codemark Certifications	NZ Standards	Other Consultant Information

Figure 10.4 – Documentation Types

1. Drawings and Specification

The drawings necessary for Building Consent include plans, sections, elevations, construction details, etc. They must clearly communicate exactly how a building is going to be constructed. As well as stipulating the types of drawings necessary for inclusion, BCAs have additional requirements for each of the drawings. Auckland Council lists the following on their website:

- All drawings must be in black and white, with a minimum text size of CAD 10 or 2.5mm, with all dimensions provided and details cross-referenced.
- Drawings need to be drawn to a professional standard with an appropriate scale and clarity (no freehand sketches are accepted).
- If supported by a producer statement, the plans and drawings must also be signed by the design specialist.

Specifications are a detailed description of the dimensions, construction, workmanship, and materials of certain aspects of the project that can only easily be represented in the drawings with text. Product specifications and Crafts specifications are required when submitted for building consent. Specifications should always be project-specific when submitted for consent and contain the installation details needed. Specifications often accompany the designer's drawings and outline the details of products to be used in the drawn building element.

2. Producer Statements (PS)

According to MBIE, a Producer Statement is a professional opinion based on specialist expertise. While well established and widely used, PS have no status under the Building Act 2004 and are not a product warranty or guarantee of compliance. The PS system is intended to provide BCAs with reasonable grounds for the issue of a Consent or Code Compliance Certificate without having to duplicate design or construction checking undertaken by others. In considering whether to accept a PS, a council will normally assess the credentials of the author to ensure that the person has the appropriate experience and competence in their particular field of expertise.

PS is typically used for specialist work, such as engineering, or where there is a proprietary product that is installed by appointed contractors. Since this work can be outside the council's in-house expertise, a PS can assist the council in determining whether the building work is code-compliant.

There are currently four types of PS in use:

- PS 1 – Design
- PS 2 – Design Review
- PS 3 – Construction (often used by the installers of proprietary systems)
- PS 4 – Construction Review.

As ModelDocs is concerned with processing rather than inspections or completions, Design (PS1) and Design Review (PS2) are relevant. PS detail the clause(s) of the Building Code that the design complies with and how they comply.

3. Manufacturer's Warranties

The Act describes 'implied warranties' which cover building work, materials, and suitability. A Manufacturer's Warranty has no status under the Act but is a guarantee by a manufacturer that items used in the building project will be repaired or replaced should they be faulty. It is essential that these are provided during the consenting process as many products outline specific installation steps that, if not followed, will void the warranty.

BCOs will check that the building techniques employed will not result in a voided warranty.

4. Codemark Certifications

Certifications are a way to indicate that a building product or method meets the requirements of the New Zealand Building Code. Any product or process with Codemark Certification must be accepted by Building Consent Authorities as meeting the New Zealand Building Code Requirements, given that the certification is up to date, and they are used as indicated in the certificate. Codemark Certificates are issued by a Product Certification Body and administered by MBIE.

5. New Zealand Standards

Standards have status under the Act and ensure safety and quality for products, processes, services and performance. MBIE has selected and funded multiple standards to be used to demonstrate compliance with the New Zealand Building Code and these are referenced in the Acceptable Solutions and Verification methods. A commonly used standard is NZS3604: 2011 – Timber Framed Buildings. Standards are located within Verification Methods and Acceptable Solutions compliance pathways.

6. Other Consultant Documentation

During the design process, input and approval is often required from other design consultants. These are classified as any professional who is not the Sender and can include but are not limited to:

- Building Surveyors
- Chartered Professional Engineers
- Civil Engineers
- Developmental Engineers
- Fire Engineers
- Geotechnical Engineers
- Land Surveyors
- Landscape Architects
- Structural Engineers

10.3 Survey Results

The Participants

202 participants completed the Matrix Survey in 2023. Approximately 60% of participants were Senders and 40% were Receivers. If we accept that there are 13,336 Senders (Chapter 6) and 1,260 Receivers (Chapter 7), then the survey ratio between Sender and Receiver participants ought to have been more like 90% to 10% if it was to mirror industry. Even so, the 60/40 split in Senders and Receivers surveyed still reflects the fact that the industry comprises more Senders than Receivers.

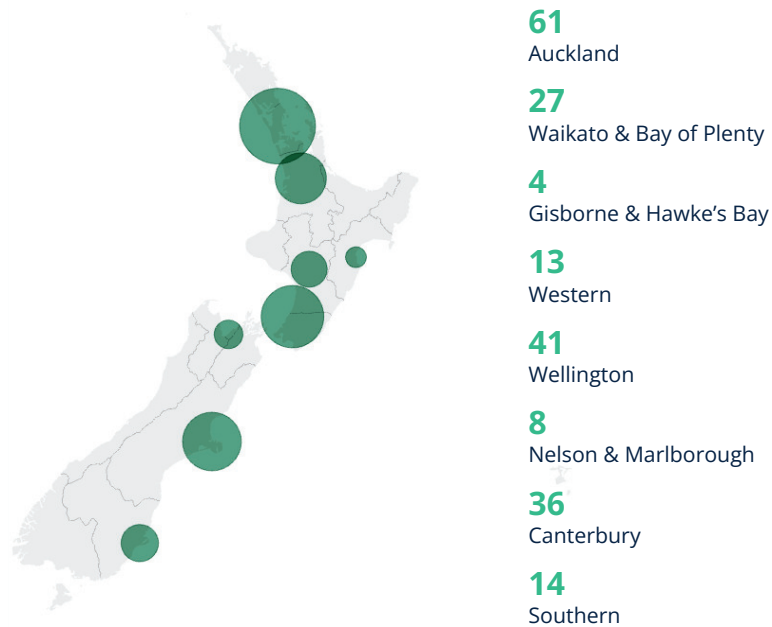


Figure 10.5 - Distribution of participants by NZIA region.

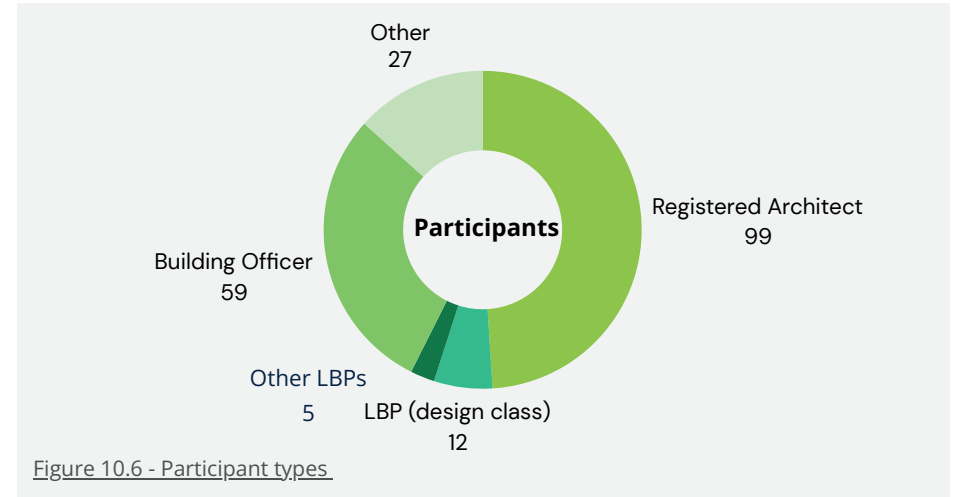


Figure 10.6 - Participant types

The Senders were primarily Registered Architects, with minor representation of LPBs in the design class with a small number of Engineers, Architectural Technicians, and Architectural Graduates also completing the survey.

The Receivers in this survey comprised Building Consenting Officers with a range of competency levels.

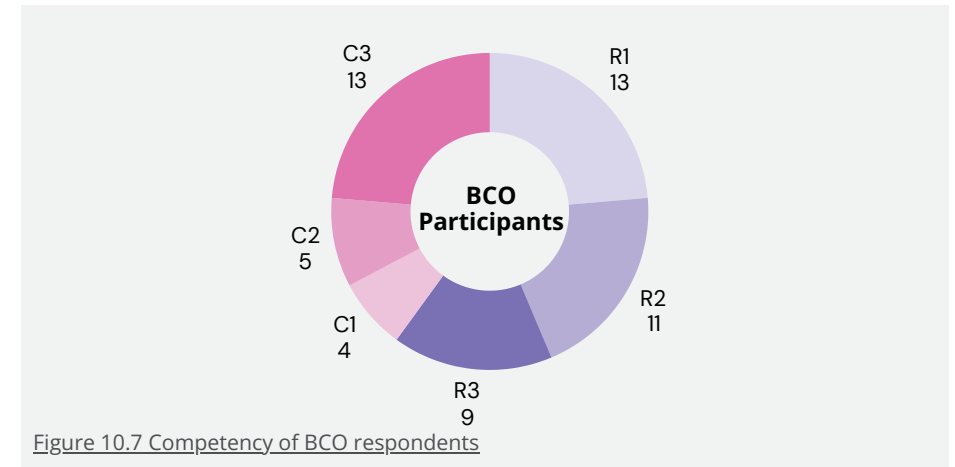


Figure 10.7 Competency of BCO respondents

The Survey: Data Analysis

Each completed matrix had 48 entries. Each entry was coded so that a score of 3 was given when “Required” was selected; 2 when “Maybe” was selected; and 1 when “Not Required” was selected. For each group, the average score and standard deviation was then calculated for each position in the matrix.

Within the Sender group, within the Receiver group

The first measure of variation assessed was a ‘within-group’ variation. That is, variation in the perceptions of Senders, or Receivers, as separate groups. This research used the standard deviation of scores for each position within each matrix as a measure of within-group variation. The standard deviation is a measure of how much the data entries vary from the average. The larger the standard deviation, the less the agreement about what information is necessary from within the group.

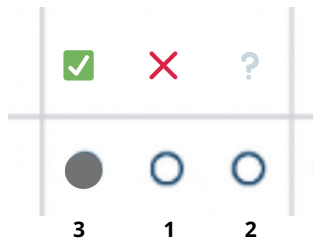


Figure 10.8 Respondents chose Tick (Required), Cross (Not Required) or Question mark (Maybe)

	1	2	3	4	5	6
	Drawings Specification	Producer Statement	Manufacturer Warranty	Codemark Certifications	NZ Standards	Other Consultant Information
Code Clauses	✓ ✗ ?	✓ ✗ ?	✓ ✗ ?	✓ ✗ ?	✓ ✗ ?	✓ ✗ ?
A GENERAL	○ ○ ●	○ ○ ●	○ ○ ●	○ ○ ●	○ ○ ●	○ ○ ●
B STABILITY	○ ● ○	● ○ ○	● ○ ○	● ○ ○	○ ○ ●	● ○ ○
C FIRE	○ ○ ●	○ ○ ●	● ○ ○	● ○ ○	○ ○ ●	○ ○ ●
D ACCESS	○ ○ ●	○ ○ ●	○ ○ ●	○ ○ ●	● ○ ○	○ ○ ●
E MOISTURE	○ ● ○	● ○ ○	● ○ ○	● ○ ○	● ○ ○	○ ○ ●
F SAFETY	○ ○ ●	● ○ ○	● ○ ○	● ○ ○	● ○ ○	○ ○ ●
G SERVICES	○ ● ○	● ○ ○	● ○ ○	○ ○ ●	● ○ ○	● ○ ○
H ENERGY	○ ○ ●	○ ○ ●	● ○ ○	● ○ ○	● ○ ○	● ○ ○

KEY: REQUIRED ✓ NOT REQUIRED ✗ MAYBE ?

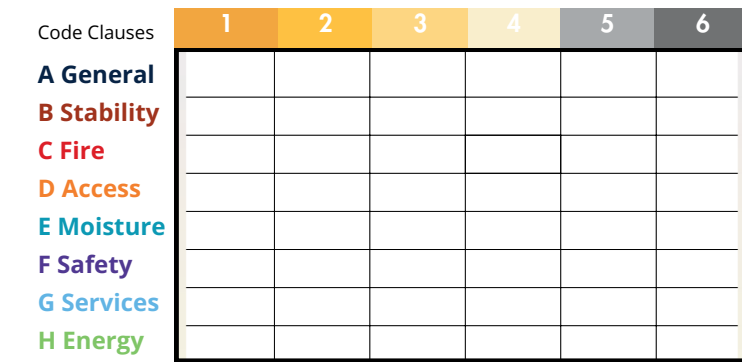
Figure 10.9 Matrix was an array of NZBC Clauses (rows) by Information Types (columns which respondents selected either with a Tick, Cross or a Question Mark).

	1	2	3	4	5	6
	Drawings Specification	Producer Statement	Manufacturer Warranty	Codemark Certifications	NZ Standards	Other Consultant Information
A GENERAL	2	2	2	2	2	2
B STABILITY	1	3	3	3	2	3
C FIRE	2	2	3	3	2	2
D ACCESS	2	2	2	2	3	2
E MOISTURE	1	3	3	3	3	2
F SAFETY	2	3	3	3	3	2
G SERVICES	1	3	3	2	3	3
H ENERGY	2	2	3	3	3	3

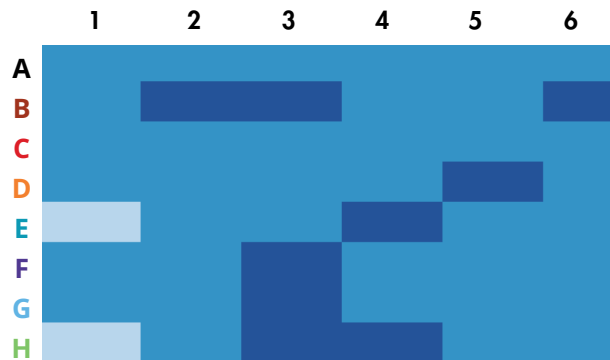
Figure 10.10 The responses were then assigned a score or either 3 (Tick), 1 (Cross) or 2 (Question Mark).

Within the Sender group

This graphic is a heatmap of the measure of variation within the Sender group.



For Example



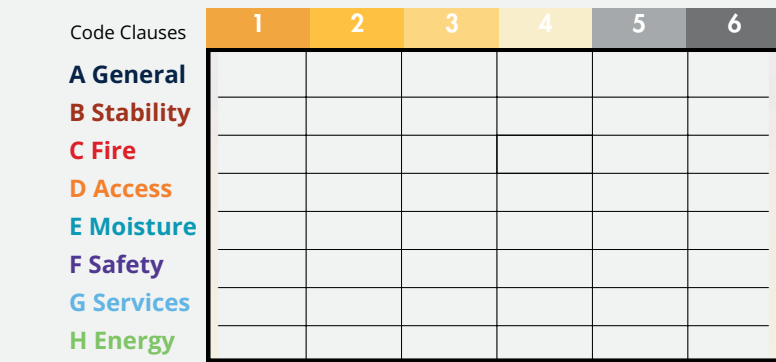
This graphic is a heatmap of the measure of variation within the Sender group.

Cell Colour	Meaning
	Dark blue cells represent a high (>0.74) standard deviation reflecting the most disagreement among Senders about information required.
	Blue cells represent areas of moderate uniformity in perception (0.35 - 0.73).
	Light blue cells represent a small (<0.34) standard deviation, reflecting the least amount of disagreement among Senders about information required.

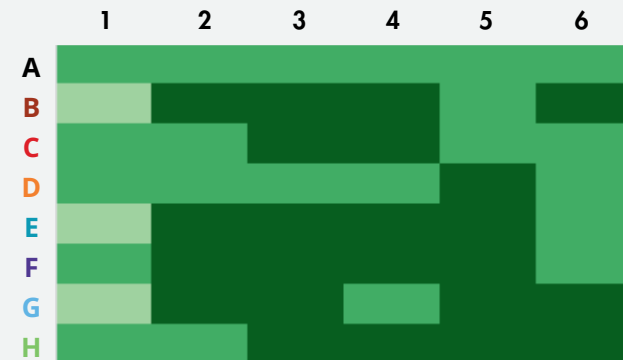
Figure 10.11 Sender matrix

Within the Receiver group

This graphic is a heatmap of the measure of variation within the Receiver group.



For Example



This graphic is a heatmap of the measure of variation within the Sender group.

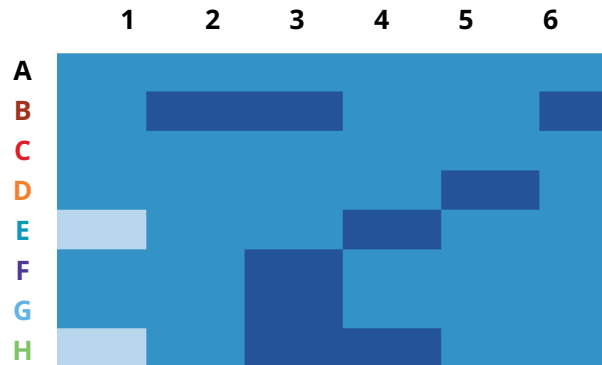
Cell Colour	Meaning
	Dark green cells represent a high (>0.74) standard deviation reflecting the most disagreement among Receivers about information required.
	Green cells represent areas of moderate uniformity in perception (0.35 - 0.73).
	Light green cells represent a small (<0.34) standard deviation, reflecting the least amount of disagreement among Receivers about information required.

Figure 10.12 Receiver matrix

Within the Sender group

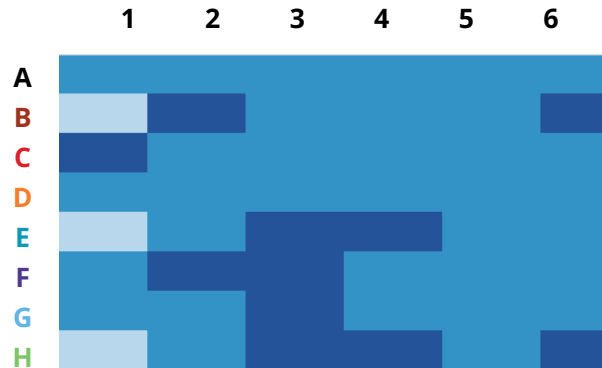
R1 - Sender matrix

- Greatest agreement for Drawings and Specs for Clauses E and H
- Greatest disagreement related to Manufacturer's Warranties for Clauses F, G, H



R2 - Sender matrix

- Greatest agreement for Drawings for Clauses B, E, and H
- Greatest disagreement related to Manufacturer's Warranties across Clauses E, F, G, and H clauses



R3 - Sender matrix

- Greatest agreement found in Drawings for Clauses B, E and H
- Disagreement evenly spread over Manufacturers Warranties, Codemark and NZ Standards

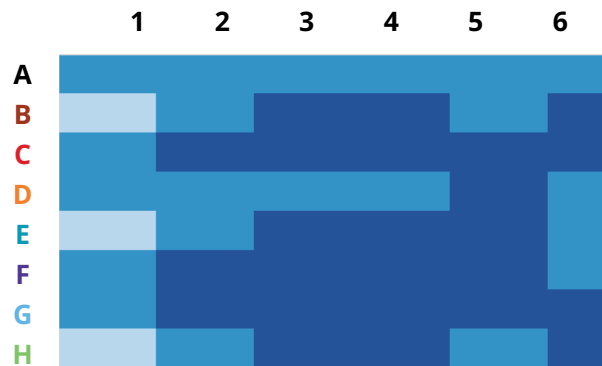
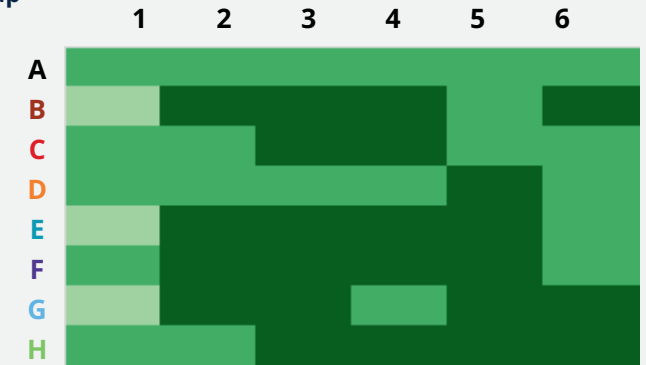


Figure 10.13 Sender results R1-R3 dwellings

Within the Receiver group

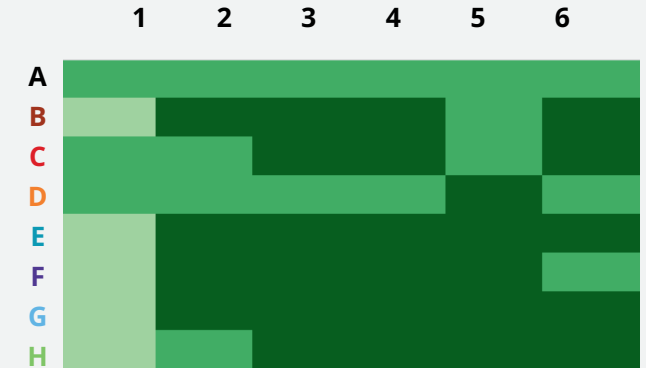
R1 - Receiver matrix

- Greatest agreement for Drawings and Specs for Clauses B,E and H
- Disagreement across all Documentation Types except drawing



R2 - Receiver matrix

- Greatest agreement in for drawings being required in Clauses B, E - H
- Disagreement across Clauses B and E - H



R3 - Receiver matrix

- Greatest agreement in for drawings and spec across Clauses B, E and G
- Disagreement over all the matrix apart from drawings / spec and Clause A

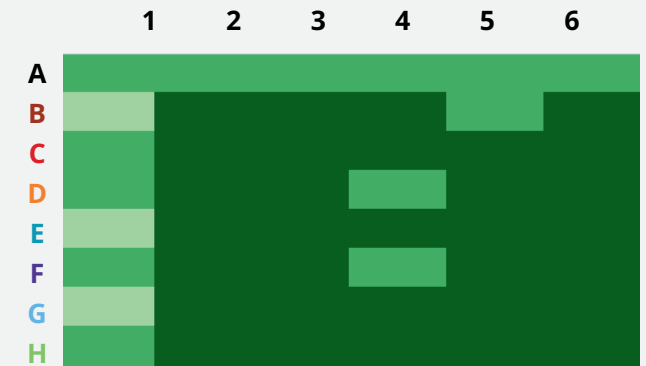
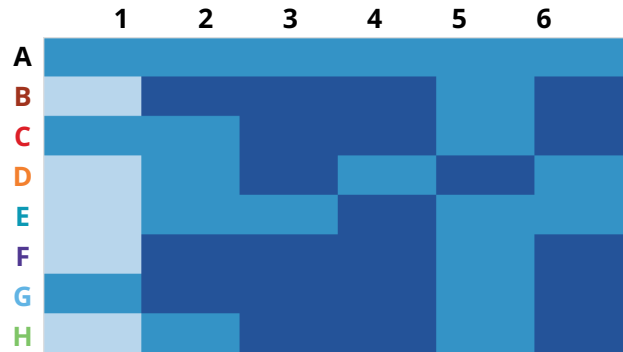


Figure 10.14 Receiver results R1-R3 dwellings

Within the Sender group

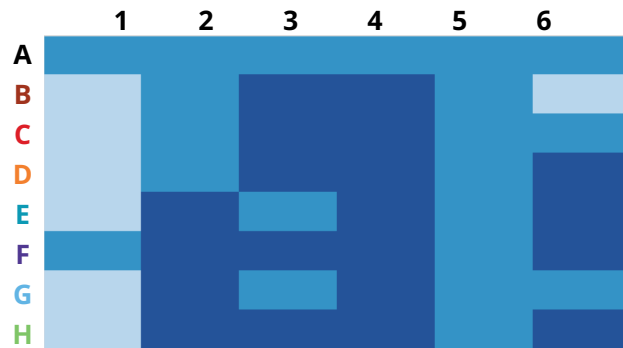
C1 - Sender matrix:

- Greatest agreement relating to Drawings and Clauses B, D, E, F and H
- Greatest disagreement related to Manufacturer Warranties, CodeMark and Other Consultant Info



C2 - Sender matrix

- Greatest agreement for Drawings for Clauses B - E and G - H
- Greatest disagreement for Manufacturer's Specification and CodeMark



C3 - Sender matrix

- Agreement across all Drawings except A
- Greatest disagreement in CodeMark and Other Consultant Info

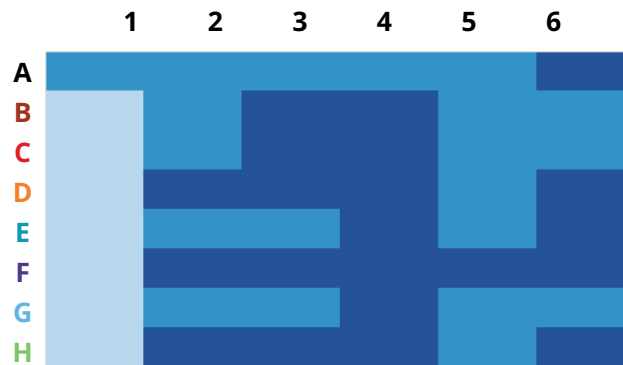
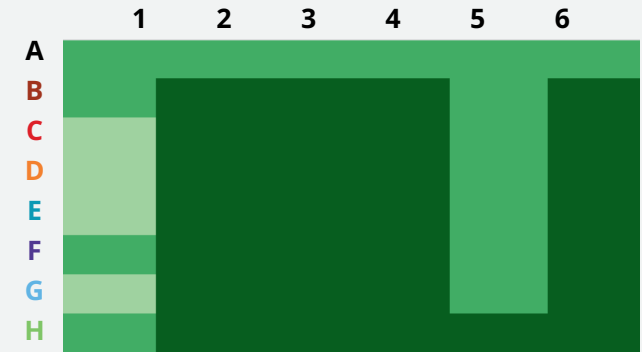


Figure 10.15 Sender results C1-C3 dwellings

Within the Receiver group

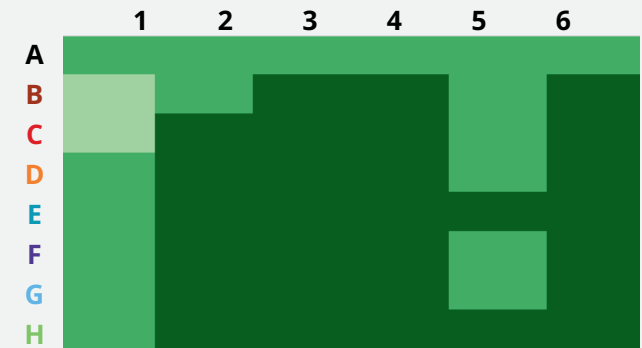
R1 - Receiver matrix

- Agreement in clauses C, D, E, and G for drawings / spec
- Disagreement through matrix except Drawings and NZ Standards



R2 - Receiver matrix

- Agreement for Drawings in clauses B and C
- Disagreement through matrix except NZ Standards and Drawings



R3 - Receiver matrix

- Agreement for drawings except clauses A and H
- Disagreement on Producer Statements, Warranties, Certification and Other Consultant Info

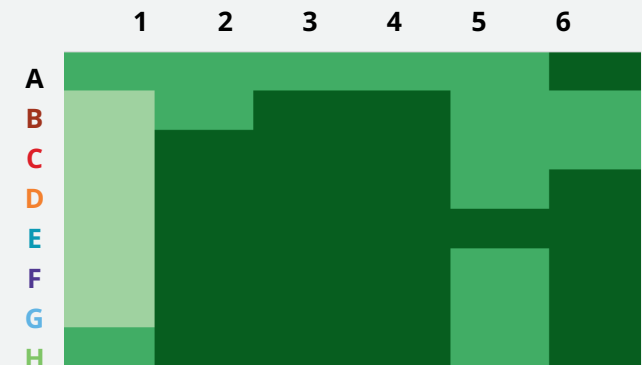


Figure 10.16 Receiver results C1-C3 dwellings

Summary of Behaviour Within Sender Group

- Agreement: The greatest agreement (smallest standard deviations; light blue cells) among Senders was about requirements for drawings. The number of matrix cells reflecting agreement about drawings increased with complexity across R1 to C3. This suggests that agreement between Senders regarding the drawings requirements of increases with complexity.
- Disagreement: Codemark Certification and Manufacturer Warranties proved to be a continuous point of disagreement for Senders. Across the entire matrix, the number of cells reflecting the strongest disagreement (dark blue cells) increased with complexity, from 9 and 11 for R1 and R2 to approximately 20+ in R3 through to C3. This suggests disagreement becomes greater as complexity increases, particularly in R3.

Summary of Within Receiver Group Behaviour

- Agreement: The strongest agreement (smallest standard deviations; light green cells) among receivers related to drawings and NZ standards; the number of cells reflecting agreement increases with complexity.
- Disagreement: There is consistently high disagreement across all complexities.
- There appears to be more disagreement amongst Receivers (166 dark cells) than Senders (106).

Next, the National Survey - Between the Sender and Receiver groups

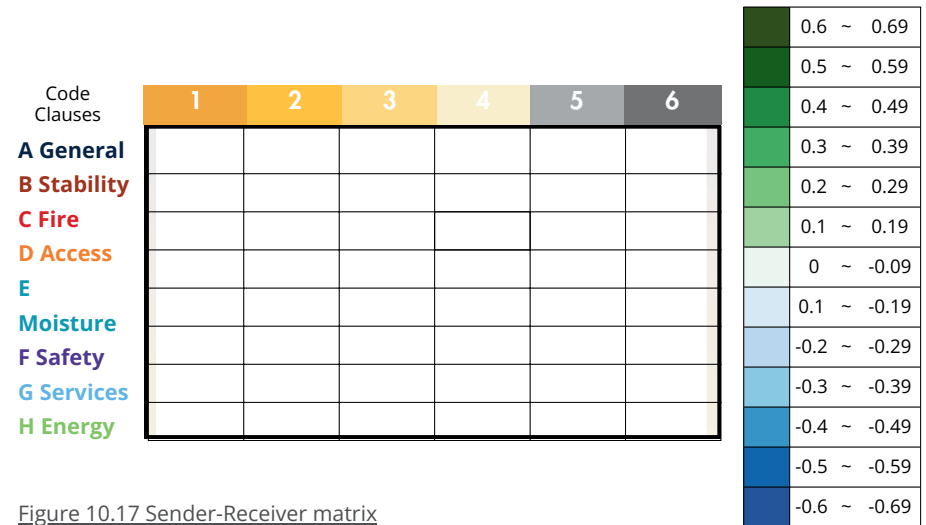


Figure 10.17 Sender-Receiver matrix

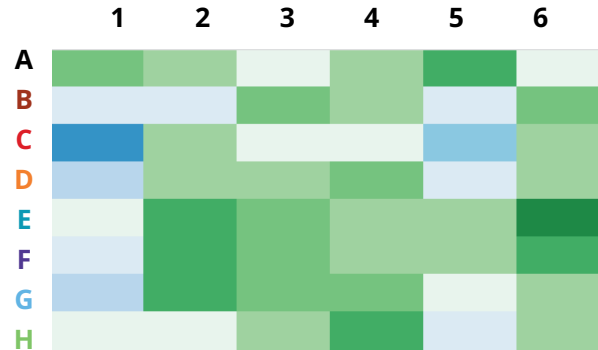
The second measure assessed between-group variation - that is, differences between Senders' and Receivers' perceptions about the documentation required. For each cell in each matrix, the extent of the difference was calculated as the mean score for Receivers minus the mean score for Senders.

How to read the Sender-Receiver survey results:

- The darker the colour, the greater the disagreement.
- Lightly coloured cells, whether blue or green, denote smaller differences between the Sender and Receiver's perceptions of requirements. This is less likely to trigger an RFI for missing documentation.
- The specific colour (green or blue) shows which group felt further documentation was necessary:
 - Darker blue cells indicate documentation that senders tend to perceive as necessary, but receivers do not. This could lead to delays, and surplus information could obscure required documentation.
 - Darker green cells indicate documentation Receivers tend to perceive as being necessary, while Senders do not. This is likely to trigger an RFI for missing documentation.

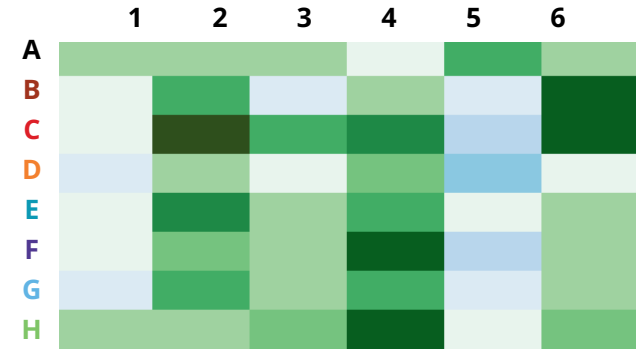
R1: Sender - Receiver Matrix

- Senders place higher significance on Fire documentation and Info types 1 and 5 (Drawings and Standards)
- Receivers place higher significance on Consultant Info for Clause E
- Receivers ask for more info than Senders (more green than blue)



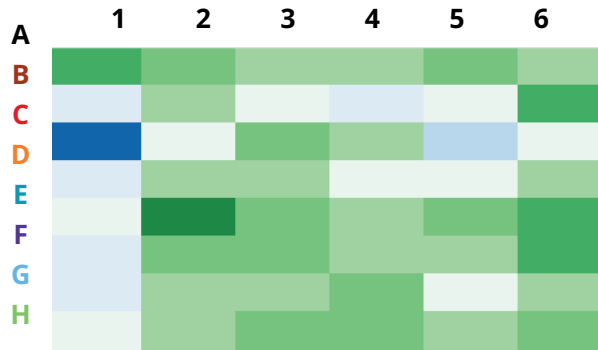
C1: Sender - Receiver Matrix

- Sender and Receiver agreement for Drawings and Standards
- Receivers place higher significance on PS for Fire
- Receivers place higher significance on Info types 2, 4 and 6



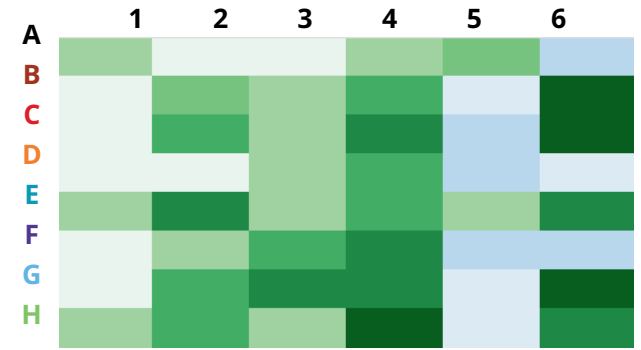
R2: Sender - Receiver Matrix

- Senders place higher significance on Fire documentation
- Senders place higher significance on Drawings
- Receivers place higher significance on PS for E Moisture
- Receivers ask for more info than Senders (more green than blue)



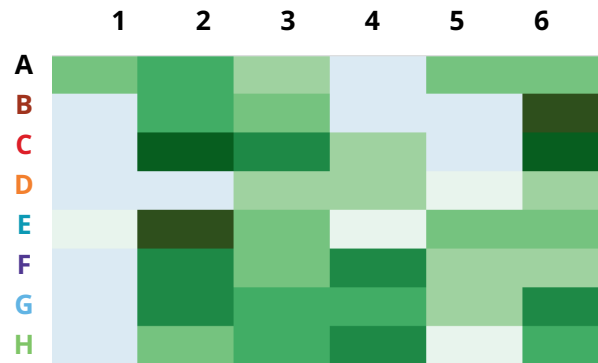
C2: Sender - Receiver Matrix

- Sender - Receiver agreement for Drawings and Standards
- Receivers place higher significance on Codemarks for Energy and Consultant info for Fire and Stability
- Receivers place higher significance on Info types 2, 4 and 6



R3: Sender - Receiver Matrix

- Sender agreement for Drawings across all Clauses
- Receivers place higher significance on Consultant Info for Stability and PS for Moisture
- Receivers ask for more info than Senders (more green than blue)



C3: Sender - Receiver Matrix

- Receivers place higher significance on Codemarks for all Clauses
- Generally agreed more documentation required due to complexity

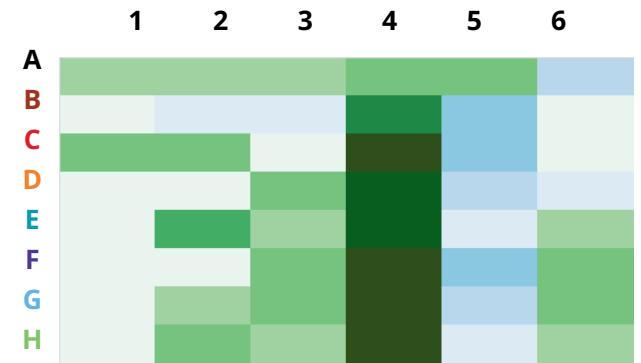


Figure 10.18 Sender-Receiver results C1-C3 dwellings

Figure 10.19 Sender-Receiver results C1-C3 dwellings

Summary of Behaviour Between Sender and Receivers

Overall, Receivers tended to perceive more requirements for documentation than did Senders (232 green (Receiver) versus 56 blue (Sender) cells)

- There is general agreement regarding the need for drawings with the exception of R1 and R2 where Senders think that drawings for fire are more critical than Receivers do.
- There is general Sender-Receiver agreement regarding the requirement for Standards across all NZBC Clauses and this agreement increases with complexity.
- Receivers were more likely than Senders to perceive requirements for Producers Statements, Manufacturer Warranties and Codemark Certifications.

A greater number of green cells suggests more Receivers are expecting documentation than Senders are inclined to submit. This suggests missing documentation may be a key driver of RFIs.

11. Deep Data Dive

The Data Deep Dive aimed at a comprehensive analysis of consents granted for housing projects by Tauranga City and Auckland Councils during May 2023. The Deep Dive was designed in three stages, where the conclusions found at each stage drove further investigation in subsequent stages. In Stage 1, RFI SLIs were mapped to identify hot spots. In Stage 2, hot spots such as key code clauses were drilled into detail. Finally, in Stage 3, we observed all Sender and Receiver communications to understand how a SLI was resolved and where fault might lie. Such an approach allowed the research to drill into the most important information and draw conclusions on possible actions for improving behaviour. StatsNZ rigorously tracks building consent data and the following table shows, for the year ended December 2023, the actual number of new dwellings consented in NZ was 37,239. This figure is down 25% from the year ended December 2022. A lack of access to finance, high interest rates, unemployment and the cost of living were cited by the NZ Herald (04 Apr 2024) as factors that have curtailed applications. Source: [NZ Herald 'House consents carry on down: Will Government, immigration be silver linings?'](#)

Year	No. of Dwelling Units granted	No. of Dwelling consents granted	Houses		Apartmnts	Retiremnt Village Units	Town houses Flats
			New	Altered			
2018	32,996	23,999	21,125	22,161	3,551	1,829	6,491
2019	37,627	25,647	22,269	23,443	4,762	2,388	8,208
2020	39,420	26,697	22,212	23,159	3,739	1,866	11,603
2021	49,007	31,189	25,587	26,067	4,196	2,870	16,354
2022	49,538	28,163	21,400	24,841	4,388	2,957	20,793
2023	37,239	20,177	15,675	23,128	2,518	2,267	16,779

Figure 11.1 NZ Building Consents 2018-2023 (Annual-Dec)

In terms of housing typology, of 37,329 new build dwellings consented in 2023:

- 42% were houses
- 7% were apartments
- 6% retirement village units
- 45% townhouses, flats and units

It is interesting to compare 2023 consent data with 2018 as:

- there was a 26% decrease in the number of new houses consented
- there was a 30% decrease in the number of new apartments consented
- there was a 24% increase in the number of retirement village units consented
- there was a 158% increase in the number of townhouses, flats and units consented

The past five years have seen an increase in development density and a shift from the individual dwelling to townhouses and flats. The kiwi dream of the detached house on a quarter-acre (1,000m²) section is being increasingly replaced by terrace housing of '3 storey walk-ups'.

Not all dwelling consents relate to new builds. In 2023 there were 50% more consents lodged for alterations to houses (23,128) than new builds (15,675) across the country.

Source: Stats NZ <https://www.stats.govt.nz/information-releases/building-consents-issued-december-2023/>

Building Consent Officer National Distribution

The research surveyed each BCA in the country to determine the number of BCOs employed fulltime.

Building Consent Authority	No. of Dwelling Units granted in 2023	Share of national Dwelling Units granted in 2023	Share of BCOs as % of national total	No. of Dwelling Consents granted in 2023	Share of national Dwelling Consents granted in 2023
Auckland City Council	15,488	42%	28%	6,415	32%
Tauranga City Council	802	2%	4%	339	2%
NZ Total	37,329	44%	32%	20,177	34%

Figure 11.2 Share of Dwelling Consents (2023) and share of BCOs (Nov 2023 - Mar 2024)

With a population of 161,800, Tauranga is New Zealand's fifth largest city with 3% of the national population (5.12m). Of the nation's 37,329 new build dwelling units granted in 2023, Tauranga consented 802, the sixth largest allocation, and 2% of dwelling units.

With a population of 1.657m, Auckland has 32% of the national population and is by far our largest city. Unsurprisingly then it is our largest BCA with 15,488 or 42% of new build dwelling units granted in 2023.

Source: Stats NZ <https://www.stats.govt.nz/information-releases/building-consents-issued-december-2023/>

As stated in Chapter 7, comparing consents granted with the number of consenting officers is not an indicator of consenting efficiency. However it is useful to understand existing capacity and role distribution as a regional variation.

	Processing BCOs	Inspection BCOs	CCC BCOs	Total BCOs
National BCOs	526	495	186	1,206
Share of BCOs in each role	44%	41%	15%	100%
Number of Auckland Council BCOs	149	143	50	342
Auckland Council BCOs as share of National BCOs	28%	29%	27%	28%
Auckland Council BCO distribution by role	43%	42%	15%	100%
Number of Tauranga City Council BCOs	18	22	3	43
Tauranga City Council BCOs as share of National BCOs	3%	4%	2%	4%
Tauranga City Council BCO distribution by role	42%	51%	7%	100%

Figure 11.3 Share of National BCOs and distribution by role

Consenting Management System Solutions

Most of NZ's BCAs operate some form of building consent management system. These typically utilise Enterprise Resource Planning (ERP) and/or Software-as-a-service (SaaS) cloud-based apps over the internet to manage the BCA's day-to-day activities. Alternately, non-cloud-based systems are 'on premises' solutions installed on BCA servers. Some of these systems have been tailor-made for a particular BCA but this can create inconsistencies between BCAs, say, with different checklists. These various platforms and pathways manage consent processing and consist of 'front end', 'back end' or 'end to end' solutions. A front end solution is applicant facing, towards the Sender and the application submission. A back end solution is accessed by Receivers and is used to process the application. End-to-end solutions merge front-to-back ends under one unified management system.

Types:

- AlphaOne: Cloud-based end-to-end solution acquired by Objective in 2019
- Datascape Sphere: cloud-based ERP software from Datacom purpose-built for local government
- GoGet: Cloud-based back-end solution that was owned by MBS Ltd until bought by Objective in 2019
- Infor: ERP cloud software for accounting and financial management, supply chain, and business process management. Some BCAs, for example, use Infor to create an upload portal for consent applications
- Magiq: Cloud-based ERP providing local government and public sector solutions
- ObjectiveBuild: a cloud-based front, back or end-to-end solution owned by Objective and transitioning to Build
- SAP: was developed by SAP (Systems, Application and Products in Data Processing) as an ERP solution and implemented by Auckland Council in 2016 to enhance customer engagement through digital services.
- Simpli: a Cloud-based front-end portal introduced in 2017 to enable consistency in the customer experience across NZ
- TechnologyOne: or TechOne, is an SaaS & ERP Software Solution

Tauranga City and Auckland Council use two different application management systems to process building consents. Auckland uses SAP, and Tauranga uses Objective Build (front end) and Alpha One (back end).

Type of Consenting Management System		No. of BCAs	Type of Consenting Management System used by BCA:	Dwelling unit consented 2023	Consenting System as a share of units consented
Front End	Back End				
SAP		1	Auckland	15,488	41.6%
AlphaOne		14	Hauraki, Kaipara, Matamata-Piako, Napier, Palmerston North, Selwyn, South Waikato, Tasman, Thames-Coromandel, Waipa, Wairo, Waitomo, Whakatāne, Whangarei	4,473	12.0%
ObjectiveBuild	AlphaOne	4	Buller, Grey, Tauranga, Westland	1,010	2.7%
ObjectiveBuild	GoGet	7	Central Hawkes Bay, Hastings, Hutt City, Masterton, South Wairarapa, Waitaki, Western Bay of Plenty	1,792	4.8%
Simpli	GoGet	19	Carterton, Gore, Horowhenua, Hurunui, Invercargill, Kaikoura, Kapiti Coast, Manawatu, Nelson, Rangitikei, Ruapehu, South Taranaki, Southland, Stratford, Taranua, Timaru, Upper Hutt, Waimate, Wellington	2,982	8.0%
Simpli	GoGet	1	Ashburton	274	0.7%
Upload	GoGet	6	Central Otago (Datascope : Magiq), Dunedin (ePathway : Infor), Gisborne (Datascope : Datascope), Hamilton (Datascope : Datascope), Marlborough (Datascope : Datascope), Queenstown Lakes	3,557	9.6%
Upload	GoGet	5	Christchurch, New Plymouth, Porirua, Taupō, Whanganui	5,266	14.1%
Email / Infor	ERP / SaaS	3	Far North (Infor & Email : Server), Otorohanga, Waikato (Email / TechOne)	1,083	2.9%
Email	GoGet	2	Mackenzie, Waimakariri	797	2.1%
Paper	GoGet	2	Clutha, Ōpōtiki	104	0.3%
TechOne	TechOne	1	Rotorua	410	1.1%
Paper	Paper	1	Kawerau	3	0.1%
Total BCAs		66		37,239	100%

Figure 11.4 Predicted Consenting Management System by share of national housing consents as at April 2024

Insight

It is an industry myth that “there are 67 councils, each with their own way of doing things”. The table above shows there are, at April 2024, seven front and four back end systems. Given Objective have acquired GoGet and AlphaOne; might there effectively be two system solutions by 2025: ObjectiveBuild and SAP? This is highly dependent on Councils’ appetite for such a contractual scenario, which remains to be seen.

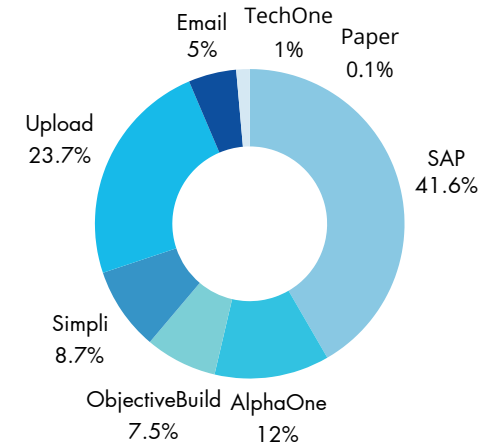


Figure 11.5 Front end systems by share of housing consents

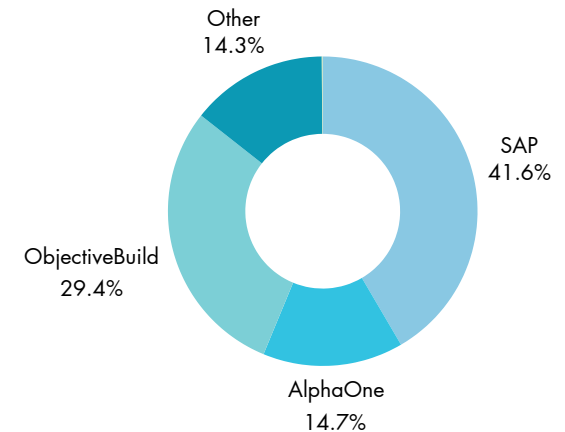


Figure 11.6 Back end systems by share of housing consents

Insight

Since 2002, the UK has used a single front end portal www.planningportal.co.uk for Resource (planning) consenting. In 2016 Building consenting was added. Crucially this portal is a joint venture between public and private interests. In NZ this could ideally be a JV between Central and Local Govt (as end users) with private interests bringing commercial imperatives.

The Request For Information as a signifier of consenting efficacy

Stakeholder engagement prior to the National Survey suggested that the efficacy of consenting could be measured through the RFI metric. Process measures include recording the number of RFIs and Line Items listed. In MBIE's 40-page 2022 Evaluation of the Consenting System, there were 41 mentions of 'RFI'. As the AO(B) Farsight notes, the RFI process is dreaded by Senders.

Given this context, the difference between a high- and low-quality building consent application could be calibrated by the number of RFIs issued. With regard to Processing Applications, Regulation 7(2)(d)(iv) under MBIE's BCA accreditation scheme states, "It is beneficial for BCAs and applicants that as few as possible RFIs are made in the course of processing a consent." However, the regulations also state, "a BCA must have the ability to seek further information at any time it is appropriate", and the "RFI process is not intended to act as a safety net for a poor application." The accepted wisdom from both the Sender and Receiver is that a high-quality building consent application ought to have very few RFIs, if any.

From the outset of ModelDocs, Senders have been quick to point to variability and incompetency between Receivers. Anecdotal evidence includes:

- "We've got sixty-nine councils, each with their own way of doing things - different log-ins and application forms, each requiring different information, details and methods." Sender
- "The changing requirements from BCAs regarding what information is required for an application changes from person to person, project to project." Sender
- "Building consent officers often seem to have insufficient knowledge of construction and their ability to read and understand technical drawings is inadequate, resulting in too many basic and unnecessary questions." Sender
- "Council are still playing silly bastards with this consent. We are pushing on... and not stopping." Sender

Under the Building Act, BCAs have the authority to request 'reasonable' information on a consent application when they believe further explanation is required. However, what is considered 'reasonable' can differ significantly between Senders and Receivers.

So, what does a Request For Information look like?

An RFI is generally in letter form and will have 'Request for Information' stated. An RFI has three parts:

1. Property ID

This includes the owner's name, the property address, the building consent number, and a description of the works.

2. General and Documentation

Such requests are generally concerned with administrative details such as unsigned documents or conflicting information on applications. Here are five examples of issues related to General and Documentation that this research encountered:

- "Revise Certificate of Design Work to remove unnecessary information"
- "AS/NZS3500.2:2018 has been superseded with AS/NZS3500.2:2020. Please update all the relevant notes."
- "Please submit drawings with title blocks showing it is a building consent, not a resource consent."
- "PS1 for spectrum glass balustrade is missing full design documentation."
- "Please provide erosion and sediment control plans."

3. NZ Building Code clauses

The bulk of an RFI typically consists of requests relating to specific NZBC Clauses. Here are five examples the research encountered:

- "Regarding the waterproofing details, please specify the minimum upstands as per Figures 1 & 3 from E3/AS1."
- "Please provide product specifications for Ecoply bracing."
- "How is the moist air removed from the laundry? Provide evidence of mechanical (e.g. an extract) or natural (e.g. skylight) ventilation that achieves the required ventilation rate. Refer G4/AS1, Clause 1.1.2."

- “Please show the location of smoke alarms on each level of the dwelling and within each sleeping area or within 3m of the door of each sleeping area. Even though there are no internal alterations proposed within the scope of works, Auckland Council has a duty of care to ensure they are shown on plans and checked on-site during construction. Refer to F7/AS1, paragraph 3.3.1 for guidance.”
- “Please demonstrate the lift shaft requirement and bore depth on sections and details on plans, including specifying the selected lift name/manufacture.”

The division of the RFI into Line Items and Sub-Line Items

If the research thought that a metric of consenting efficiency was the number of RFIs issued, then it was wrong from the get-go. An RFI is a letter that frequently contains a list of ‘Line Items’ (LI) that are the specific requests. Sometimes, a Line Item has more than one request, and ModelDocs calls multiple requests, Sub Line Items (SLI). It is the number of Sub/Line Items, not the RFI count, that is now the metric for potentially discerning between a high and low-quality building consent application.

Here are three examples of an RFI Line Item with three Sub-Line Items related to NZBC Clauses:

- “Please provide manufacturer’s specifications (1), installation details (2) and document appraisals (3) to verify how the selected Craftware veneer cladding meets the requirements of the NZ Building Code”.
- “Provide door head (1), jamb (2) and sill flashing (3) details for proposed sliding door in garage/sleepout”.
- “Please provide stud size (1), height (2) and fixing (3) complying with B1 provisions”.

11.1 Stage 1: mapping RFI Line Items to identify hot spots

The Data Deep Dive was undertaken in two Building Consent Authorities and across four stages. Stage 1 extracted and analysed Line Items and Sub Line Items from Requests For Information issued. The researchers looked for ‘hot spots’, places where RFI LIs accumulate. In this Chapter, answers to multiple research questions can be found:

- How many RFIs, Line Items, and Sub-Line Items are issued per consent?
- Which NZBC Clauses are most prevalent in RFIs?
- What type of fault is most common in BC applications?
- What type of information is being requested?
- What does the makeup of the Sender profile look like?
- What levels of complexity are there across the consents?
- What levels of competency are there across the consents?

Capturing the data: Requests For Information, Line Items, and Sub-Line Items

For each consent application, the Property ID, the numbers of RFIs, RFI Line Items, and RFI Sub-Line Items and dwelling complexity were recorded. Line Items contained in each RFI were divided and charted under specific NZBC Clauses. The Line Items were then mapped against the Information Type they were concerned with, for example, Drawings or Producer Statements. Refer Fig. 9.4. The dataset finally recorded if the RFI declared whether information was deemed to be:

- ‘Missing’ - information purportedly required yet not provided;
- ‘Incorrect’ - information deemed by the BCA not to comply or where information was inconsistent across the application.

Property ID	RFI	RFI LI	RFI SLI	Complexity	Code Clauses																														Info Types																
					A			B		C						D		E			F									G										H	1	2	3	4	5	6					
					1	2	3	1	2	1	2	3	4	5	6	1	2	1	2	3	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1						

Fig 11.7 Stage 1: a snapshot of the spreadsheet header showing how the data was captured

Tauranga City Council

The dataset extracted from Tauranga City Council was for the period 1st – 31st of May 2023 and the metrics were:

- 88 dwelling consents analysed
- less 7 exclusions for reasons stated in the research parameters e.g chimney refurbishments or boiler replacements
- equals 81 consents as dataset
- 204 RFIs issued
- 1,109 Line Items
- 2,186 Sub-Line Items

The data showed that in processing the ‘average dwelling consent’ from Tauranga would generate approximately:

- 2.5 RFIs
- 13.7 LIs
- 27.0 SLIs

Auckland Council Analysis

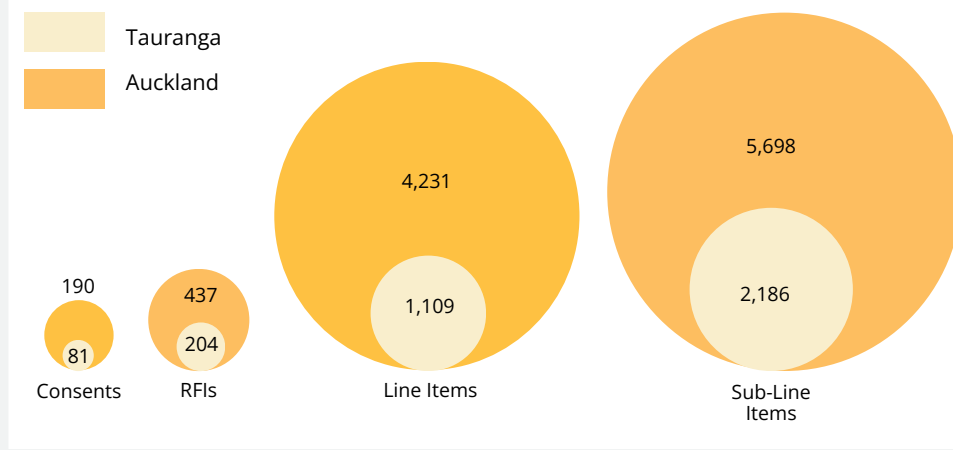
The dataset extracted from Auckland Council was for the period 1st – 15th May 2023 (this period is half of that for Tauranga) and the metrics were:

- 508 dwelling consents analysed
- less 318 exclusions primarily because Master and Dependent Building consents were treated as single consents, not multiple
- equals 190 consents as dataset
- 437 RFIs issued
- 4,231 Line Items
- 5,698 Sub-Line Items

The data showed that in processing the ‘average building consent’ from Auckland would generate approximately:

- 2.3 RFIs
- 22.2 LIs
- 30.0 SLIs

Figure 11.8 - Number of Consents, RFIs, LIs, SLIs scaled according to quantity and relative time frame: Tauranga (May 2023) versus Auckland (first half May 2023).



The data for RFIs and SLIs per consent was similar for Tauranga and Auckland, generating an average of 2.4 RFIs and 28.5 SLIs per consent.

Processing times of building consents

The Building Act 2004 says that BCAs must process lodged applications for building consents within 20 working days. If there is a RFI during consent processing, the statutory clock is stopped. It is not restarted until all the requested information has been received and checked. If an RFI is issued in response to the BC application, the processing time is paused until a response is received.



Sender behaviour:

“Building consents were meant to take 20 working days at the most but the Council regularly came back on the 20th working day asking for new information, and extending the timeframe.”

Sender, Source: [The Post](#)

Sender behaviour:

“10 years ago it would take only 12 days to get a building consent, but now we expected a wait of at least eight months. That was well beyond the statutory timeframe of 20 working days.”

Sender, Source: [The Post](#)





Government

“There is currently no consistent nationwide data on building consent timeframes... this will change and starting in April 2024 as Building Consent Authorities will be required to submit timeframes for building consent and code compliance certificate applications with this data being published on MBIE’s website every quarter.”

Source: [Beehive.govt.nz](https://beehive.govt.nz)



Insight: Tauranga City Council

For the 81 dwelling consents granted in May 2023, only consents with complexity C2 (one consent) and C3 (two consents) had a median processing time greater than 20 days. All other housing complexities had processing times within the statutory period: R1 - 17 days, R2 - 20 days, R3 - 20 days, C1 - 18 days, C2 - 28 days, C3 - 44 days.

Tauranga Council: n=81 dwelling consents

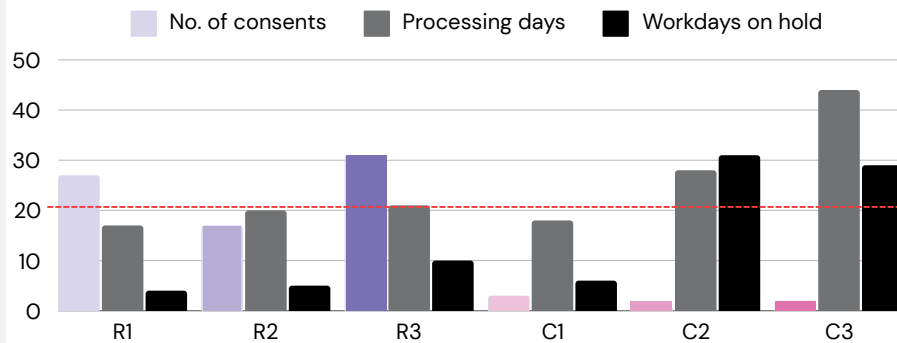


Figure 11.9 - No of dwelling consents granted during May 2023, median number of processing days and workdays on hold, Tauranga BCA for n = 81 consents

How to read processing times within our datasets.

The analysis used the median rather than the average which is more meaningful when dealing with widespread data and when outliers skew the average.

Insight:

ModelDocs found scant evidence of widespread or excessive delays due to the time BCAs spent on processing an application. Perhaps when the forthcoming quarterly nationwide data is released, the myth of the stop clock will be busted. System agility would be increased by allocating more time, say 30 days, to more complex dwelling categories, such as C1-C3. Greater loss of time was often due to workdays on hold - awaiting Sender responses to RFI LIs.

Insight: Auckland

For the 190 dwelling consents granted in Auckland Council for the first half of May 2023, only consents with complexity R3 had a median processing time greater than 20 days. All other housing complexities had processing times within the statutory period: R1 - 16 days, R2 - 17 days, R3 - 23 days, C1 - 11 days, C2 - 18 days, C3 - 18 days.

Auckland Council: n=190 dwelling consents

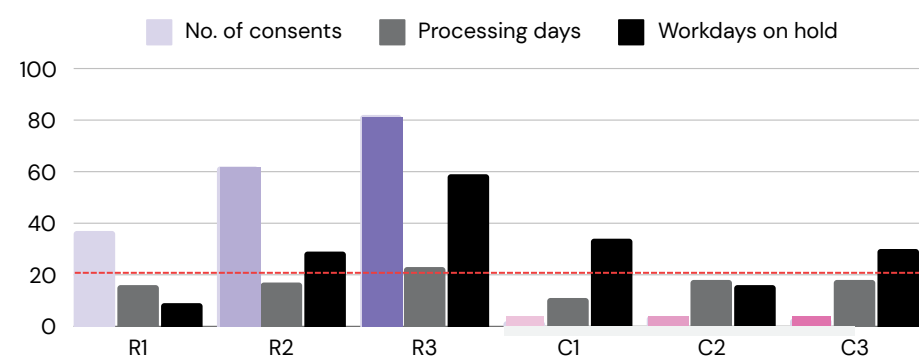


Figure 11.10 - No of dwelling consents granted during first half of May 2023, median number of processing days and workdays on hold, Auckland BCA for n = 190 consents

Tauranga - General and Documentation RFIs

Tauranga uses a different form of the RFI letter format from that outlined above in that it does not explicitly have a “General and Documentation” section. Instead, Tauranga uses a range of classifications such as “Miscellaneous”, “Site Consideration”, and “Section 120” for non-NZ Building Code clause requests. ModelDocs treated these classifications as General and Documentation. For dwelling consents in Tauranga Council during May 2023, of the 2,186 RFI Sub-Line Item requests:

- 434 related to Documentation and General RFIs
- 1,752 related to NZBC Clause RFIs

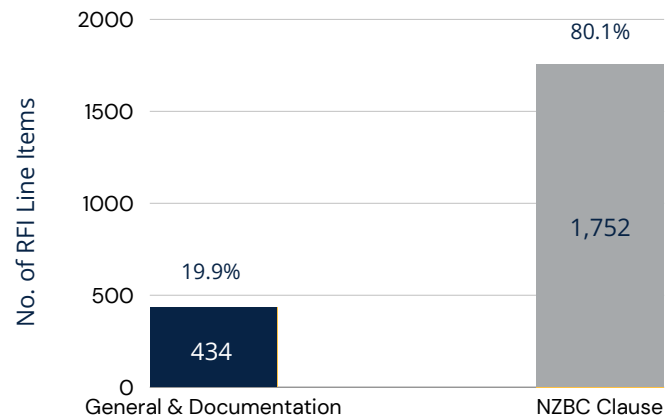


Figure 11.11 - Breakdown of RFI sub line Items by General & Documentation or NZBC clause for Tauranga n=2,186

Auckland - General and Documentation RFIs

For dwelling consents in Auckland Council during the first half of May 2023 of the 4,231 RFI line item requests:

- 1,076 related to Documentation and General RFIs
- 3,155 related to NZBC Clauses

Whilst the sample period for Auckland was shorter than that of Tauranga, the research took into account that there were no external influences, mitigating factors or ‘anything out of the ordinary’ that happened in Auckland and Aotearoa NZ, that would have distorted data within this period.

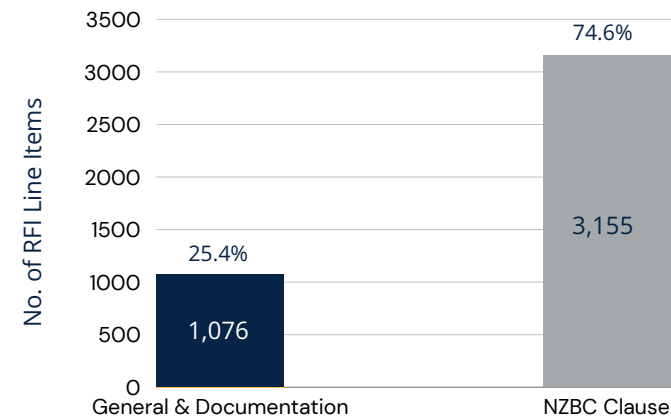
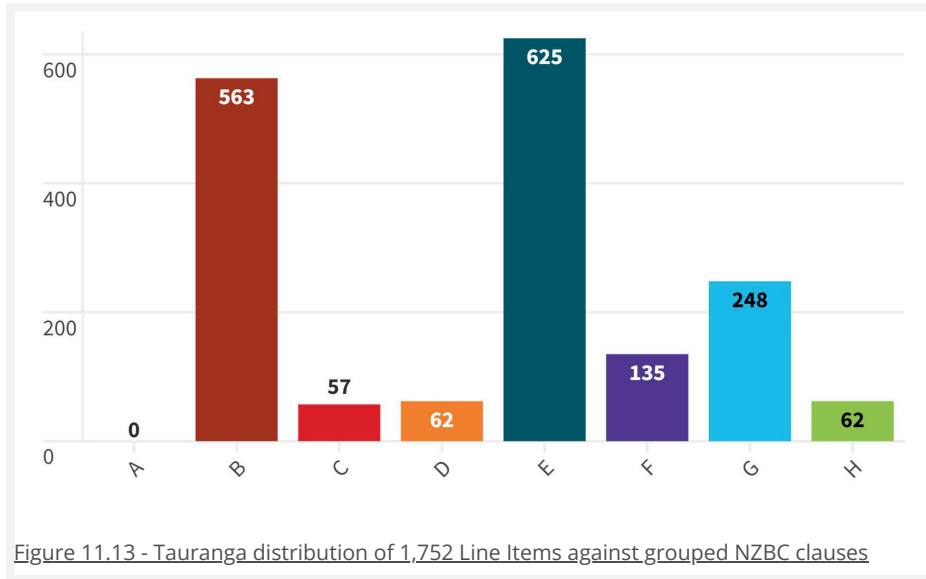


Figure 11.12 - Breakdown of RF Line Items by General & Documentation or NZBC clause for Auckland n=4,231

Tauranga - NZBC group clause RFIs

For dwelling consents within Tauranga City Council for the month of May 2023, of the 1,752 RFI Line Items related to NZBC Clauses, group B Stability attracted 32% and group E Moisture 36%.

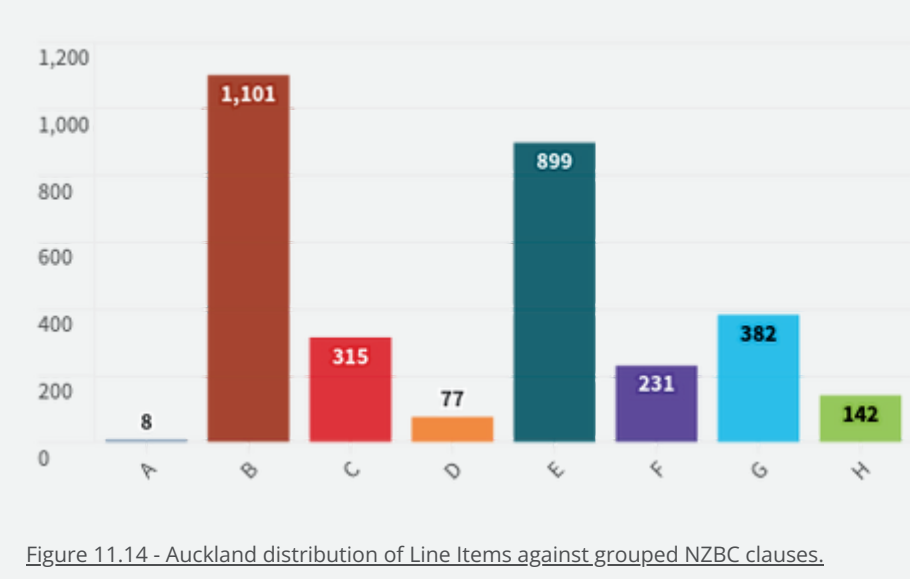


Insight:

The datasets for Tauranga and Auckland are very similar with Stability and Moisture accounting for 68% (TGA) and 63% (AKL) of NZBC clause RFIs.

Auckland - NZBC group clause RFIs

For dwelling consents within Auckland Council for the first half of May 2023, of the 3,155 RFI Line Items related to NZBC Clauses, group B Stability attracted 35% and group E Moisture 28%.



As mentioned on page 50, a building consent issued in May 2023 had, on average, 22.2 Line Items and 30.0 Sub-Line Items. The graph above illustrates that a total of 1,042 of these Line Items are related to the NZBC Clause B1. This means that B1 makes up a total of 24.6% of all Line Items in this sample (including General and Documentation), and so a building consent issued in the sample with at least 1 RFI will contain, on average, 5.5 Line Items related to B1.

RFI Line Items by NZBC clause

A more granular analysis of the RFI Sub-Line items per NZBC clause shows B1 and E2 as clearly being the most common for both Tauranga and Auckland.

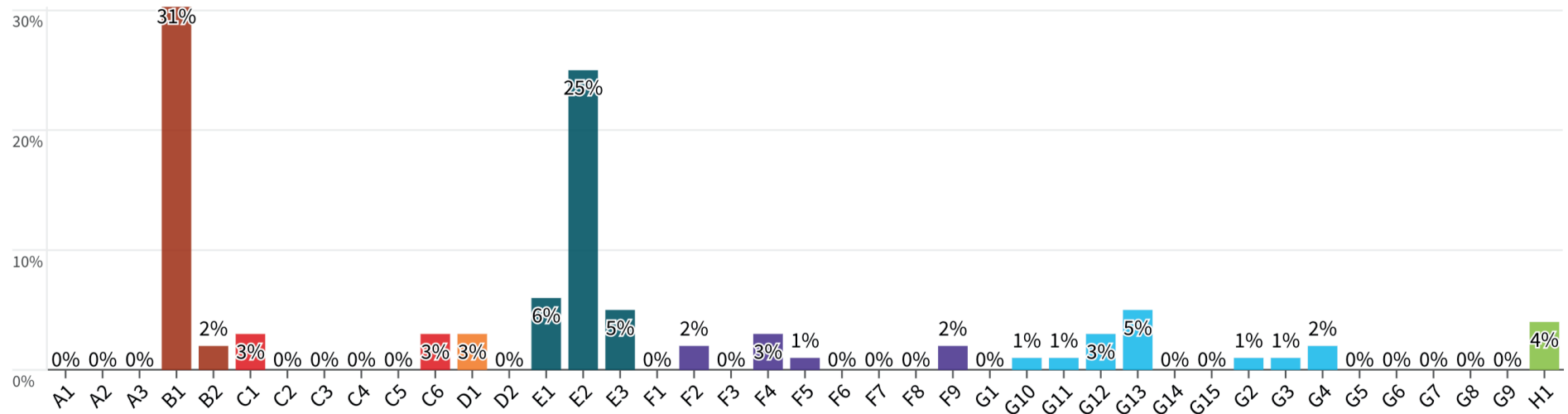


Figure 11.15 - new dwelling consents in Tauranga during May 2023 - distribution of Sub-Line Items against NZBC clauses, n=1,752

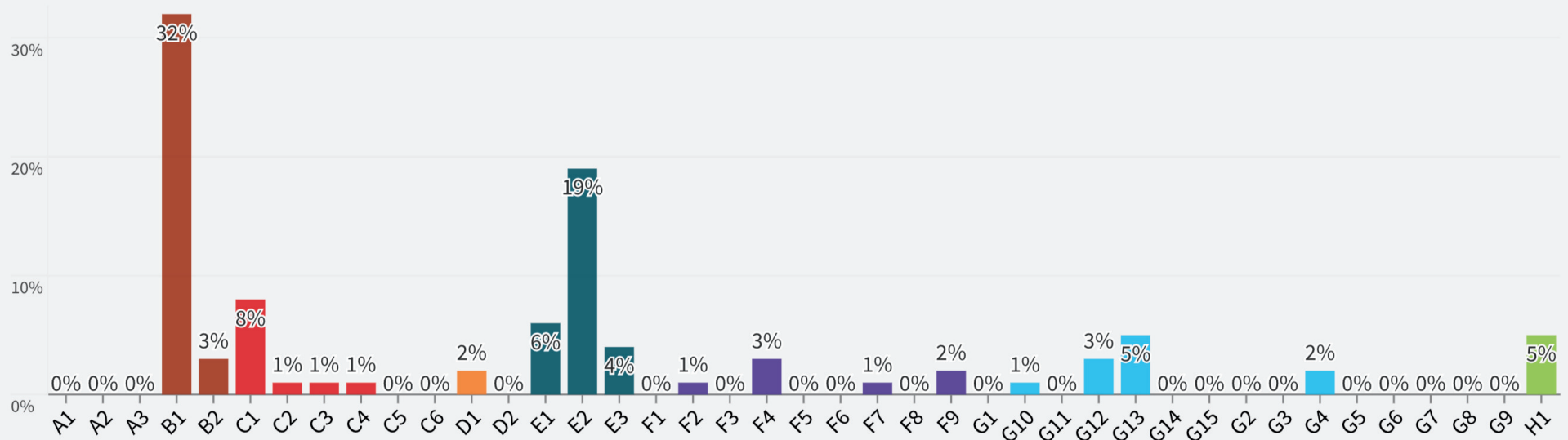
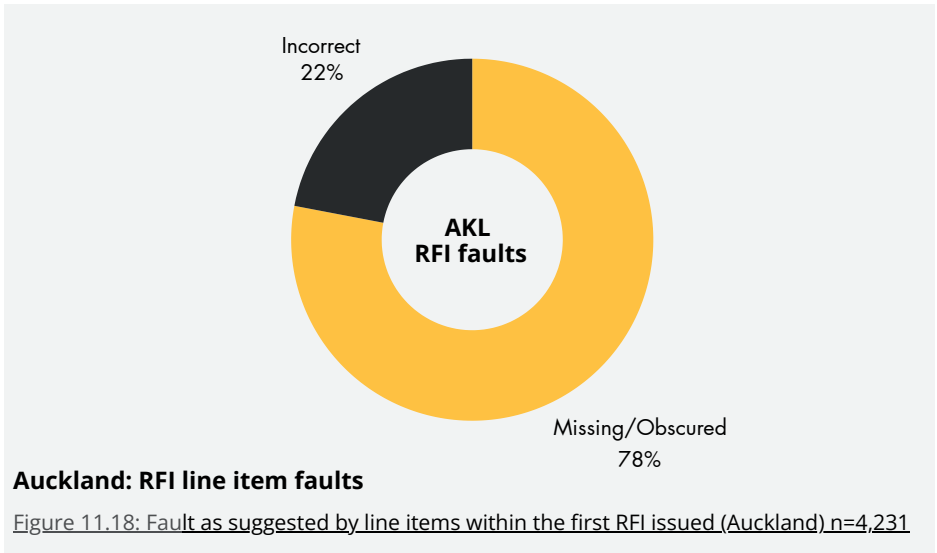
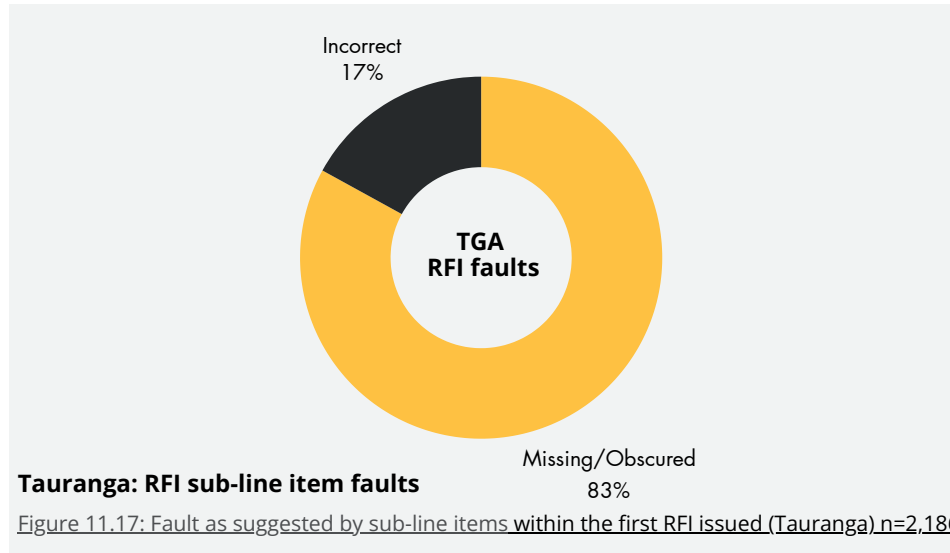


Figure 11.16 - new dwelling consents in Auckland during first half of May 2023 - distribution (as percentage) of Line Items against NZBC clauses, n=3,155

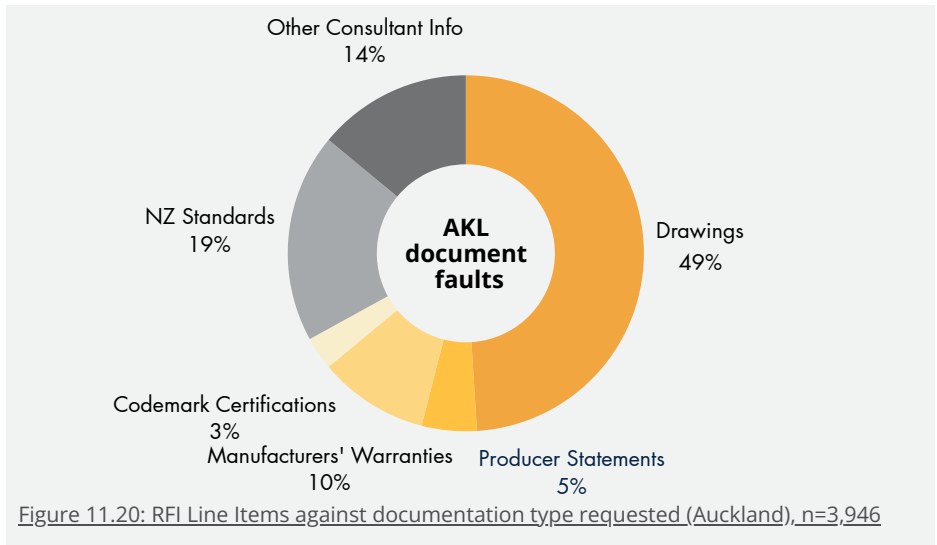
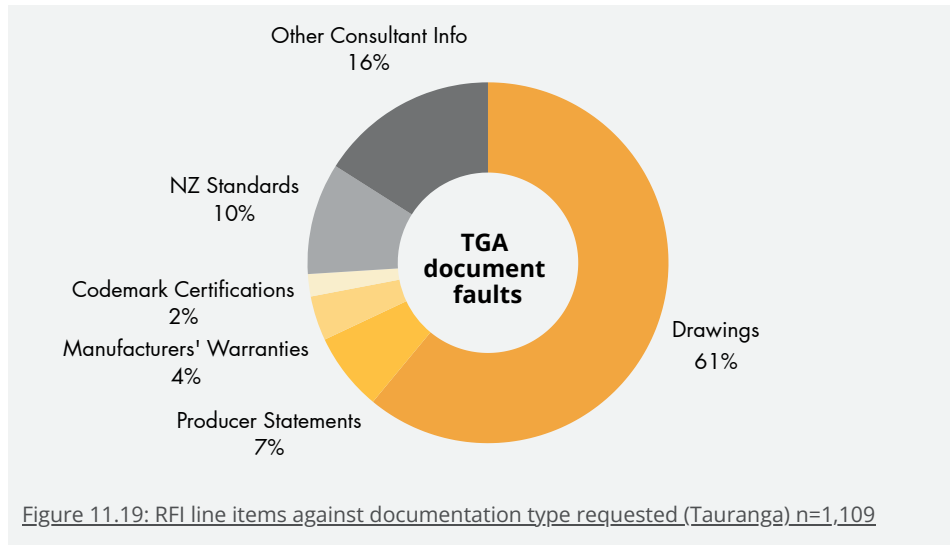
RFI Line items by 'fault'

The initial RFI letter issued by each of the Receivers suggests that Sender information is primarily missing, or obscured and not easy to find: this is the main reason for RFIs in both Tauranga (83%) and Auckland (78%). Contradictory or incorrect documentation originally provided is suggested as a minor reason, with Tauranga 17% and Auckland 22%.



RFI Line Items missing by documentation type

Tauranga and Auckland both had large sample sizes which helps classify documentation types requested.



Consents granted by dwelling complexity

For both Tauranga and Auckland, the dataset of dwelling complexity is very similar: 93% (TGA) and 95% (AKL) of all consents granted relate to dwellings with a Residential R1-3 complexity; that is from house alterations to new detached dwellings less than three storeys.

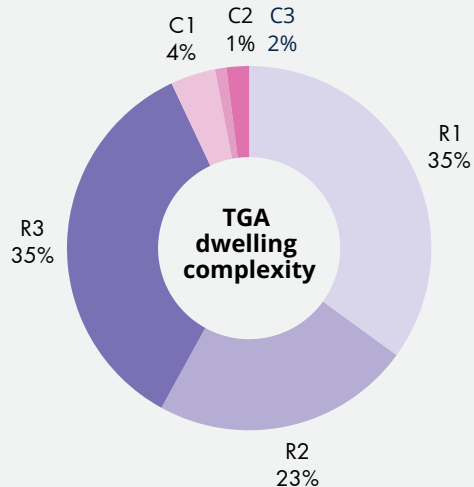


Figure 11.21: Dwelling consents granted by complexity in Tauranga during May 2023, n=81

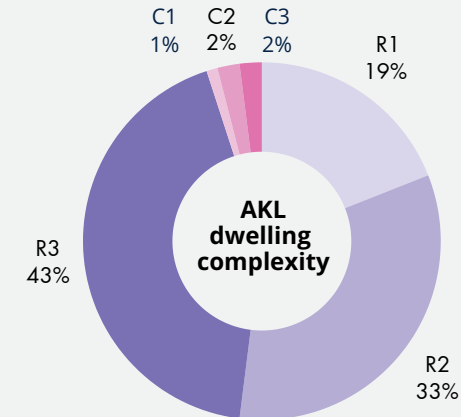


Figure 11.22: Dwelling consents granted by complexity in Auckland during May 2023, n=190

Sender profile

Who is submitting these consent applications? It is, LBPs who overwhelmingly represent the Sender profile in Tauranga with 87% share, and in Auckland, with 70% share. The number of Senders who are Architects triples from Tauranga to Auckland (25%). This is unsurprising given that half of the nation's architects live in Auckland.

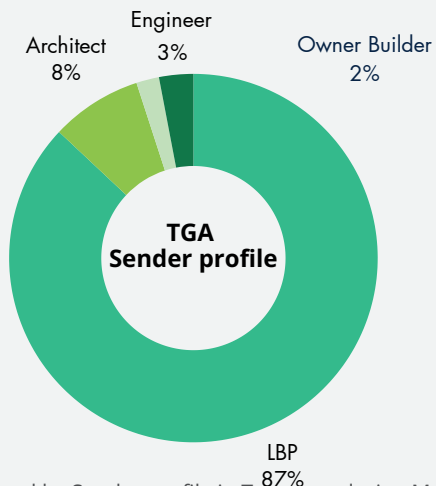


Figure 11.23: Consents granted by Sender profile in Tauranga during May 2023, n=81

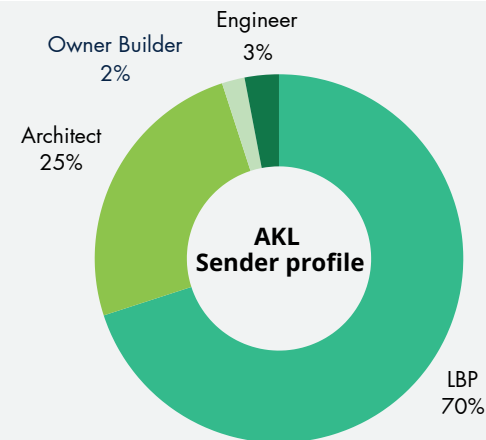


Figure 11.24: Consents granted by Sender profile in Auckland during May 2023, n=190

Consent complexity if Sender is an architect

The majority of consents granted in Tauranga where the Sender was an Architect relate to Residential R3 complexity, such as 3-storey detached dwellings or townhouses (67%). This is also the case for Architects in Auckland although the share drops to 47% with another 45% of consents relating to Residential R2, detached dwellings less than two storeys.

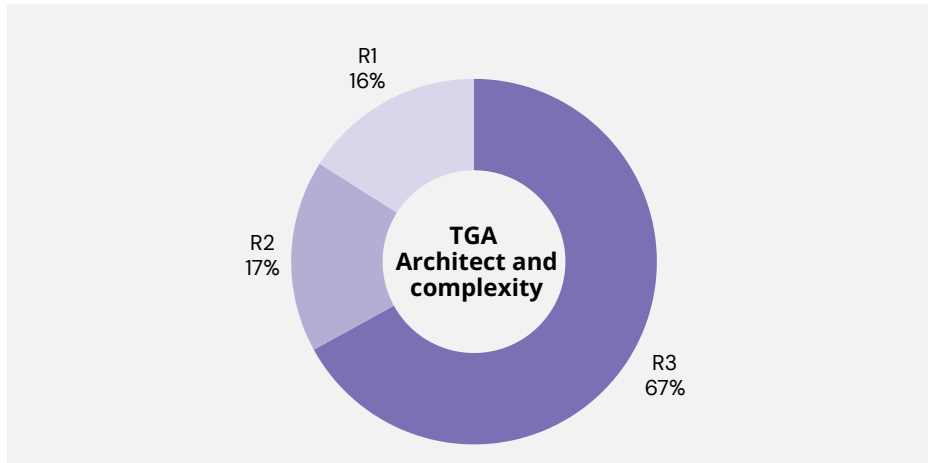


Figure 11.25: Complexity of dwelling consents granted to Architects as Senders in Tauranga, n=6

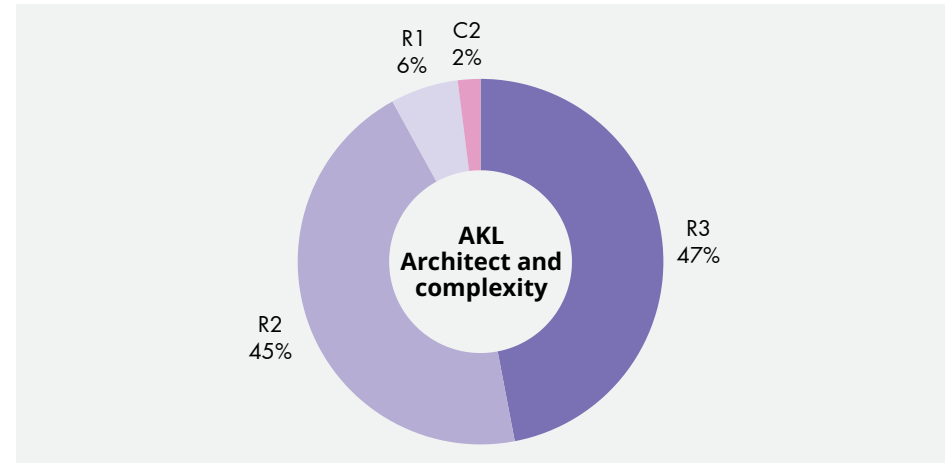


Figure 11.26: Complexity of dwelling consents granted to Architects as Senders in Auckland, n=48

Consent complexity if Sender is a LBP

The majority of consents granted in Tauranga where the Sender was a LBP is shared between Residential R1 complexity, such as single storey detached dwellings or alterations (38%), and R3 complexity, such as 3-storey detached dwellings or townhouses. For LBP as Senders in Auckland the share increases with complexity, with R3 rising to 43%.

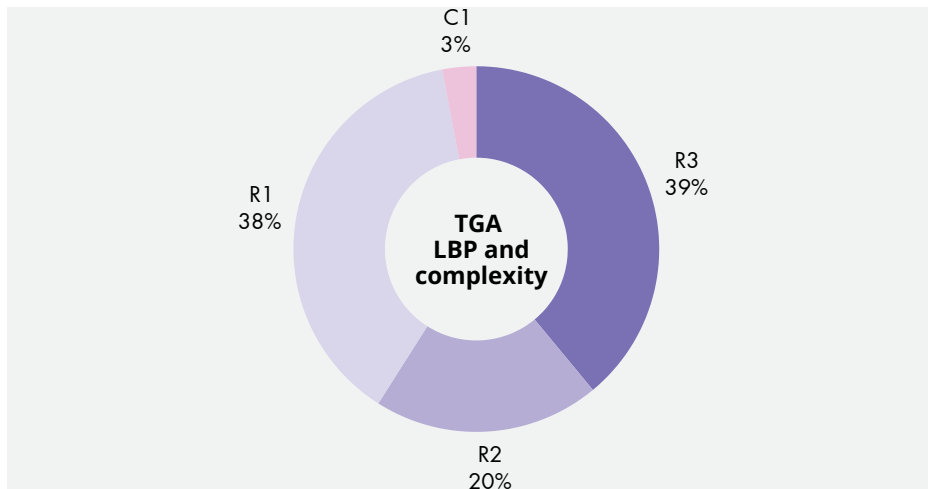


Figure 11.27: Complexity of dwelling consents granted to LBP as Senders in Tauranga, n=70

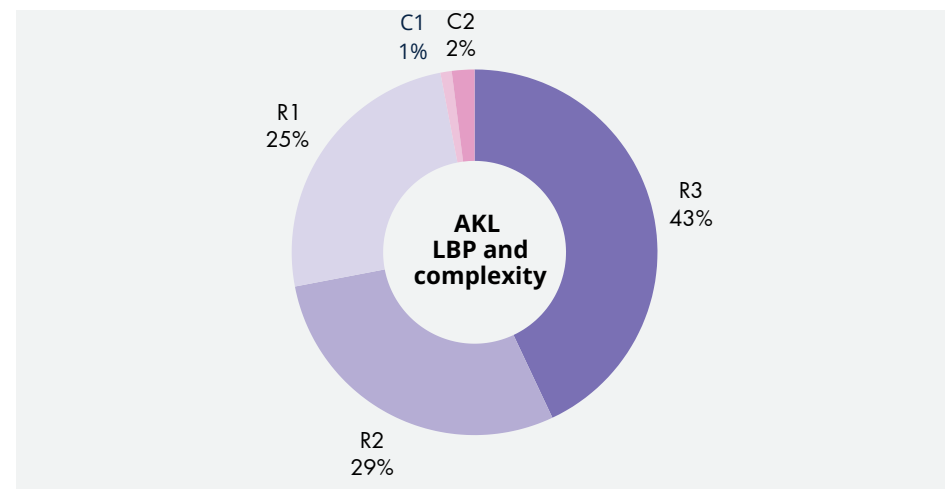


Figure 11.28: Complexity of dwelling consents granted to LBP as Senders in Auckland, n=133

Processing capability: Residential complexity with reference to BCO competency

In the MBIE Review (December 2022), issues were raised around whether building Control Officials lack the capability or experience to adequately understand and assess an application which generates requests for further information. Regulation 10 of the Building (Accreditation of Building Consent Authorities) Regulations 2006 (the Regulations) is intended to ensure all prospective and current building control officials (BCOs) performing building control functions have their competency established. This is so there is confidence that all employees perform building control functions within their skill and competence.

Insight:

During the Data Deep Dive, ModelDocs looked to see if the competency of the BCO (R1-C3) matched the complexity of the application (R1-C3). A sample representing a subset of n=40 granted consents from Auckland Council was taken. From an analysis of this dataset, no instances were found where the processor had insufficient competency to oversee a project.

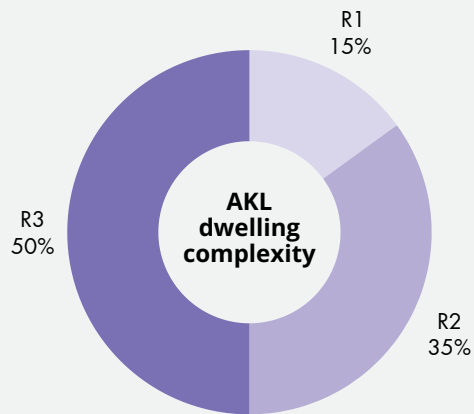


Figure 11.29: Dwelling consents granted by residential complexity n=40

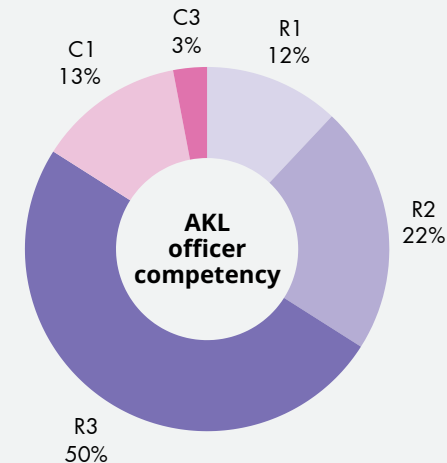


Figure 11.30: Dwelling consents granted by BCO competency, n=40

Stage 1 Summary:

As a result of the deep diving behind the counter of these two councils, documents were evaluated according to the following:

- digital not print format
- quality of the submitted documentation
- quantity of communications relating to the submitted documentation
- methods of document referencing

Patterns seen in Stage 1 were not unique to Auckland; they were also common to Tauranga:

- RFI Line Items relating to General and Documentation: 19.9% TGA, 25.4% AKL
- RFI Line Items relating to NZBC Clauses: 80.1% TGA, 74.6% AKL

Most RFI Line Items thus relate to NZBC Clauses. Of which:

- RFI Line Items relating to NZBC Clause B1: 31% TGA, 32% AKL
- RFI Line Items relating to NZBC Clause E2: 25% TGA, 19% AKL

Stage 1 revealed that NZBC clauses B1 and E2 attracted the most RFI line items.

- B1–Structure sets requirements to ensure buildings are able to withstand loads (such as wind, earthquake, people, and building contents) that they are likely to experience throughout their lifetime, protecting against injury and other damage caused by structural failure. See [here](#) for a full description of Clause B1–Structure from the Building Code.
- E2–External Moisture sets requirements to prevent damage and dampness caused by water that has penetrated and/or accumulated from external sources. See [here](#) for a full description of Clause E2–External Moisture from the Building Code.
- Some differences observed were the ratio of Architects to LBPs, but this is to be expected since Auckland has twice the architect-to-person ratio of Tauranga.
- Auckland also had more complex residential projects (R3), but this can be clearly linked to its much larger population with a push towards more apartments and high-rise residential buildings.
- There was scant evidence of ‘stop clock’ management due to spurious or strategically timed RFI Line Item requests
- There was scant evidence to suggest that the BCO competency did not match the project complexity.

Because of the similarity in the results drawn from the two datasets, for research efficiency, only data from Auckland Council was used in the next stages.

11.2 Stage 2: dissecting the Key Code clauses

Using data from Auckland Council's residential consents granted within the first half of May 2023, the focus for Stage Two was to gain a more granular understanding of the issues relating to:

- General and Documentation RFIs
- the two highest frequency NZ Building Code clauses identified in Stage 1 (B1 – Structure and E2–External Moisture)

Once known, the research could focus on creating a prototype that could address the issues relating to the leading causes of General & Documentation and NZBC Clauses B1 and E2 RFI Line Items.

Method and Results

1. The first step revisited all 190 granted consents and looked at the first RFI letter issued associated with each. The first RFI letter was only looked at to prevent the overrepresentation of reoccurring issues. This identified 104 consents with General & Documentation, B1 or E2 Line Items.
2. In the next step, a taxonomy was created by collating issues into subgroups. These issues could be examined more minutely.
3. In the third step, these subgroups were tallied. In all cases, the data was spread out (standard deviation greater than 2.2), but this made the identification of the highest subgroups easier, and the research investigated the two highest groups.
 - From NZBC clause B1, Bracing and Walls were the two highest subgroups
 - For NZBC Clause E2, Cladding and Flashing were the two highest subgroups

General and Documentation request mapping

A spreadsheet mapped the 350 General & Documentation requests. These were recorded using the terminology or verbatim language from the RFI line item. The spreadsheet identified which of the 163 subgroups were most prevalent. Figs. 9.32 and 9.33 illustrate this information.

Count	Documentation and General
1	If pool structure does not form part of consent , do not include
1	Provide project specifications
1	Branz appraisals supplied with incorrect insulation manual
1	Please update the letter of undertaking to register easements with the correct address
1	Revise CoDW to remove unneeded information
1	Please provide the approved section 223 plan for the approved application
1	Please provide resource consent decisions document
1	Provide engineering plan for public drain extensions
1	Revise PS1 to include SED wall bracing
1	Provide specifications of coating for steelwork
1	CoDW incorrect as still referring to NZS3604:2011 and truss manufacturer
1	Please cover the following items on the back page of AC2326
1	Please provide an updated cover sheet with the updated drawing list with revision
1	Provide updated geotechnical report
1	Provide an updated copy of codemark certificates

Figure 11.31: Examples of some of the 163 different General and Documentation requests n=350

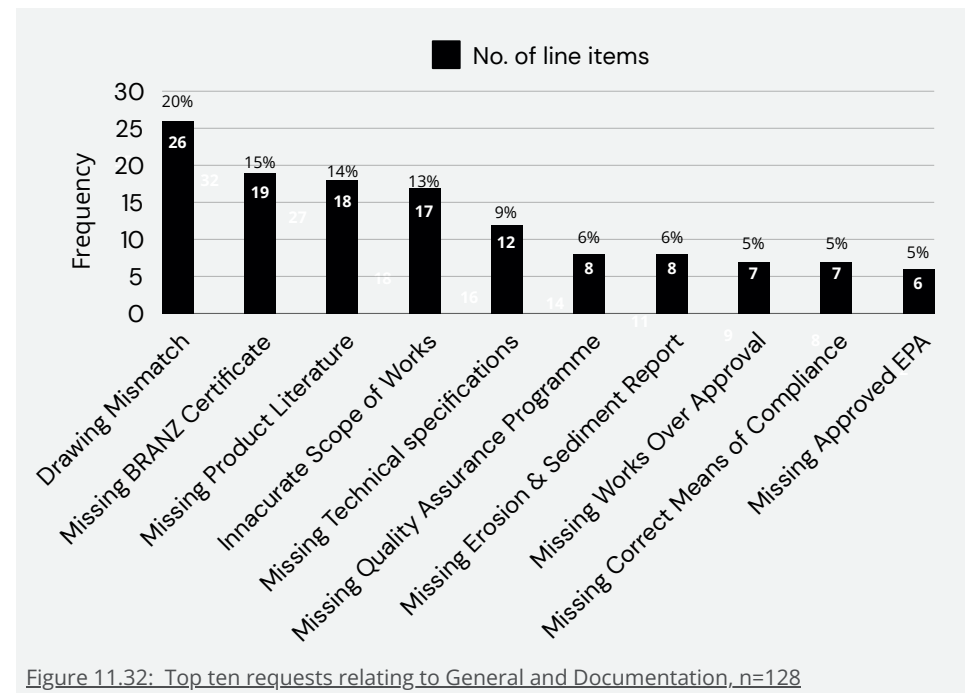


Figure 11.32: Top ten requests relating to General and Documentation, n=128

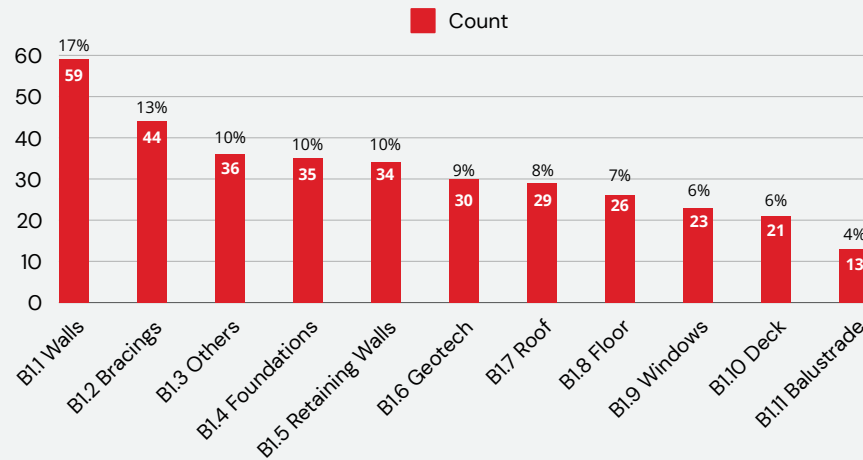
NZBC Clause B1 request Deep Dive

A spreadsheet mapped the 352 NZBC Clause B1 requests. These were recorded using the terminology or verbatim language from the RFI Line Item. The spreadsheet identified which of the 175 subgroups were most prevalent.

Figure 9.33: Examples of some of the 352 different NZBC clause B1 requests, n=352

Subgroup	Count	Specific RFI Line request
deck	1	Provide decking material as per NZS3604
roof	4	Provide the gable end framing size and spacing.
geotech	5	Liquifaction risk needs to be reviewed by engineer
roof	3	Specify framing and lining of skillion roof
bracings	3	Revise bracing plan to show correct length of braces
deck	2	Please indicate the length of cantilevered deck bearer where spacing bearers exceeds 2m
other	1	Fixing detail is not consistent between PS1 and plans
foundations	4	Provide the centres/height of the piles (pile details)
retaining walls	3	Confirm retaining wall construction detail
bracings	2	Deck is only braced in one direction which is incorrect
foundations	1	Old slab connection detail is needs am engineer COW+PS1
bracings	1	There is no bracing specified

Figure 11.35: Most prevalent requests relating to NZBC Clause B1, n=175



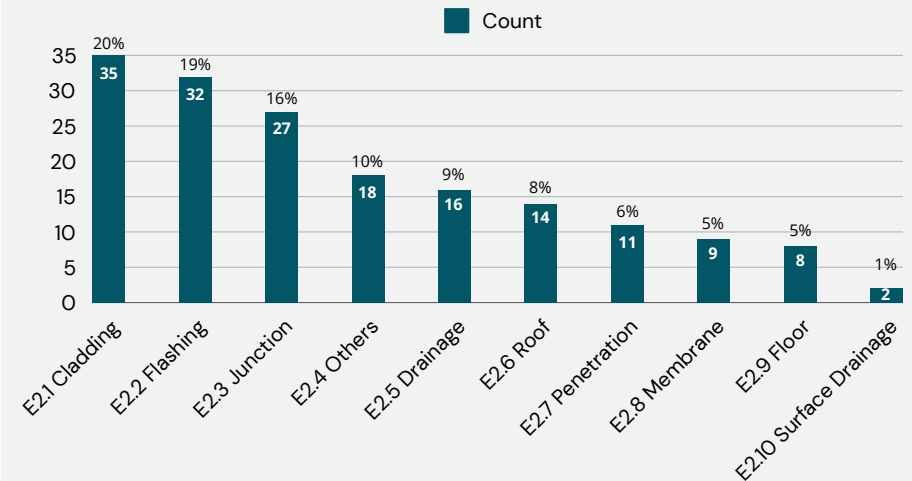
NZBC Clause E2 request Deep Dive

A spreadsheet mapped the 172 NZBC Clause E2 requests. These were recorded using the terminology or verbatim language from the RFI Line Item. The spreadsheet identified which of the 79 subgroups were most prevalent.

Figure 9.34: Examples of some of the 172 different NZBC clause E2 requests, n=172

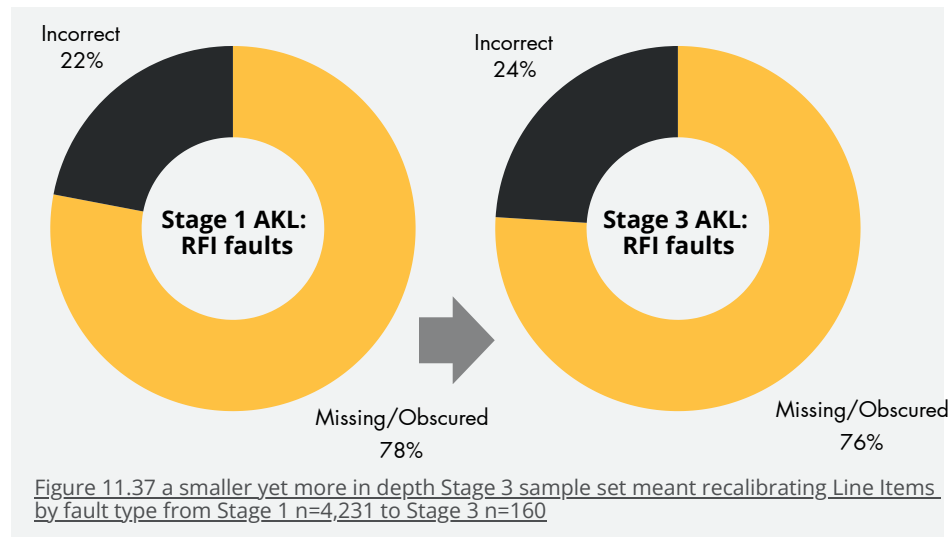
Subgroup2	Count2	Specific RFI Line request
Cladding	2	Revise and update the Branz appraisal for the vertical weatherboards to the latest.
Floor	1	Provide the deck connection detail as per E2/AS1
Penetration	3	Provide the metre box detail.
Flashing	2	Provide raking window flashing detail to comply with E2
Cladding	2	Please specify the information around aluminium joinery
Surface Drainage	1	Please clarify that the ground is paved to comply with E2
Cladding	1	Confirm if there is penetration in roof from chimney and provide weathertightness detail
Roof	1	Clarify if skylight is already existing
Cladding	2	Clarify cladding type used + mantech and insd for system used
Floor	2	Centre spacing of deck joists/nogging
Cladding	1	Provide Titan Board information

Figure 11.36: Most prevalent requests relating to NZBC Clause E2, n=172



11.3 Stage 3: confirm 'fault' by comparing first & last RFIs

In Stage 1, the first RFI issued suggested a fault. Sender documentation was either Missing or Incorrect. If conclusions were to be drawn solely from the first RFI, this would result in Receiver bias. So in Stage 3, fault attribution was checked by reading all Sender-Receiver comms between RFI 1 and the resolution of the item. As faults within Gen&Doc RFIs were more definitive, Stage 3 focused solely on NZBC clauses. The Stage 1 dataset was too large to read every email so Stage 3's B1-E2 focus meant a smaller dataset could be taken to allow more in-depth analysis. This recalibrated fault attribution by 2%. Missing reduced from 78% to 76% and Incorrect increased from 22% to 24%.



Method and analysis:

- Stage 2 consents that contained B1 and E2 issues were examined; subgroups of interest were identified: B1.1 (walls), B1.2 (bracing), E2.1 (cladding) and E2.2 (flashing). 40 were selected from each to give a sample set of n=160 'extractions'.
- When a relevant Line Item was discovered, the initial query was recorded verbatim, as were the final responses that lead to the resolution of the line item. These responses included emails and phone calls.
- Additional information relevant to the exchange was also recorded, such as the Sender type (architect, LBP, etc.), complexity of the issue, and number of communications required to resolve the line item.

Fault development

- **Missing information:** details or clarification required about documents. Please provide, specify, clarify, confirm, verify, review...
- **Incorrect information:** either wrong or contradictory (e.g. lack of co-ordination between architectural and structural info).

With Sender in the RFI reply, 'fault types' expanded to include receiver behaviour. This led to two additional faults: 'Correct' and 'Obscured'.

- **Obscured information:** submitted but not locatable, or identifiable, so 'lost' within application. Navigation issues. Superfluous info obscuring relevant info.
- **Correct information:** line Items deemed to be incorrect; however, the Sender response proved that the info was actually correct. Could also occur when an item is said to be missing but was not required say due to the scope of the work (e.g. Geotech report). In this case, the Sender ought to explicitly state that document is not supplied because it is not required.

Examples

Incorrect Information: E2.1 – Cladding BCO103643XX - E2 – Cladding

Receiver RFI1: "Metal cladding jamb detail of 11/511 is different from manufacture and E2/AS1 details. Please confirm it complies to E2."

Sender RFI1 Response: "Metal Clad-Jamb Detail 11/511, revised to be consistent with manufacturer detail KE19 as method for compliance"

Obscured Information: Flashing BCO103643XX – E2 – Flashing

Receiver RFI1: "Corner detail BC 20: no proposed soaker, box corner, or flashing. Please discuss how this complies with E2/AS1 principles."

Sender RFI1 Response: "Soaker flashing proposed and detailed in detail. BC20 attached."

Receiver RFI1: "Thank you. No revised BC-20 was provided."

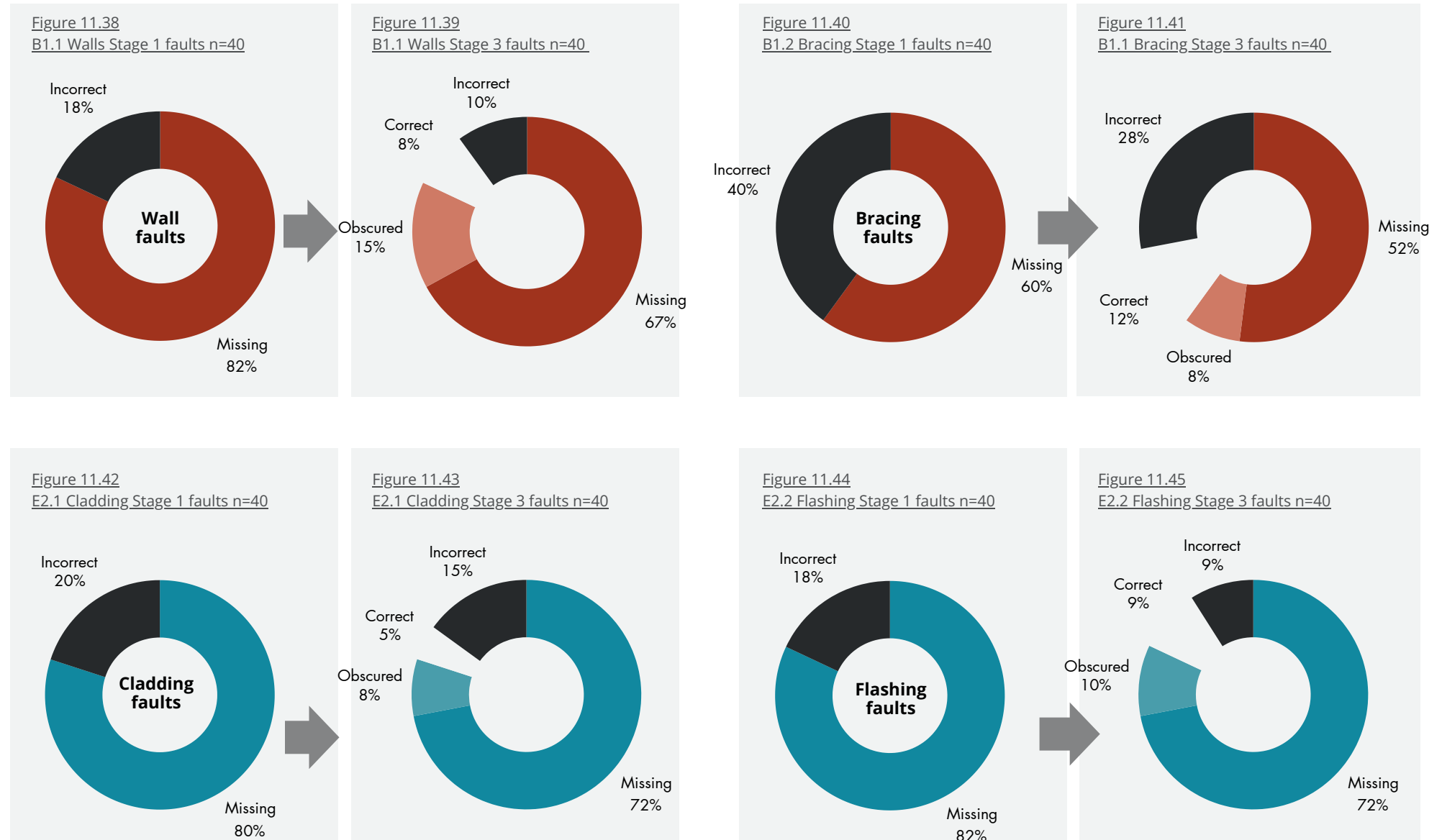
Sender RFI2 Response: "Corner soaker details on BC19"

Correct Information: Bracing BCO103634XX – B1- Bracing

Receiver RFI1: "GF bracing calculations specify BL1-H to bracing elements A2, C1. Bracing plan on sheet A221 shows GS-x. Provide revised calc or plan as necessary to ensure accuracy and consistency. Pls complete GS-x with correct specifications"

Sender RFI1 Response: "Ground floor bracing, A-2 & C-1 should be BL1-H as per calculations."

The research then investigated the four separate groupings to determine whether there was a similar distribution of fault within in each group using Stage 1 faults. Then they dived deeper into the communications between Sender and Receiver to reattribute fault at Stage 3.



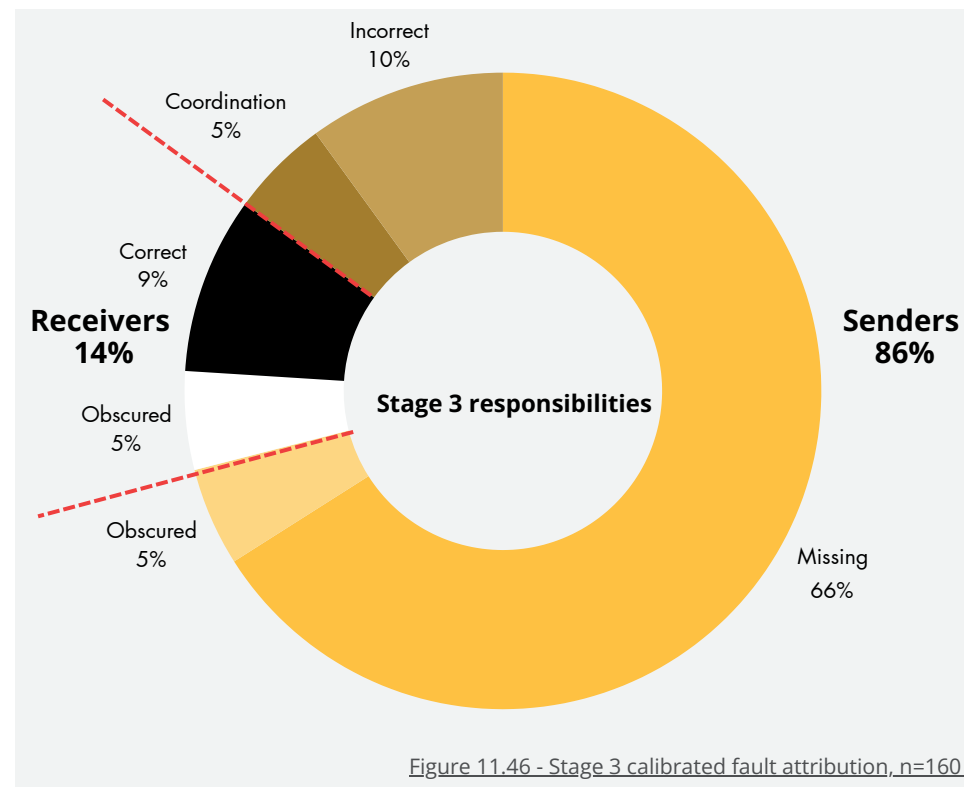
Stage 3 Summary:

The research investigated the:

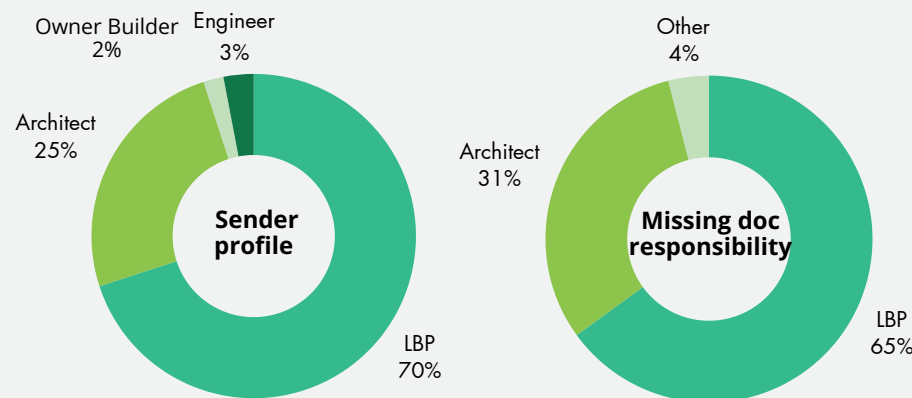
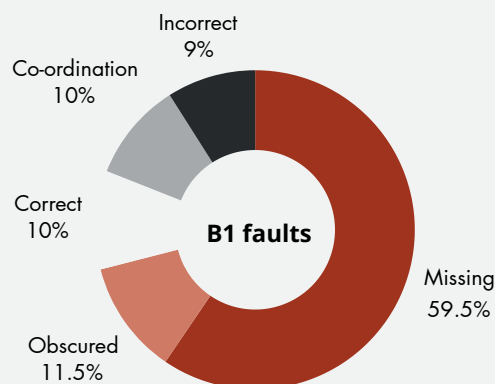
- submission of documentation in digital, not print, format
- quality of the submitted documentation
- quantity of Sender-Receiver communications

The research sought to determine responsibility around:

- **Obscured documentation:** attributed as a shared Sender-Receiver responsibility as docs may have been missed by the Receiver and/or not clearly organised by the Sender. 10% of items originally categorised as 'Missing' were actually 'Obscured'.
- **Missing documentation:** attributed as a Sender responsibility. Feedback from Sender stakeholders has been that there's no clarity from BCAs regarding what docs to submit, and there is inconsistent checklisting. However, the most common line items related to what ought to have been rudimentary B1 items.
- **Incorrect documentation:** attributed as a Sender responsibility. B1.2- Bracing had significantly more 'Incorrect' issues (28%) than the other three clause groups (9-15%). This was partially due to coordination issues between Senders (e.g. Architect and Engineer) - see below - but was also related to calculation errors.
- **Correct information:** attributed as a Receiver responsibility. In 9% of the extractions there was resolution, with the Sender being correct in the initial submission.



Co-ordination: As NZBC Clause B1 involves documentation exchanges between designers and structural engineers, ModelDocs investigated n=80 extractions from B1.1 Walls and B1.2 Bracing. As there were eight examples of inconsistencies, a 'Co-ordination' fault was added.



Most common faults in submitted documentation:

1. Missing covering letter - this letter sets out the scope of work and provides an overview of the means of construction and any alternate solutions.
2. Consultant drawings that lacked coordination and clarity as to which, if any, of the consultant documentation is relevant.
3. Missing BRANZ certificates/appraisals. These are a means of compliance, so must be supplied.
4. Missing product literature / technical specification to assist a BCO in understanding whether the product is being used as intended, installed correctly, and thus achieves compliance.
5. Missing Agreement to provide a quality assurance programme on completion of building work (Auckland Council provides a template [AC2329](#)).
6. Missing Works Over Approval document.
7. Missing Engineers' Planning Approval. Without this, any Building Consent being obtained for council property will not be approved.

Speculation:

ModelDocs recognises that it did not have sufficient evidence to fully understand:

What's driving behaviour to submit missing docs?

More research is required regarding how Senders could improve the quality of applications. Is missing documentation due to Unwillingness ("don't want to") and/or Unknowingness ("don't know how to")?

Unwillingness can result from:

- Commercial pressure due to insufficient budget? A low fee causes the Sender to behave with minimum service, resulting in a low-quality application.
- Commercial incentive to profiteer? The Sender behaves by providing minimum service to maximise professional fees. ModelDocs noticed an emerging practice behaviour thriving on the status quo. Senders prime client that Receiver incompetence will produce significant RFIs which the Sender will invoice the client on a time-charge basis.
- Will any of these behaviours lead to unconsented work being undertaken? This can lead to poor quality housing and increased costs later.
- Sluggishness? Is consenting becoming so difficult that it demands exhaustive effort? With the example of B1, Sender don't understand why stud spacings need to be specified when "everyone knows it".
- Misperceptions of receiver incompetence? ModelDocs found no example where the competency of the BCO did not match the complexity of the dwelling.

Reasons for Unknowingness:

- If Senders do not know what to submit, ModelDocs can provide a hybrid checklist (AKL, CHCH, Objective) that attends to 'missing docs' around the key Gen&Doc and NZBC clauses (B1-Structure, E2-Moisture) which generate RFIs.
- A unified single checklist can solve BCA consistency as checklists drive RFIs.
- In the implementation phase of ModelDocs, Senders would use the BCA checklist to pre-empt RFIs.

These behaviours can lead to the creation of an equitable Sender-Receiver relationship.

12. Principles for Change

This research seeks to transform consenting behaviour. At the outset, it was envisaged that through the provision of a set of model documents, consenting could be improved. However, during data collection and the communications trawl, it became clear that less than ideal Sender behaviour needs to be addressed first (Fig.9.43). As evidenced through Missing documentation, until such Sender behaviour is recognised and ‘owned’, and change is desired, then ‘what good documentation looks like’ is moot. The emphasis of the research thus shifted from ‘model documentation’ to ‘model behaviours’. Yet the name ModelDocs was retained as it had industry traction. So ‘what good looks like’ in the future depends on the Sender appetite to lower the rate of 30 line items per application.

The principles for change fall into three categories:

1. Sender focused regarding General and Documentation
2. Sender focused regarding Code Clauses B1 and E2
3. Receiver focused regarding “How to write an RFI” and Checklisting.

12.1 Sender: General + Documentation principles

These quick-win implementations can be made by the Sender to streamline the consenting process. They are not specific to any NZBC clauses and are relevant to the consent application as a whole. As shown in Stage 1 of the research, General and Documentation RFI Line Items comprised 25% of all researched Line Items.

12.1.1 Documentation Management - File Naming

A consent application is never just one file, because of file size limitations and the need for navigational agility. For efficient processing, the content of these files needs to be well-signposted in the file name. Submitted documentation falls into three categories:

- Application Form - containing Certificate of Design Work, Title etc
- Plans - name contains design discipline
- Supporting Documents - may contain Producer Statements, Reports, Specification, Calculations etc

Figure 12.1 shows signposting of content.

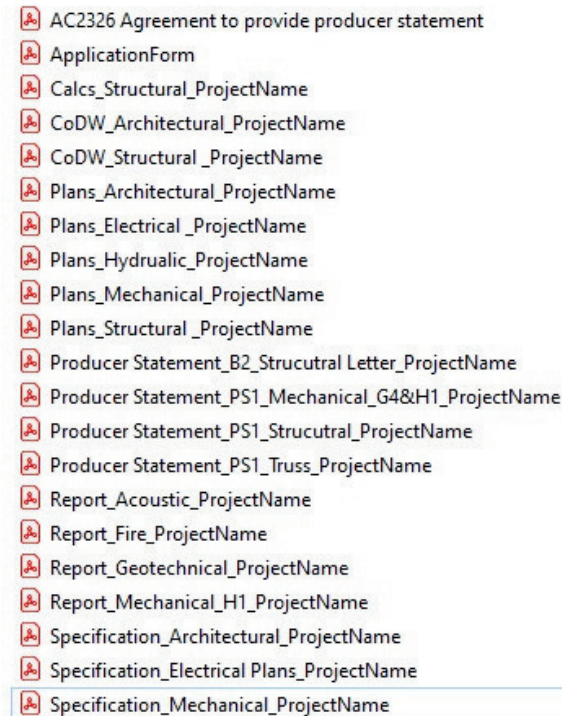


Figure 12.1 – Document management file naming signposting content

12.1.2 Drawing Sheet and Documentation Numbering

Each file can contain multiple drawing sheets and / or documents. Having logical organisation for the naming and numbering aids processing. Plan files rely on each drawing having a unique sheet number and revision. Supporting document files rely on page numbering.

According to the Co-ordinated Building Information (CBI) system, Drawing Sheet numbering includes:

- Producer discipline (e.g. A: Architecture ..)
- One of the eight Level 1 classes of CBI system representing the fundamental subdivisions of the building industry: 1 General, 2 Site, 3 Structure, 4 Enclosure, 5 Interior, 6 Finish, 7 Services, 8 External
- Sheet and revision number (for example A1-100 Rev C GA Plans).

Document naming standards for online building consent applications

Keep file names short and use the recommended naming standards when you make an online building consent application.

This will help us process your application faster.

Document type	Recommended naming standard
Application Form	Application Form
Record(s) of title	RoT
Specialist report(s) (optional)	{relevant type} Report - e.g. Fire Report
Calculations & Specifications	Calcs and Specs
Producer Statement	PS {relevant number type}
Technical Literature	Tech Lit
Plans	{relevant type} Plan - e.g. Architectural Plan
Certificate of Design Work	CoW
Land owner / affected party approval(s) (optional)	LOA
Additional documents (optional)	{clear description}

Figure 12.2 – Naming standards for online building consent applications.

Source: aucklandcouncil.govt.nz

Name	Date modified	Type	Size
AC2326 Producer Statement Agreement	31/10/2022 10:25 am	Adobe Acrobat Docu...	1,291 KB
CODW - Designer	31/10/2022 10:25 am	Adobe Acrobat Docu...	229 KB
CODW - Engineer	31/10/2022 10:25 am	Adobe Acrobat Docu...	2,960 KB
Specifications - Product	31/10/2022 10:25 am	Adobe Acrobat Docu...	14,556 KB
Specifications - Project	31/10/2022 10:25 am	Adobe Acrobat Docu...	899 KB
Supporting Documents - Project	31/10/2022 10:25 am	Adobe Acrobat Docu...	469 KB
Supporting Documents - Structural Engineering	31/10/2022 10:25 am	Adobe Acrobat Docu...	10,301 KB

Figure 12.3 - An optimal file-organisation example (Combined Files)

12.1.3 File Sizing:

Large file sizes consume a computer's processing power. Examples of this are: including too many files at one time, non-optimised resolution, and texture maps.

The research saw no individual file greater than 300MB as this is the limit the Council specifies. Smaller file sizes load faster and are easier to navigate and search. Ways to minimise file sizes:

- Avoid duplicate or blank pages
- Remove unnecessary textures or features on drawings
- Crop unnecessary white space around drawings

R1 median total file size: 72MB

R2 median total file size: 141 MB

R3 median total file size: 153 MB

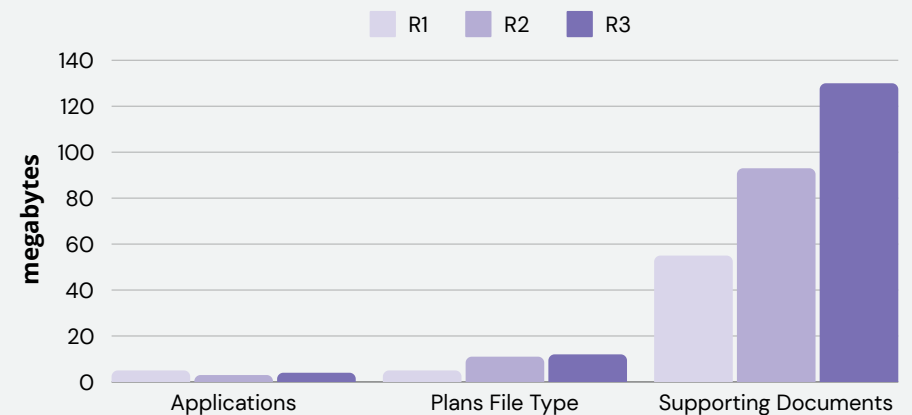


Figure 12.4 - Median file sizes of consents analysed in Stage 3



Figure 12.5 - Example of a drawings which is an unoptimised 200 MB PDF file.

12.1.4 Searchable PDFs:

A large portion of a BCO's time is spent looking for specific information, often using text 'Find' tools on PDFs.

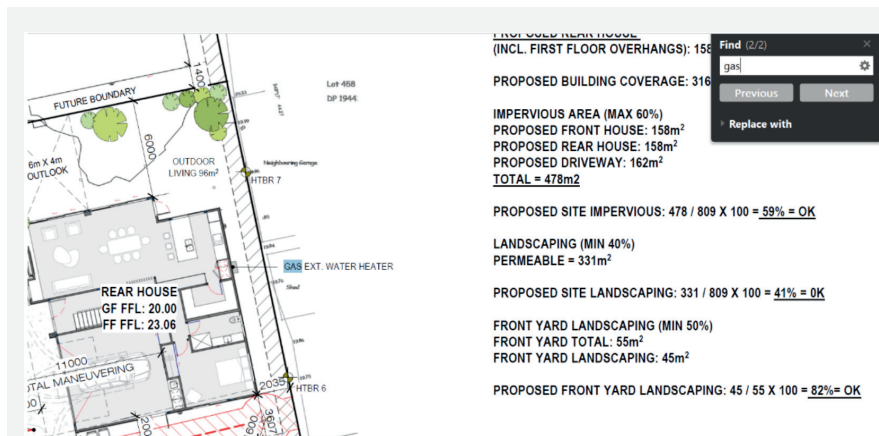


Figure 12.6 - Example: Able to quickly find a sheet containing a gas water heater in a 50-page plan document.

Not being able to search a PDF for specific vital words slows down the building consent process and ends up costing the Sender money. The searchable feature can be enabled within the PDF:

1. Open the PDF file
2. Navigate to the "Tools" tab in the top left
3. Click the "Scan & OCR" option
4. Now select the "Recognize text" dropdown menu in the top centre of the document.
5. Select "In this file"
6. Click "Recognize text" and wait for the program to scan all the pages
7. Click close in the top right
8. The PDF document is now searchable.

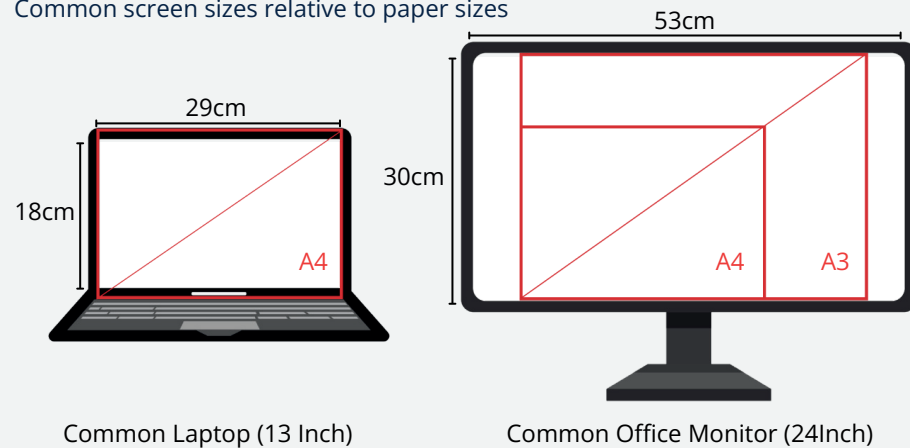
12.1.4 Drawing Size

One legacy of the hand-crafted architectural drawing related to its technical legibility: 'what you saw is what you got'. Before CAD, architects and engineers worked with large equipment, in large groups, completing drawings that were of a size much larger than typically found today.

Drawing in the digital age has compacted drawing size. The scroll function on a mouse has rendered scale problematic, even with zoom pre-sets. 'Print to fit' has increased the illegibility of the architectural drawing and seen the demise of those scales once apparent on a scale ruler. Today the architectural drawing is not a paper-based print but a digital file. The Portable Document Format (PDF), developed by Adobe in 1992, creates documentation versatility and immediacy. Smaller drawings, produced on smaller screens (such as WFH laptops) are commonly read on site, on smaller tablets and smartphone devices.

A BCO might typically process a consent on a 24-inch monitor with 1920x1080 resolution. Thus it is time-consuming and challenging to navigate an A0 or A1-sized drawing. ModelDocs recommends PDF drawings of A3 size should be used (this is also the size recommended in 2014 by the [UK's Planning Portal](#)). A3 size makes navigation manageable (no need to zoom, pan, or scroll) and is scale appropriate for R1-R3 dwellings.

Common screen sizes relative to paper sizes



	Laptop	Monitor
Screen Size	29 x 18cm	53 x 30cm
Paper Size	29.7 x 21cm (A4)	42 x 29.7 cmm (A3)

Figure 12.7 - Comparison between A3 drawing print size and screen size

Portion of A2 Drawing sized legibly on a common monitor

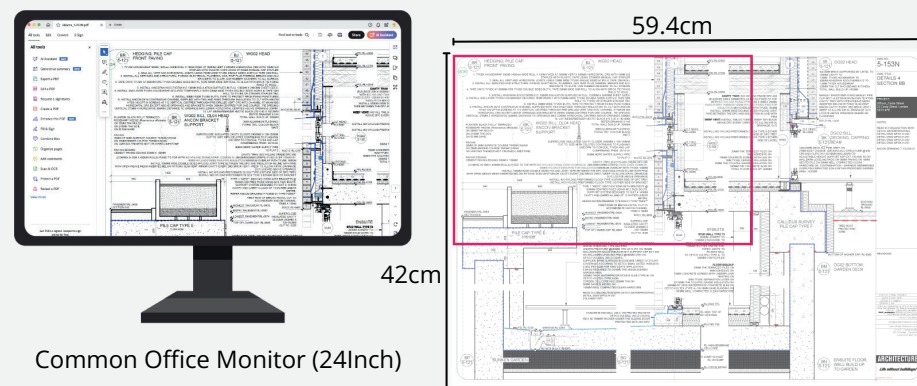


Figure 12.8 - Comparison between A1 drawing print size and screen size

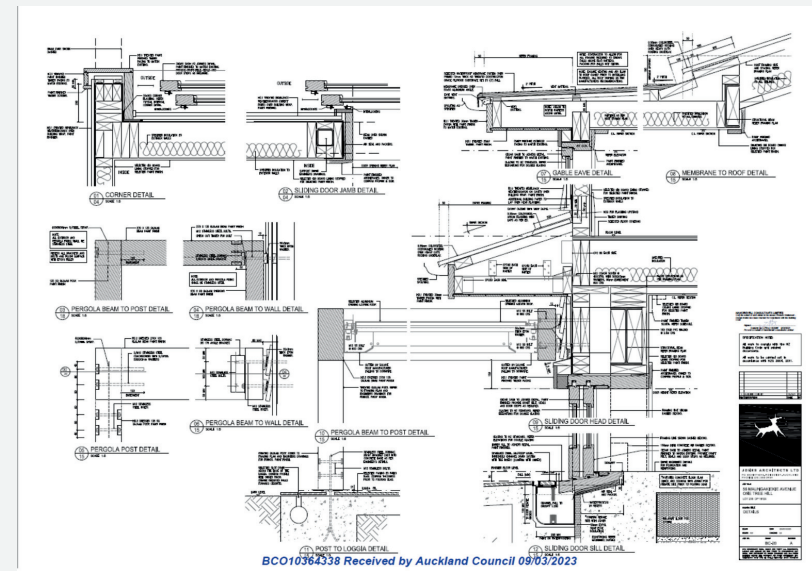


Figure 12.9 - Example of an A1 drawing sheet that will be illegible on a standard monitor

General and Documentation tips:

- Consult the BCA Checklist to ensure that application is complete
- Include a Cover letter / Design Access Statement as a application overview
- Optimise file sizes for online submission: Auckland Council suggests 'individual files size up to 300MB', the Planning Portal suggests just 5MB.
- Drawing size – where possible use A3 drawings
- Plans – always date and include the original paper size, at least one key dimension and North sign, where appropriate, on drawings
- Reduce use of colour – use hatching instead of colour tones as this greatly reduces file sizes
- Use drawing revision numbers! The research saw many examples where new documentation was submitted but the revision name was missing

12.2 Sender: Code Clause B1 Structure principles

The two building code clauses which generated the most RFI line items were B1-Structure and E2-External Moisture. The principles for change relating to each clause require different approaches:

- Reduction of RFI line item for B1-Structure requires less complex solutions. Many of the issues observed when investigating B1.1 and B1.2 could have been resolved by better referencing NZS 3604:2011.
- Reduction of RFI line item for E2-External Moisture requires a more robust and rigorous solution. A table was created to outline an Alternative Solution pathway that guides the identification of required information, evidence and explanation to show compliance.

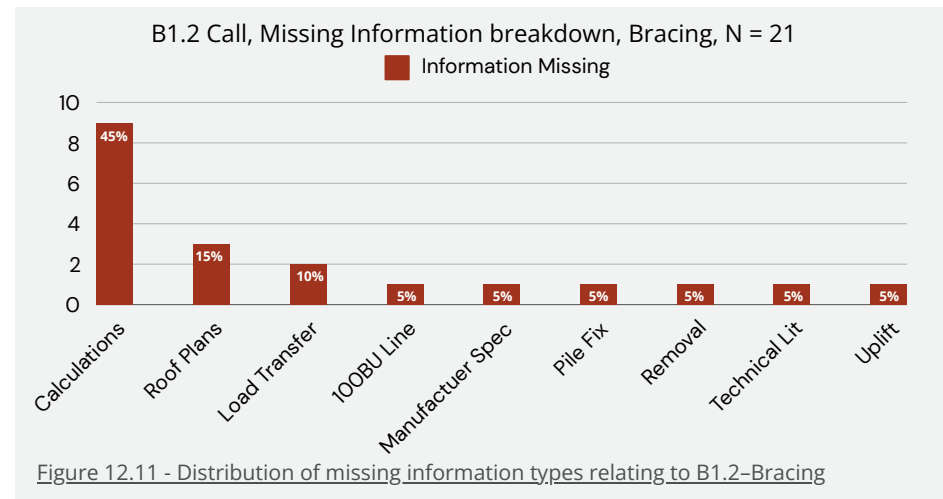
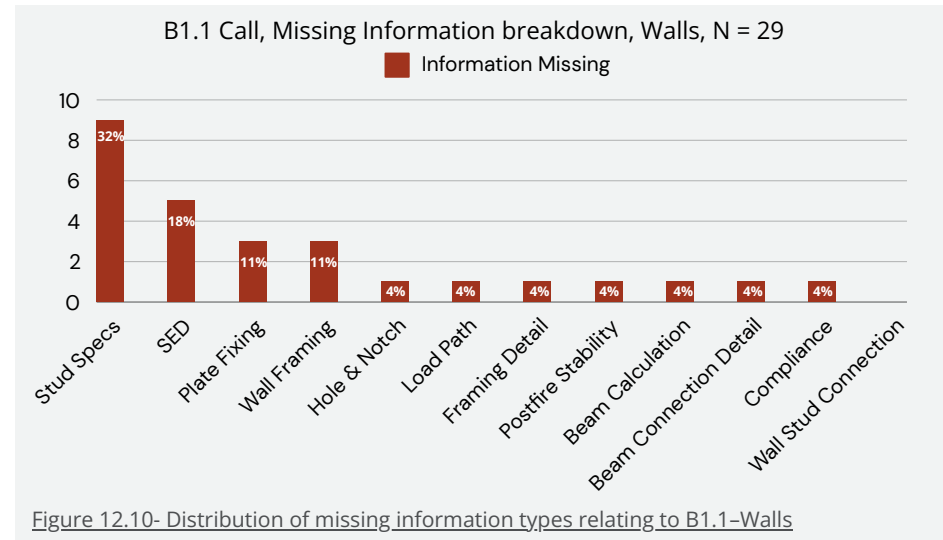
12.2.1 NZBC Clause B1 principles

The research investigated 49 Line Items relating to missing information. The results showed:

- B1.1-Walls: stud specifications missing
- B1.2-Bracing: bracing calculations missing

as the most common items.

During stakeholder feedback, some Senders commented that because NZS3604:2011 Timber-Frame Buildings is such a well-known industry standard, explicit specification (e.g. stud sizes and spaces) is sometimes considered as not being required due to an 'implied familiarity'. The research also noted that missing bracing calculations were less common in new builds and more common in alterations.



12.2.2 Reducing B1 line items

The NZS3604:2011 code for Timber Framed Buildings provides the necessary information to resolve many RFI Sub-Line item queries. To help give the Sender insight into what information to submit, the research team tracked down an Auckland Council internal Residential Processing Checklist (AC1124) outlining information BCOs look for when processing.

Here are some examples of the most common B1 contested content from Receivers in relation to the Council checklist and where the information in NZS3604 could be found.

Example 1: B1.1.1_Walls and Stud specifications

This Checklist guides the creation of RFIs. Figure 12.12 shows B1 Structure with, “Studs and Trimmers: Size, Height, Centres, Point Loads” under consideration. Figure 12.13 shows Table 8.2 from NZS3604.

The point here is that these specifications are commonly missing from drawings. These must be noted on at least one drawing and referenced wherever relevant.

B1 Structure Framing – ground or upper floor	Decision			Reasons for decision / comments	N/A ☐
	Yes	RFI	N/A		
Bottom plate Size, fixings	☐	☐	☐		
Top plate Size, point loads	☐	☐	☐		
Studs and trimmers Size, height, C/s, point loads	☐	☐	☐		
Gable end framed for cladding	☐	☐	☐		
Uplift fixings detailed for studs	☐	☐	☐		
Lintels / beams Point loads, fixing details, size, span, uplift, C/L	☐	☐	☐		

Figure 12.12 – Residential processing checklist – Studs.

Source: AC1124 Residential processing checklist.

Wind zone	Loaded dimension* of wall (m)	Stud sizes for maximum length (height) of: (m)								
		2.4			2.7			3.0		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
		(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)
(width x thickness)										
(a) Single or top storey – Light and heavy roof										
Extra high	2.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	4.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
	6.0	–	90 x 45	90 x 70	90 x 45	90 x 70	90 x 90	90 x 70	90 x 70	140 x 45
Very high	2.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
	4.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
	6.0	–	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70	90 x 45	90 x 70	90 x 90
High	2.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
	4.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
	6.0	–	90 x 35	90 x 45	90 x 35	90 x 45	90 x 70	90 x 35	90 x 70	90 x 70
Medium	2.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	4.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
	6.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45	90 x 35	90 x 35	90 x 70
Low	2.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	4.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
	6.0	–	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 35	90 x 45
Internal walls for all wind zones	2.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	4.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	6.0	–	70 x 45	70 x 45	70 x 45	70 x 45	90 x 35	70 x 45	90 x 35	90 x 45
	(m)	3.6			4.2			4.8		
		At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:			At maximum stud spacing (mm) of:		
		300	400	600	300	400	600	300	400	600
		(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)
		(width x thickness)								
Extra high	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	2.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	4.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90
	6.0	140 x 45	140 x 45	140 x 90	140 x 90	140 x 90	190 x 45	140 x 90	190 x 90	190 x 90

Table 12.13 – Studs in loadbearing walls for different wind zones – Single or top storey.

Source: NZS3604:2011, 8-10 rather than merely refer to the Table, in this example, the Sender has explicitly identified within the table the stud size (90 x 45) for max. 2.4m high studs at 600mm crs within a high wind zone.

Example 2: B1.1.3 Plate fixings:

Metal plate fixings are bolted to secure a wall structure, often to the slab. The council residential checklist requires that the size and type of bottom plate fixings, as well as the point loads of top plates, be displayed. This specification must follow the outlines set by NZS3604:2011, as seen below:

B1 Structure Framing – ground or upper floor	Decision			Reasons for decision / comments	N/A ☐
	Yes	RFI	N/A		
Bottom plate Size, fixings	☐	☐	☐		
Top plate Size, point loads	☐	☐	☐		

B1 Structure Framing – lower of two	Decision			Reasons for decision / comments	N/A ☐
	Yes	RFI	N/A		
Bottom plate Size, fixings	☐	☐	☐		
Top plate Size, point loads	☐	☐	☐		

Figure 12.14 – Plate Fixings as per Residential Residential Processing Checklist.
Source: AC1124 Residential Processing Checklist

7.5.12 Fixing of bottom plates

Bottom plates of walls shall be fixed to slab-on-ground floors either by cast-in anchors in accordance with 7.5.12.1 or by proprietary post fixed anchors in accordance with 7.5.12.2. Durability of all anchors shall be in accordance with table 4.1 for "ALL ZONES", "All other structural fixings" in a "CLOSED" environment.

Anchors providing end fixings of bracing elements shall comply with all the requirements of 7.5.12 as well as their function of resisting bracing element uplift.

Figure 12.15 – Definitions and requirements for fixing of bottom plates.
Source: NZS3604:2011, p.7-38

7.5.12.1 Cast-in anchors

Anchors shall be M12 bolts set within 150 mm of each end of the plate, spaced at a maximum of 1200 mm centres, bent to prevent turning and projecting sufficiently to allow a washer and fully threaded nut above the timber.

- (a) For internal and external walls, where the slab edge is formed with in-situ concrete, anchors shall be set not less than 90 mm into the concrete, maintaining a minimum edge distance of 50 mm.

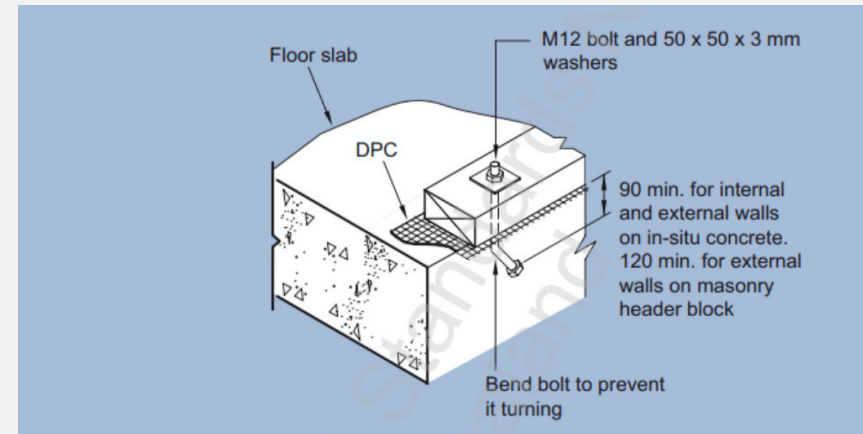


Figure 12.16 – image showing plate fixing details in response to Processing Checklist B1 Structure / Framing Source: NZS3604:2011, p.7-39

7.5.12.2 Proprietary post fixed anchors

Proprietary anchors shall be within 150 mm of each end of the plate and be spaced at a maximum of 900 mm centres, or 600 mm centres when used on slab edges formed by masonry header blocks.

7.5.12.3

For external walls, proprietary anchors shall have a minimum capacity when tested in accordance with 2.4.7 as follows:

- (a) Horizontal loads in the plane of the wall 2 kN;
- (b) Horizontal loads out of the plane of the wall 3 kN;
- (c) Vertical loads in axial tension of the fastener 7 kN.

Figure 12.17 – image further detailing plate fixing details in response to Processing Checklist B1 Structure / Framing Source: NZS3604:2011, p.7-39

Example 3: B1.2.1 Bracing calculations:

NZS3604:2011 discusses how bracing design is used to resist the exerted horizontal forces of both wind and earthquakes. Lateral loads must be evenly distributed across a number of relatively closely spaced building elements arranged along bracing lines. This is done to prevent torsion from occurring.

Bracing calculations have been identified in this research as one of the key features that are often missing under the B1-Structure building clause in RFIs. Bracing calcs are more commonly forgotten when alterations are being made to an existing building, as opposed to a new build. This happens when alterations to existing building elements along a bracing line affect the bracing capacity, and it is overlooked.

Calculations should consider things such as:

- Wind Zone. This is an important calculation as it can affect the horizontal pressure and vertical uplift the building could face, which will affect the level of bracing strength required.
- Bracing demand. Calculations must be made that take into account both wind and earthquake forces. They must include a numeric value representing the forces that could impact the building.
- Bracing capacity. This is a calculation proving that the building and its elements will be able to withstand the maximum forces calculated in the bracing demand.

B1 Structure Wall bracing (all floors)	Decision			Reasons for decision / comments	N/A ☐
	Yes	RFI	N/A		
Wall bracing calculations Zone, demand, capacity	☐	☐	☐		
Wall bracing plan indicating Type, location, length	☐	☐	☐		
Bracing capacity external walls >100 BU, 50% demand, 15 BUs / m	☐	☐	☐		
Bracing capacity internal walls > 100 Bus, 50% total demand	☐	☐	☐		
Location of bracing elements 6.0m c/s, evenly distributed, wings, blocks, wet areas, split or discontinuous levels	☐	☐	☐		
Dragon ties to extend brace lines to 7.5m > 100 Bus, location	☐	☐	☐		
Ceiling diaphragm > 100 Bus, location, limitations	☐	☐	☐		

Figure 12.18 – Residential Processing Checklist for Bracing.

Source: AC1124 Residential Processing Checklist

Description of bracing element	Bracing capacity in the horizontal direction for earthquake and wind resistance
Reinforced concrete or reinforced masonry walls (greater than 1.5 m in length)	(BUs)
Wall If ratio of average wall height is:	
Less than 0.75	0
More than 0.75 but less than 1.5	42 BUs per metre of wall
More than 1.5 but less than 3.0	100 BUs per metre of wall
More than 3.0 but less than 4.5	200 BUs per metre of wall
More than 4.5	300 BUs per metre of wall
Exterior grade product test P21 Test (see 6.2.3)	As determined by test
Braced pile system (consisting of two piles and a diagonal brace)	120 BUs for earthquake 160 BUs for wind
Cantilever piles, (driven timber piles) rating per pile	30 BUs for earthquake 70 BUs for wind
Anchor piles rating per pile	120 BUs for earthquake 160 BUs for wind
NOTE – Reinforced concrete and reinforced masonry bracing capacities are based on the limitations of fixings between the timber structure and the concrete component. Masonry bracing capacity values from NZS 4229 cannot be used with this Standard unless SED is applied to the connections between the timber structure and the masonry wall.	

Figure 12.19 – Bracing capacity ratings of subfloor bracing elements.

Source: NZS3604:2011, 5-23

Example 4: B1.2.2 Roof Bracing:

Roof Bracing is important for maintaining the structural integrity of the roof on a building. Requirements differ depending on the weight class of the roof. If the roof is classed as heavy, it will need one roof brace per 25m². Otherwise, it will be in the light class and need one per 50m². Many requirements such as this must be met in order to comply with NZS 3604:2001.

B1 Structure Roof and ceiling framing	Decision			Reasons for decision / comments	N/A ☐
	Yes	RFI	N/A		
Roof bracing	☐	☐	☐		

Figure 12.20 AC1124 Residential processing checklist

10.4 ROOF BRACING DETAIL**10.4.1 General**

Roof bracing as required by 10.3 shall consist of either roof plane braces in accordance with 10.4.2, roof space braces in accordance with 10.4.3, or sarking in accordance with 10.4.4. Combinations of these brace types are permissible, as long as the total required number of braces is provided.

10.4.2.1 Distribution

Braces shall intersect each end of the ridge line and any additional braces shall, as far as practicable, be evenly distributed along the ridge and run alternately in opposing directions.

10.4.2.2 Braces

Each roof plane brace shall consist of one of:

- A continuous length of 90 mm x 19 mm timber at 45° to the ridge line, in the plane of the roof and continuous from the ridge to the supporting wall;
- A diagonally opposing pair of continuous steel strips each having a capacity of 4.0 kN in tension, fixed to each top chord or rafter that is intersected, and to the top plate; or
- A hip or valley rafter in accordance with 10.2.1.3.2, and 10.2.1.3.3.

Figure 12.21 – FNZS3604:2011 10.4 Roof Bracing

12.2.3 B1.1.2 Specific Engineering Design (SED)

Specific Engineering Design arises where Alternative Solutions to Acceptable Solutions and Verified Methods are needed. Alternative Solutions must demonstrate that the Performance Criteria will still be met. This requires specialist input from qualified consultants such as Structural Engineers. There is no guidance for SED within NZS3604:2011. A BCA outlines that all SED aspects must be verified by calculations and drawings signed by the CPEng and supported by a Producer Statement confirming compliance with the building code.

MBIE outlines how to demonstrate Alternative Solution Compliance:

1. Scope the project.
2. Identify the Building Code clauses
3. Provide evidence including:
 - Calculation or Test Methods
 - Reference to Acceptable Solutions or Verification Methods
 - Reference to a Product previously accepted by a BCA
 - Comparison with a determination issued by MBIE
 - Trade literature
 - Appraisal
 - In-service history
 - Assessment of actual conditions on-site
 - Expert evidence
4. Present your evidence

A building consent application is accepted when compliance is clearly established.

Source - <https://www.building.govt.nz/building-code-compliance/how-the-building-code-works/different-ways-to-comply/alternative-solutions/>

PRODUCER STATEMENT – PS1 DESIGN



association of
consulting
engineers



Building Code Clause(s):	B1,	Job number: 101
ISSUED BY: (Engineering Design Firm)	University of Auckland	
TO: (Client)	Anthony Hoete	
TO BE SUPPLIED TO: (Building Consent Authority)	Auckland Council	
IN RESPECT OF: (Description of building work)	New build	
AT: (Address)	26 Symonds Street, Auckland, Auckland 1010	
LEGAL DESCRIPTION	Lot 5	

We have been engaged by Anthony Hoete to provide:

SED Bracing, SED Foundations,

in respect of the requirements of the Clause(s) of the Building Code specified above for all of the proposed building work.

In this document SED means "Specific Engineering Design".

The design carried out by University of Auckland has been prepared in accordance with:

- ✓ compliance documents issued by the Ministry of Business, Innovation & Employment (Verification method /acceptable solution): VM1

The proposed building work covered by this producer statement is described in the drawings specified in the attached Schedule, together with the specification, and other documents set out in the attached Schedule.

On behalf of University of Auckland, and subject to:

- all proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:

- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached Schedule, will comply with the relevant provisions of the Building Code specified above; and that
- the persons who have undertaken the design have the necessary competence to do so.

I recommend the CM2 level of construction monitoring.

After extensive consultation, ENZ is preparing a Structural Design Consent Documentation guide for publication in 2025. This will focus on the following key points:

Clarity: All documentation should use standard terminology, conventions, and clear explanations to ensure everyone involved understands the design without ambiguity.

Comprehensiveness: The documentation set provides a complete picture of the structure's design. It includes all relevant calculations, drawings, specifications, load analyses, and any necessary supporting information.

Accuracy: Information provided should accurately reflect design assumptions, material properties, governing codes, and good practice guidelines. Drawings should align precisely with calculation results and the design intent.

Coordination: Structural documentation should integrate with that of other disciplines to prevent conflicts and ensure a cohesive overall design.

Constructability: Designs and supporting calculations should be grounded in realistic construction methods and should be easily understood by contractors to promote efficient and accurate construction.

Manageability: The entire documentation package should be well-organized, logically structured, and appropriately referenced to facilitate the search for and understanding of specific information.

Figure 12.22 – Engineering New Zealand Te Ao Rangahau (ENZ) Producer Statement guidance template.

Figure 12.23 – Herne Bay, Auckland reimagined with the housing density of Berlin (which in 1853 set the 'Baupolizeiordnung' building regulation of a 22m eaves height).



12.3 Sender: Code Clause E2 - External Moisture principles

The research investigated n=80 Line Items with the two most common being:

- E2.1-Cladding: Alternative Solutions
- E2.2-Flashing: Alternative Solutions

Senders failed to provide sufficient evidence to support the design proposal and this led to some Senders conceding and opting for the Acceptable Solution pathway instead.

Acceptable Solutions and Verifications Methods are forms of compliance that have been designed by MBIE. *When followed correctly, BCAs must accept them.*

Alternative Solutions are often required when a building project involves technically complex work or when a specific architectural design is sought and demonstrates compliance with the Building Code but deviates from Acceptable Solutions or Verification Methods. As outlined in 10.2.3 SED, the same four steps for demonstrating Alternative Solution compliance can be used. *Alternative Solutions must obey the same performance criteria as Acceptable Solutions.*

The Performance Criteria for Clause E2 External Moisture are:

E2.3.1 – Roofs must shed precipitated moisture. In locations with snowfalls, roofs must also shed melted snow.

E2.3.2 – Roofs and exterior walls must prevent the penetration of water that could cause undue dampness, damage to building elements or both.

E2.3.3 – Walls, floors, and structural elements in contact with, or in close proximity to, the ground must not absorb or transmit moisture in quantities that could cause undue dampness or damage to building elements.

E2.3.4 – Building elements susceptible to damage must be protected from the adverse effects of moisture entering the space below suspended floors.

E2.3.5 Concealed spaces and cavities in buildings must be constructed in a way that prevents external moisture from accumulating or being transferred and causing condensation, fungal growth, or the degradation of building elements.

E2.3.6 – Excess moisture at the completion of construction must be capable of being dissipated without permanent damage to the building elements.

E2.3.7- Building elements must be constructed in a way that makes due allowance for: the consequences of failure; the effects of uncertainties resulting from construction or from the sequence in which different aspects of construction occur; Variation in the properties of materials and the characteristics of the site.

12.3.1 Reducing E2 line items

Auckland Council's Residential Processing Checklist (AC1124) also outlines information BCOs look for when processing E2 External Moisture as below:

E2 External moisture	Decision		
	Yes	RFI	N/A
Building subject to re-clad; E2 risk > 12 □ Send to re-clad team for review	☐	☐	☐
E2 risk matrix (confirm and note score)	☐	☐	☐
Wall cladding (type) E2/AS1, alt. solution, maintenance and installation details	☐	☐	☐
Wall cladding clearances Ground, deck, wall, roof	☐	☐	☐
Building wrap Type, compatibility, strapping	☐	☐	☐
Air barrier Rigid, non-rigid	☐	☐	☐
Cavity battens Size, type, fixing, vermin proof	☐	☐	☐
Window details E2/AS1, alt. solution	☐	☐	☐
Wall junction details E2/AS1, SED, alt. solution	☐	☐	☐
Barge, fascia, spouting to wall junction details E2/AS1, SED, alt. solution	☐	☐	☐
Internal gutters and roof penetrations Slope, size, scupper, overflow, flashing details for roof penetrations	☐	☐	☐
Control joints / junctions	☐	☐	☐
Flashing details E2/AS1, alt. solution, roof, wall, pergola, chimney, apron, pipes, joinery, meter box	☐	☐	☐
Parapets / enclosed barriers Framing, cap, drainage, junctions, slope	☐	☐	☐
Enclosed decks, joists, slope, junctions, drainage, FFL, <u>air-gap</u> , fixings, saddle, 2 nd floor limitations	☐	☐	☐
Roof cladding / underlay (type) E2/AS1, alt. solution, maintenance and installation details	☐	☐	☐
Membrane substrate (type) E2/AS1, alt. solution, thickness, fixing, <u>venting</u> , control joints	☐	☐	☐

Figure 12.24 – External moisture checklist.

As the E2 line items relate to Alternative Solutions, simply referring to an external document is not sufficient (as with the previous examples of B1 line items and NZS3604). Demonstrating compliance is a more demanding process here.

The research considered how various forms of documents could be organised coherently within a single document that assists both the Sender and Receiver understanding. This can be efficiently done through the sequential list, which relates Performance Criteria directly to relevant documentation. This 'protocol' list has six steps.

An Alternative Solution Compilation Guide:

Step 1: Scope the Project. Outline why the proposal is an Alternative Solution and note the key Code Clause

Step 2: Identify other relevant NZBC Clauses and their Performance Criteria

Step 3: Identify any relevant Standards which demonstrate compliance with the Performance Criteria

Step 4: Identify relevant Method of proving alternative compliance:

- Calculations or Test Method
- Comparison with Acceptable Solutions and Verification Methods
- Comparison with a BCA previously accepted product
- Comparison with a MBIE determination
- Trade literature
- In-service history
- Assessment of actual conditions on site
- Expert evidence

Step 5: Identify relevant Evidence within documentation:

- Appraisal
- Certification

Step 6: Identify relevant location within documentation:

- relevant Drawing Sheet and Detail
- relevant Supporting information

Figure 12.25 – the following table is an example of how a Sender might approach compiling an Alternative Solution compliance

Step 1: Scope The Project NZBC ALTERNATIVE SOLUTIONS COMPLIANCE Skylights are not covered by New Zealand Building Code Acceptable Solution E2/AS1, therefore must be consented as an Alternative Solution. COMPLIANCE REPORT EXEMPLAR: Skylight or Thermal Roof Window (Adlux) in College Hill, Auckland (Wind Zone X) PROTOTYPE / CODE CLAUSE E2				
Step 2: Identify NZBC Clauses and specific Performance Criteria relevant to project	Step 3: Standards which demonstrate compliance with performance criteria	Step 4: Method demonstrating project compliance with standards: • Calculations or Test Method • Comparison with Acceptable Solutions and Verification Methods • Comparison with a BCA previously accepted product • Comparison with a MBIE determination • Trade literature • In-service history • Assessment of actual conditions on site • Expert Evidence	Step 5: Evidence Appraisal Certification	Step 6: Document location
B1 – Structure / Method of Compliance: B1/VM1 and Alternative solution?				
B1.3.1 Buildings, building elements and site work shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.	NZS3604			
B1.3.2 Buildings, building elements and site work shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during construction or alteration when the building is in use				
B1.3.3 Account shall be taken of all physical conditions likely to affect the stability of buildings, building elements and site work, including: a) self-weight, b) imposed gravity loads arising from use g) snow f) earthquake h) wind j) Impact m) differential movement	AS 4285-2021 Skylights AS 4040.1 Methods of Testing Sheet Roof and Wall Cladding: Concentrated Load Resistance AS 4040.2 Methods of Testing Sheet Roof and Wall Cladding: Wind Resistance AS/NZS 1170.1 Permanent, Imposed and other actions.	The proposed roof window manufacturer, Adlux, has skylights that have been assessed for resistance to impact loads, snow loads and resistance to wind pressures (non-cyclonic regions). BRANZ has reviewed these assessments, and they were found to be satisfactory. With regards to AS 4285-2021, the test sample was supplied and mounted on a 90x45 timber frame with screw fixings. The proposed installation is for the skylight to be fixed to similar framing. The sample was subjected to Watertightness, Resistance to Concentrated Loads, and Resistance to Wind Pressures for Non-cyclone Regions tests for A PASS grade was achieved for all tests. Wind speed was tested up to 187km/h, comparable to NZS extra high wind zone. Project is undertaken in a Medium wind zone so compliance is achieved. Snow loads were tested up to 1kPa. There is no snowfall at the project site so compliance is achieved. Resistance to concentrated loads was tested to AS 4040.1 methodology and passed.	BRANZ Appraisal No. 1178 NATA Certification?	Relevant Drawing / Detail: A2.02 EXISTING AND PROPOSED NORTH ELEVATION.pdf Relevant file: Supporting information – Climate zone ruling. Need a relevant file to find the BRANZ appraisal and NATA certification?
B2 - Durability, E2 - Moisture, F2 - Hazardous building materials, G4 - Ventilation, G7 - Natural light, H1 - Energy efficiency etc.				

12.4 Receiver: Principles for writing an RFI

The final principle relates to the Receivers. The research found that the quality of RFI Line Item response related to the clarity of the RFI query. Therefore, resolving principles for 'writing an RFI' can also improve Sender behaviour.

Councils have developed a scaffold structure for their RFIs, e.g. Auckland Council's AC1124 Residential Processing Checklist. Christchurch City Council's RFI letter is considered as ideal for several reasons (Figure 10.21) (p.83):

- It has a concise project information section (Property ID, BCN number) which allows the focus of the RFI to be on the line items
- The use of an RFI Code clearly identifies whether the query is Gen&Doc (e.g. GEN-008) or NZBC Clause issue (e.g. F4-115). Each code relates to a master document, which is the BCA's checklist.
- The RFI letter uses colour for clarity. Grey text when Resolved, black text when Not Resolved, highlighted yellow text and date for new line items.
- The separate Status section further deploys colour: Resolved is in Green, Not Resolved is in Red.

The quality of the RFI query can lead to additional RFIs, lowering the efficiency of the consenting process. A badly worded RFI can generate more line items. Through stakeholder discussion, a set of criteria for improving RFI writing quality can be developed. An efficient RFI will always include these four actions:

1. Identify clearly what the Sender has done, or not done. Refer to the drawing sheet and detail numbers and/or the specific building element. Sometimes, the line item, e.g. bracing lines, might refer to multiple sheets. The principle is to avoid confusion through clarity.

2. Explain exactly what is non-compliant and why. Senders need to know if things have been done incorrectly or that documentation is missing.

3. Request: The Line Item should be explicit about what is needed to resolve the issue to minimise Sender confusion and ensure the desired information is supplied.

4. Reference: Direct the Sender to the relevant compliance requirement. Senders are only required to comply with information requests based upon the Building Act, so without a reference to a specific document, Senders are entitled to question the request.

Here are some B1 examples of well-written Line Items:

B1 - Structure - "Please provide manufacturer's specifications for the proposed Rondo Key-Lock Suspended Ceiling System confirming that it is suitable for the proposed structure and clarify whether a PS3 will be provided for the installation of the suspended ceiling system to demonstrate compliance with B1."

- **Identify:** "Manufacturers specifications for the proposed Rondo Key – Lock Suspended Ceiling System."
- **Explain:** "Please provide" – Missing documentation.
- **Request:** "Please provide manufacturer's specifications for the proposed Rondo Key-Lock Suspended Ceiling System confirming that it is suitable for the proposed structure and clarify whether a PS3 will be provided for the installation of the suspended ceiling system."
- **Reference:** "To demonstrate compliance with B1."

B1- Penetration Through Wall Bracing - "Please specify the maximum proposed opening size of ventilation duct penetration through Lot 1, lower bracing element A2, and Lot 4, lower bracing elements A1 & P1. Please be advised that the maximum opening into bracing allowed by the GIB EzyBrace System is 90x90mm.

- **Identify:** "Maximum proposed opening size of ventilation duct penetration through Lot one lower bracing element A2, and Lot four lower bracing elements A1 & P1."
- **Explain:** "Please specify" – Missing information.
- **Request:** "Please specify the maximum proposed opening size of ventilation duct penetration through lot one lower bracing element A2 and lot four lower bracing elements A1 & P1."
- **Reference:** "Please be advised the maximum opening into bracing allowed by GIB EzyBrace System is 90x90mm."

B1 - Drawing Sheet A204 - "Please provide bracing as per the principles of NZS3604 Section 10.3 and 10.4"

- **Identify:** "Drawing Sheet A204, please provide bracing."
- **Explain:** "Please provide" – missing information.
- **Request:** "Please provide bracing drawings."
- **Reference:** "following the principles of NZS3604 Section 10.3 and 10.4."

E2 examples:

E2 - External Moisture - "The proposed metal trays to the decks are an alternative solution to E2. Please specify the upstands of the trays to the wall cladding, demonstrating that they have adequate depth, a verge detail showing how the tray is to be fixed at the outer edge of the deck, and specify an overflow to the sump as a secondary means of drainage to demonstrate compliance with E2."

- **Identify:** "The proposed metal trays to the deck."
- **Explain:** "An alternative solution to E2."
- **Request:** "Please specify the upstands of the trays to the wall cladding, demonstrating that they have adequate depth, a verge detail showing how the tray is to be fixed at the outer edge of the deck and specify an overflow to the sump as a secondary means of drainage."
- **Reference:** "to demonstrate compliance with E2."

E2 - Sheet 28, detail B8 – Please specify the treatment and thickness of the plywood packer under the new cap flashing and the selected roofing underlay, and confirm all relevant dimensions of the saddle flashing and capping cover. Refer to E2/AS1, Figures 9 & 10 for guidance."

- **Identify:** "Sheet 28, detail B8."
- **Explain:** "Please specify" and "Confirm all relevant dimensions" – Missing information.
- **Request:** "Please specify the treatment and thickness of the plywood packer under the new cap flashing, the selected roofing underlay and confirm all relevant dimensions of the saddle flashing and capping cover."
- **Reference:** "Refer to E2/AS1, Figures 9 & 10 for guidance"

E2 - "Please demonstrate compliance with E2.3.3 and indicate the minimum cladding to ground clearances on Detail 1 on Sheet 13. You may use E2/AS1, s9.1.3, Table 18 & Fig 65 for reference."

- **Identify:** "cladding to ground clearances on Detail 1 on Sheet 13" – Provided screenshot.
- **Explain:** "Indicate the minimum" – Missing information.
- **Request:** "Please demonstrate compliance with E2.3.3 and indicate the minimum cladding to ground clearances."
- **Reference:** "Demonstrate compliance with E2.3.3, You may use E2/AS1, s9.1.3, Table 18 & Fig 65 for reference."

12.4.1 Other tips for RFI writing:

1. Creating subsections in the RFI with headings such as "B1" and "E2" saves time.
2. Consider using an image/screenshot of the detail to highlight the exact areas relevant to the RFI.
3. Line items are to focus on one topic.
4. Be more explicit. For example, direct the sender to specific references and documents and to changes needed for compliance.

30 November 2023
Ms. Sender
sender@senderarchitects.co.nz

Dear Sender

Request For Information

Building Consent: BCN/2023/5667
Some Road, Some City

Construction of two detached dwellings on the upgraded existing platform
We need more information to continue working on processing your building consent application.

The information we need is:

RFI Code	RFI Items	Status
GEN - 008	Notional Boundary: Please refer to sheet 102. 1) Would you please include a dimension from the dwelling/ chimney framing to the proposed Notional Boundary. 2) Would you please ensure that the 1m Notional boundary off the sleepout is to the line of the cladding.	Resolved
F4 - 115	Corten / Ply Barrier: Please supply details of the 2mm Corten on the H3.2 ply fixings to the Glulam posts as per Note 11. Glass Balustrade: Please refer to Note 20 that details the glass balustrade with 190x45mm capping and sheet 405 that notes Interlinking clip system to the top of the glass balustrade. 1) Please clarify these details. 2) Please supply the Metro Glass barrier installation that includes the interlinking clip fixings, glass thickness table and a PS1 for this barrier system. 30/11/2022: 1) Please supply the interlinking capping details for the glass balustrade or detailed laminated glass as per Metros specifications. Balustrade Stiffener Brackets only where supplied. 2) Please supply the PS1 for the Metro Glass barrier installation.	Not Resolved



0800 MODELDOCS

1 Model Street
Model Building
Model Council
Model City

modeldocs.govt.nz

Belief in behavioural change will improve consenting.

Every person and entity connected to this ModelDocs research shared a common desire: to transform consenting for the better. Past behaviour is an indicator of future behaviour. What we practice becomes habit. The challenge is if we really want to transform consenting behaviour, then we need to acknowledge there's a problem and recognise how our own behaviour contributes. To have an appetite for change. And then to maintain improved behaviours.

Unless these stages of behavioural transformation occur, then 'what a set of model documents look like' is moot. Without belief, guidance is ineffective.

Through the dissemination of these research findings, we hope to see a shift in consenting behaviour that ultimately reduces the number of RFI line items per application from thirty to something considerably less.

13. Key Findings

This research, ModelDocs, looked into Building Consenting behaviour relating to New Zealand housing. We extracted data from building consents granted by Auckland and Tauranga Councils during May 2023.

1. On average, the processing of a consent generates 30 RFI Line Items. Each needs a Sender response. As there were more than 20,000 dwelling consents granted in NZ in 2023, this means over 600,000 items would need resolving annually (Fig 11.8).
2. This behaviour results in Auckland Council taking, on average, 55 days to grant a consent. Of this time, the council waited for a response from the Sender for 36 days, meaning the actual processing time of 19 days was less than the 20 day statutory time frame (Fig. 11.10).
3. Of the multitude of RFI line items that needed resolution, 20-25% related to general and documentation issues, while 75-80% related to NZ Building Code clauses (Figs. 11.11 & 11.12).
4. Of the code clauses issues, the majority of RFI line items (66%) relate to 'missing' documents. The remaining items related to 'incorrect' (10%), 'correct' (9%), 'obscured' (10%) and 'coordination' (5%) documentation issues (Fig. 11.46).
5. The majority of the Missing documentation related to New Zealand Building Code clauses B1 Structure (31%) and E2 Weathertightness (19%) issues (Figs. 11.15 & 11.16).
6. In terms of Senders, LBPs (Design Class) dominate housing consent applications, representing 87% of Tauranga (Fig. 11.23) and 70% of Auckland (Fig. 11.24) applications. Architects represented 25% and 8% of Senders respectively, with engineers representing 3% consistently.



Research Question:

“Does a building consent application with missing documents indicate a poor quality submission?”

Receiver behaviour:

“The rules keep changing... we don't know what to send.”

“There is variability because the councils are inconsistent. 69 BCAs, each doing their own thing”

Source: anecdotal



14. Recommendations

1.

A 43% win! Missing documents from Senders represent greatest RFI cause

Each Sender group needs to be specifically addressed. As LBP (designers) comprise the greatest number of Senders, the message of MissingDocs can be communicated by the LBP registrar and, ultimately, the LBP Board. Unlike architects and engineers with their NZIA and ENZ, respectively, the absence of an LBP collegial body to attend to critical professional development means that the LBP newsletter, editions of Codeword, and mandatory CPD skills maintenance are currently the available channels

Win calculated: 66% of line items relate to missing info of which 65% was LBP responsibility (Figs. 11.46 and 11.48)

Implementation:

- 1.1 Disseminate research findings to LBPs via Codeword and CPD
- 1.2 Establish an organisation (e.g. ADNZ) to socialise LBPs and develop CPD that attends to existing behaviour
- 1.2 Strengthen the rules such that LBPs licence classes are enforceable to ensure competency
- 1.3 Report poor Sender behaviour. As LBP scheme is 'complaint-based', under [Regulation 17\(3\)](#), BCAs can make complaints about practitioners who repeatedly submit poor quality applications

2.

A 20% win! Transform architects' behaviour through CPD re-education

Win calculated: 66% of line items relate to missing info, of which 31% was the architect's responsibility (Fig. 11.48).

Implementation:

- 2.1 Disseminate research findings to Architects via Architecture NZ magazine, NZRAB CPD Network, NZIA regional roadshow and EBOSS's specified event for the construction industry
- 2.2 Promote general & doc learnings regarding readable drawings (e.g A3 PDF file sizes for R1-R3 projects) (Fig. 12.7)
- 2.3 Reduce B1 structure line items by embracing forthcoming ENZ Structural Design Documentation Guidance
- 2.4 Absorb and integrate Sender behaviours into forthcoming NZS3604 consultation on three-storey dwellings
- 2.5 Improve demonstration of E2 compliance via alternative solution pathways that, in their Compliance Reports, clearly identify the specific areas of alternate design, including performance criteria and 4D principles

3.

A 14% win! Transform Receiver behaviour through CPD education

Win calculated: 14% of RFIs need not have been sent as the Sender documentation was either originally correct (9%) or present (albeit obscured, 5%) (Fig 11.46)

Implementation:

- 3.1 Implement accessible research and resources around 'How to Write an RFI' to provide urgent BCA consistency
- 3.2 Implement one unified checklist, for both Sender & Receiver, for use with any Consent Management System
- 3.3 Implement a NCAS Review on RFI writing and checklisting
- 3.4 Provide a formal education pathway for future BCOs such as the new Bachelor of Building Surveying (Bldg Controls)

Research:

“New technologies, new materials, and new ways of doing things mean laws and guidance will change: consenting is a living process.”

“This evidence-based research shows most Code Clause line items referred to entrenched behaviours towards old knowledge. Such as NZS3604”

“Quality appears to be quantum based. The more RFI items the less robust the application. The magic number for efficiency is significantly less than the current 30 items.”

15. Notes



ModelDocs

Transforming Building Consenting
Behaviour for Better Housing

