Monitoring the efficiency of building consent processes for new Kāinga Ora public housing

Independent Expert Report

June 2021

Acknowledgements:

We would like to acknowledge the contributions of:

- Building consent authority (BCA) managers, and Kāinga Ora and MBIE officials who contributed policy, operational and specialist perspectives.
- Also to BCAs for helpfully providing the building consent documents.

Independent expert panel members:

- Ron Pynenburg, BBSc, BArch (Hons) PPNZIA, Life Member FNZIA. Director Pynenburg and Collins Architects Limited
- Rob Tierney, MBA, BSc (Hons), MInstD, Member BOINZ. Director Farsight NZ Limited
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Executive Summary

This report, prepared for the Minister for Building and Construction, describes the observed efficiency, effectiveness and consistency of the end-to-end building consent processes as they have been applied to new public housing commissioned by Kāinga Ora (as an agent of the Crown).

The current building consent process is designed to ensure that all buildings in New Zealand are constructed in a way that they comply with the *Building Act 2004*. The end-to-end building consent process includes the application for, and issuing of, a building consent; inspection of building work; and the application for, and issuing of, a code compliance certificate (CCC). In this report, they are collectively referred to as 'building consent processes'.

To develop an evidence-based assessment of the efficiency, effectiveness and consistency of the building consenting processes for new public housing, the independent expert panel read and discussed documents from 38 building consent files (cases). Panel members drew on their extensive knowledge of the building regulatory system, and discussed policy, operational and specialist perspectives with building consent authority (BCA) managers, and Kāinga Ora and MBIE officials.

Main Messages

Based on the evidence reviewed, the expert panel considers that the building consent processes were not a significant constraint on the construction of new Kāinga Ora public housing, and that the building consent processes are fit for purpose if people use them properly.

Broadly speaking, the actions of building control officials in applying consent processes were appropriate. Overall, BCAs were doing more than is necessary to meet their minimum requirements.

Our review concluded that the most critical issues affecting efficiency predominantly sat outside the end-to-end building consent processes. We recommend that each issue is investigated in order to identify its primary drivers and then address the cause of the issue.

The following actions present the greatest opportunity to improve the efficiency of building consent processes for new Kāinga Ora public housing built on Crown land:

1. Reduce the size of applications for building consent
2. Reduce the time taken to respond to requests for information (RFI)
3. Review the impact of Kāinga Ora procurement and project management
4. Reinforce the need to obtain and apply accurate, appropriate ground information
5. Revisit how Kāinga Ora could better use the MultiProof scheme.

Kāinga Ora is well positioned to ensure achievement of these actions and their resulting benefits.

MBIE, as regulatory steward, is best positioned to identify and investigate how the wider regulatory system, including the BCA accreditation scheme, limits the effectiveness of the building consenting processes. In particular, BCAs were accepting large, difficult to navigate applications for building consent, but have the discretion to reject them. In addition, BCAs were assigning building control officers to inspect building work that was beyond their usual scope of expertise, yet BCAs have the discretion to contract in expertise to ensure that sufficient capability and capacity are maintained.

Efficiency of design, build and building control practice

Efficiency of building consent processes, with respect to Kāinga Ora housing, was increased where:

- designers:
  - were working in their core field of practice and had strong local knowledge
  - submitted project-specific applications that were well organised and indexed
  - ensured that foundation designs were correctly based on accurate site investigation
- builders:
  - had completed work to plan and had paper-work ready for each booked inspection
- building control officers:
  - were working in their core field of practice – typically timber-framed buildings
  - provided clear documentation of 'reasonable grounds' for decisions when inspecting building work.

By contrast, the efficiency of building consent processes were decreased where:

- applications were difficult to navigate given their large size and/or irrelevant information
- MultiProof designs were modified so that they needed to be processed as bespoke designs
- the RFI process was not completed promptly
- builders had not completed work ahead of the booked inspection
- BCAs inspected building work that was beyond their usual scope of expertise.

Effective practice

Effective building consent practices were observed, for example, reinforcing expectations that only project-specific applications for building consent would be processed; and contracting in suitably qualified and experienced people, where there were gaps in building control officer capability or capacity. Among the applications for a building consent, we identified some particularly well-organised and clearly presented engineering design work.

Capability issues in the end-to-end building consent process

We observed that building consent processes for new Kāinga Ora housing were carried out, with a few exceptions, by BCA employees. Regulations allow BCAs to bring in qualified, experienced people when the capability or capacity of their staff is insufficient for a particular project.

In large and major urban settings, no capability issues were identified in relation to consenting or inspecting the more simple, stand-alone, duplex or terrace houses (typically timber-framed). However, on the basis of the inspection records, the capability of building control officers allocated to the most complex public housing being built in the area appeared insufficient for inspecting engineering work.

This pattern potentially presents a risk of increased maintenance costs to Kāinga Ora for their most complex buildings (eg apartment blocks in major cities). This review does not comment on whether this pattern extends to the most complex buildings in medium and small urban settings.

Consistency of building consent practice and risk management

Although the sample was limited, the review does provide useful evidence on the consistency of building work and inspections nationally. In particular, the review highlighted areas that warrant further investigation. The following general observations of BCA practice were made:

- Building control officers consistently demonstrated professional attitude in their practice.
- BCAs were, broadly speaking, consistent in the processing and inspecting of simpler (mostly timber framed) buildings. However, there was a pattern of insufficient experience evident in processing and inspecting documents for the more complex buildings.

The number of cases in this review was too small to comment further with any confidence.

Baselines for measures designed to streamline and improve efficiency

The secondary purpose of this report was to:

- provide a valuable baseline for identifying efficiency gains delivered through greater use of 'MultiProof' and modular components by Kāinga Ora, and in time, the efficiencies achieved by Kāinga Ora as an accredited and registered BCA.

MBIE has since accredited (November 2020) and registered (March 2021) 'Consentium' as a BCA.

The following statements, based on our review of 38 cases, summarise the 2021 baseline:

1. The quality assurance processes carried out by Kāinga Ora did not look at code compliance, therefore, compliance risk is largely carried by the BCA.
2. Construction monitoring by structural engineers was less evident in records than expected.
3. 'MultiProof' designs did not appear to achieve any benefit during the processing of a building consent, and frequently resulted in extraordinary quantities of paperwork which may confuse the builders and building control officers.
4. Responsibility for obtaining site information, particularly geotechnical information, was unclear at times.
5. Modular components (such as bathroom pods) were not observed in the sample of cases.

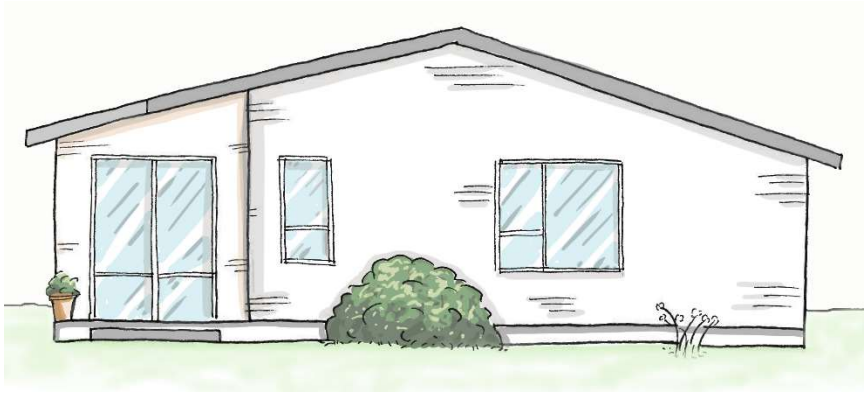
Contents

Figures

All figures were designed by Building System Performance, MBIE specifically for this report.

Tables

All data in these tables were sourced from 28 recent building consent files for Kāinga Ora housing.



1. Introduction

1.1. Review purpose and key questions

The Minister for Building and Construction approved the proposed design of the review in July 2020.

The report describes the efficiency, effectiveness and consistency of the building consent, inspection and code compliance certificate processes (building consent processes) as they have been applied to new public housing commissioned by Kāinga Ora (acting as an agent of the Crown).

The purpose of the review, set in July 2020, was to:

- make an evidence-based assessment of the efficiency, effectiveness and consistency of the building consenting process for housing being developed by Kāinga Ora
- provide a valuable baseline for identifying efficiency gains delivered through greater use of 'MultiProof' and modular components by Kāinga Ora, and in time, the efficiencies achieved by Kāinga Ora if accredited and registered as a BCA.[1]

The key questions to be addressed were:

- What major design, build and building consent practices affect efficiency and effectiveness?
- What, if any, systematic capability issues exist in the end-to-end building consent process?
- What level of consistency was evident across urban area size and building complexity?[2]

1.2. Independent expert panel

The 'expert judgement design' was identified as the most robust and effective way of addressing the purpose of the review within time and financial constraints. Where 'expert judgement' is used, an extensive wealth of experience is brought to the analysis and synthesis of the evidence documents.

MBIE commissioned a panel of independent experts to provide an impartial, objective assessment of the documents, and then to agree through consensus, the findings, discussion and areas for further attention which are set out in this report.[3]

The make-up of the panel was deliberate, with each expert being experienced and knowledgeable in their respective domains. Having both architectural and engineering designers on the panel alongside specialists in building consent and inspection processes provided a valuable combination of perspectives and an appropriate safeguard against potential discipline-based biases.

The expert panel members were:

- Ron Pynenburg, BBSc, BArch (Hons) PPNZIA, Life Member FNZIA. Director Pynenburg and Collins Architects Limited
- Rob Tierney, MBA, BSc (Hons), MInstD, Member BOINZ. Director Farsight NZ Limited
- Mike Cox, Chartered Building Engineer BCS (Hons), CBuildE. Senior Technical Building Specialist Farsight NZ Limited
- Martin Pratchett, NZDE (Civil), MEngNZ. Engineering Practice Manager, Engineering New Zealand.

[1] MBIE has since accredited (November 2020) and registered (March 2021) the BCA known as 'Consentium'.
[2] See Appendix 8.1 for the terms of reference.
[3] See Appendix 8.2 for a short biography of each panel member.

2. Context

2.1. Interest in this review

Ministers of Cabinet were interested in more up-to-date evidence about the effectiveness, efficiency and consistency of building regulatory processes as they apply to Crown-built housing.[4] There was also an interest in whether officials could maintain real-time oversight of the end-to-end building regulatory processes applied to Crown development proposals.[5]

MBIE consulted internally, and with the Ministry of Housing and Urban Development and Kāinga Ora on the review design. The Ministry of Housing and Urban Development wanted to better understand the timelines for building and the potential impact of process improvements. Kāinga Ora welcomed independent monitoring of its processes to improve quality and efficiency.

This type of review is essential to building an objective evidence base around consenting processes and for identifying priorities for improvement. For example, Engineering New Zealand wants to know whether the designs prepared by its members are fit for purpose, well prepared, and whether requests for information are promptly provided.

2.2. Kāinga Ora urban development

This review puts a focus on the consenting processes that regulate the design and construction of houses and apartment blocks as part of urban development work by Kāinga Ora.

Kāinga Ora, a Crown agency, is the largest client of residential building services in New Zealand. Kāinga Ora develops new public, market and affordable homes. This review looks at public housing which Kāinga Ora intends to manage over the longer term.[6]

The process for gaining building consent by Kāinga Ora housing on Crown-owned land is the same as the process for gaining building consent by non-government owners on land not held by the Crown.

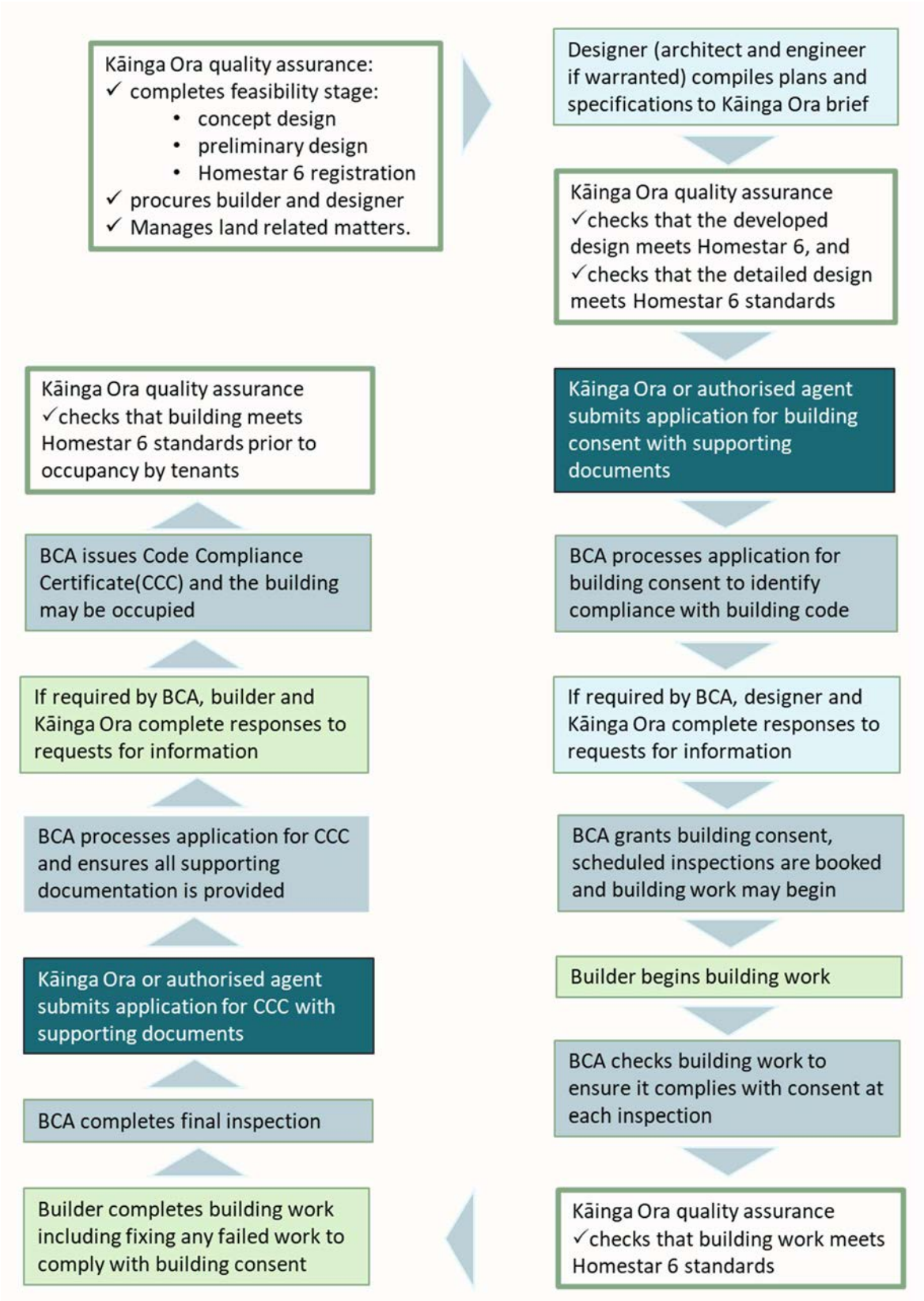
To streamline its new housing work, Kāinga Ora is:

- partnering on groundwork with the Piritahi alliance (established in November 2018)[7]
- using MultiProof certificates issued by MBIE (296 at 13 May 2021)[8]
- trialling modular components, for example, bathroom pods from March 2020[9]
- using building compliance services, including consenting, inspecting, and certification from Consentium, an independent building consent authority (BCA) (registered in March 2021)[10]
- performing quality assurance, but this function as at June 2021, is clearly separate to any consenting function, and does not crossover with processing and inspection work carried out by building control officers.

[4] Refer to the Glossary and Appendix 8.3 for an intervention logic summary diagram.
[5] Streamlining processes for Crown Built housing Cabinet paper and minute.
[6] Kāinga Ora: Our approach to building
[7] https://www.piritahi.nz/news/piritahi-is-doing-things-differently-heres-how.
[8] MultiProof certificates awarded to Kāinga Ora (263), Housing NZ (32) and Concision (1), a total of 296.
[9] Off-site manufactured bathroom pods.
[10] Consentium.

Figure 1 below, sets out the relationship between the actions of Kāinga Ora (in white boxes), the applications for building consent and code compliance certificate (teal boxes), and the work done by the BCA (grey boxes). Design (light blue boxes) and building work (light green boxes) is also shown.

Figure 1 Building consent processes for Kāinga Ora building projects



2.3. Aspects of building regulation applicable to this review

The **Building Code** sets the minimum performance standards that buildings must meet.[11]

The **building consent process** helps to ensure that the risks to people and property associated with non-compliance with the Building Code are managed. Consenting starts with design of the plans and specifications by designers (such as architects and engineers), and finishes with the BCA issuing a code compliance certificate.[12]

The application for building consent (Form 2) can include a **schedule of inspections** by consulting designers (eg architect or structural engineer). On being accepted by the BCA, this schedule becomes part of the conditions of the consent. For residential buildings, such schedules are usually limited to structural engineering matters. Site observations by architects, if done, are not on the schedule.

The **BCA will consider the inspections proposed by the applicant and will list the inspections** it requires in the building consent (Form 5). A BCA must have policies and procedures to cover how it plans, performs and manages the inspections it chooses to undertake.[13]

BCAs must ensure they record the decisions they make for planning, performing, and managing inspections, including the **reasonable grounds** that decisions for a pass or a fail are based on.[14]

The building control officer will send a **request for information** (RFI) to the owner or their agent where documents have items missing, are unclear, or are inconsistent with the Building Code.[15]

MBIE as central regulator monitors and assesses BCA performance through **accreditation reviews** carried out by International Accreditation New Zealand (IANZ).[16] MBIE recently published an evaluation of the 2017 regulatory changes made to improve the performance and effectiveness of the BCA accreditation scheme.[17]

MBIE **current reforms of building law** aim to lift the performance of the regulatory system.[18]

A MultiProof design is a generic building design that has been assessed as being code compliant within specific parameters.[19] When a MultiProof is used correctly, the consenting process is limited to site-specific matters such as foundations and that the site conditions fall within the parameters specified. When the applicant has a MultiProof certificate for the design, the application for building consent includes the plans and specifications but not the calculations or certificates of design work.[20]

If a designer changes the certified design or specifications beyond allowed minor variations, the BCA must treat the application as a bespoke (one-off) design. Where a MultiProof certificate is correctly used, the BCA has 10 days to process the application, rather than the 20 days for a bespoke design.[21] MBIE does not monitor the number of consents issued with a MultiProof certificate.

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[11] Building Code compliance | Building Performance; also Build Magazine 2014 and 2015.
[12] Licenced Building Practitioner handbook 2018. Legislation is in the *Building Act 2004.*
[13] Auckland City Council Policy on Producer Statements.
[14] Planning, performing, and managing inspections see also BCAs must ensure they record the decisions.
[15] BCAs may provide information on RFIs – some refer to an RFI as a request for further information.
[16] IANZ is an agent of MBIE, see also Maintaining Accreditation and BCA accreditation regulatory guidance
[17] Litmus September 2020.
[18] Building law reform programme | Building Performance.
[19] National Multiple-Use Approval service Launch in February 2010; see glossary in section 7 of this report
[20] Using MultiProof when applying for building consent.
[21] Departures from your MultiProof.

3. Approach

To develop an evidence-based assessment of the efficiency, effectiveness and consistency of the building consenting process for a range of different types of residential builds on Crown-owned land, the independent expert panel reviewed and discussed documents, drew from their extensive knowledge of the building regulatory system, and discussed policy, operational and specialist perspectives with building consent authority (BCA) managers, Kāinga Ora and MBIE officials.

The documents on which this review is based included:

- the building consent application
- design and specification documentation
- requests for further information and responses from the designer
- consent processing, including timeliness of processing and response time by designer
- inspection reports, including photographs by BCAs
- build quality control by Kāinga Ora (including by engineers contracted by Kāinga Ora)
- code compliance certificate application, supporting documents and processing records.

Modification to review design

Early in the process, the expert panel identified that the review design was limiting as it excluded investigation of factors that the experts considered to be significant. The factors included:

- the way that Kāinga Ora and or agents were presenting applications for building consent
- procurement and project management by Kāinga Ora
- approach taken by Kāinga Ora and or agents in organising and supervising building work
- MultiProof certificates and briefing documents used by Kāinga Ora.

As these factors indirectly affect the efficiency of the building consent process and reduce effectiveness overall, the expert panel has extended the discussion of the report to address them.

Between November 2020 and March 2021, the experts individually recorded case notes (on a template) during their analysis of the design and consent documents. The expert panel members then met to share their findings and met again to synthesise shared judgements, discussion points and main messages. The approach was repeated during March and April 2021 for the inspection and code compliance documents.

In April 2020, the expert panel presented their insights to officials from Kāinga Ora, Ministry of Housing and Urban Design and MBIE on how outcomes for new public housing may be improved.

MBIE supported the review by developing the sample frame, framework for assessment and syntheses (including the template described above).[22] MBIE facilitated meetings and workshops for the expert panel including input from guest subject-matter experts. MBIE collated the evidence and discussion notes, provided editorial support and designed the illustrations.

[22] MBIE drew on the approach used by BRANZ to study consent documentation quality

3.1. Limitations

The review was designed to time, cost and resource constraints. This meant that there were no building site or office visits (virtual or in person) to observe practice.

The documents supplied did not include:

- the design brief supplied by Kāinga Ora to the designer, on which the submitted designs were based, consequently, the review cannot comment on the design briefs
- Kāinga Ora quality assurance assessments
- any designer documentation, or any builder documentation not held by the BCA.

This report cannot comment on the capability of building control officers employed by BCAs serving populations of fewer than 30,000 people as the sample did not include any medium to low population territorial areas.

The review excluded identification or investigation of:

- the regulatory or behavioural drivers of sub-optimal or unexpected findings (eg why relevant site information was not obtained prior to design and/or not applied during design; and why building control officers made fewer RFIs about the designs of apartments than for stand-alone houses)
- any possible breach of building regulations
- whether the building consent process resulted in reduced building failure, mortality or personal injury on Kāinga Ora new build sites.

The size of each building consent file of documents was larger than expected, and some files were difficult to follow. As a result, the number of unique cases was reduced to meet the review constraints. This meant that:

- the sample provided sufficient data for illustrative purposes, but not for statistical analysis
- the sample was sufficient to identify major practices that were affecting efficiency and effectiveness, but not sufficient to determine minor patterns or trends.

The review was limited to the documents on file; therefore, documents of inspection notes, or conversations that were not filed were unavailable to the review. The review accepted documents at face value, and there was no independent verification of dates recorded on documents.

3.2. Sample frame design and selection of cases

The sample frame ensured that the sample was representative of the type of buildings and the size of the urban setting in which the new Kāinga Ora public housing was being built, with a good spread across New Zealand. The sample frame also selected cases across the three processes in the end-to-end building consenting system. The parameters for the sample frame were:

- stage in the building consent process (consent, inspect, and compliance)[23]
- the setting where the building would be located (major or large)[24]
- type of building (stand-alone, duplex and terrace, and apartments).[25]

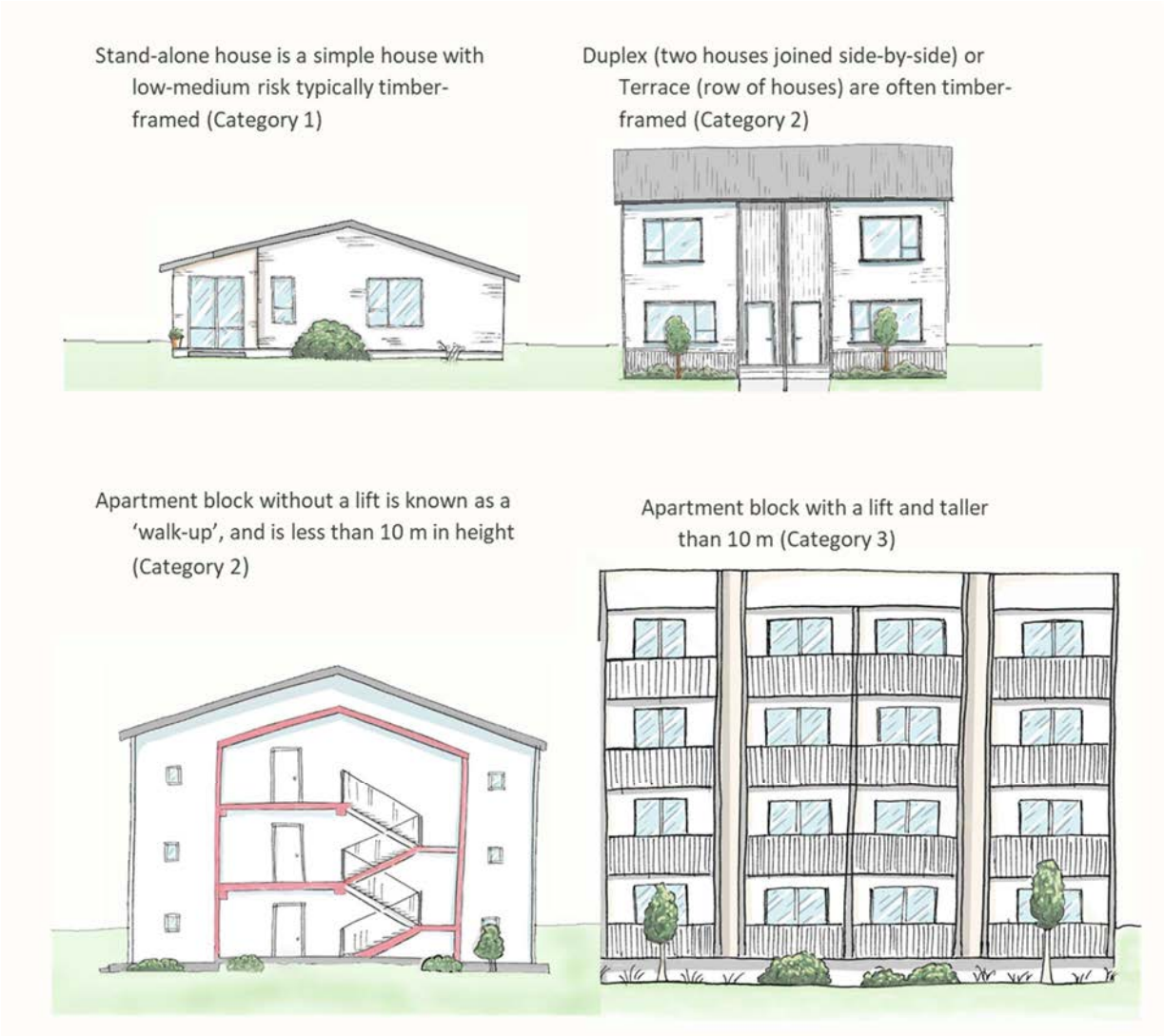
[23] See Figure 3 The three building consent processes showing input, process and output for each.
[24] Functional urban areas classification, major urban areas have 100,000 or more residents living in their urban core. Large areas have a core population of 30,000–99,999. No medium or small areas were selected.
[25] Building categories | Licensed Building Practitioners (lbp.govt.nz).

Kāinga Ora supplied MBIE with the addresses and/or building consent numbers of recently consented or built housing. The Kāinga Ora Quality Assurance team selected projects at random ensuring that there were more than enough for the categories of building type and population size set out in the sample frame.

From the list of building projects supplied by Kāinga Ora, MBIE selected cases to match the building type and location combinations specified in the sample frame, ensuring there was a spread of locations across New Zealand, and favouring the most recently completed buildings.[26]

The building categories are illustrated and described in Figure 2, below. Where buildings of two categories were on one building consent, the higher category was assigned to the case.

Figure 2 Classification of type of building design used in this review



[26] This provided a 'stratified random sample'.

3.3. Supply of documents and descriptive statistics

MBIE requested the building consent documents from the respective BCAs.[27] BCAs either supplied the building consent documents to MBIE, or authorised MBIE to retrieve the documents from their document portal. One BCA has all building consent documents available to the public on a website and so an expert reviewer could retrieve these documents directly.

BCAs hold summary documents to track the processing days and the requests for information (RFI). BCAs emailed this information separately.

The data and the descriptive statistics in this report were produced independently of the expert panel by an independent technical team and completed by MBIE.

When the technical reviewers could not locate particular data points in documents supplied by the BCA, they contacted the BCAs on behalf of MBIE. Kāinga Ora was able to supply some missing dates.

Descriptive statistics about building consents were drawn from 16 cases, and separately, descriptive statistics about inspections and compliance were drawn from 17 building consents. This approach provided 50 observations, meeting the requirements of the brief for this review. Table 1 provides a breakdown of the number of cases by building type and urban population setting.

Table 1 Number of cases at each stage by setting and building type

	Large urban setting		**Major urban setting**		
Stage	stand-alone house	duplex or terrace	stand-alone duplex and terrace	apartment block	Total by stage
consent	5	3	3	5	16
inspect	5	3	4	5	17
compliance	5	3	4	5	17
Total	**15**	**9**	**11**	**15**	**50**

In this data set, apartment blocks were consented on one or more separate building consents.[28] There were two cases where four walk-up apartments were on one building consent.

Where there were duplex dwellings, these were consented alone, or in combination with one or more additional duplexes and/or detached dwellings.

Where a site had only detached dwellings, these were consented alone or with one to six other detached dwellings. These homes had one to five bedrooms.

MultiProof designs were used at various points in the design process. Of these, only two cases were processed fully as a MultiProof design. Data for these two cases are reported in the text of the findings where relevant, but is not separated from be-spoke designs in the tables in this report.

[27] These documents are public records.
[28] This is known as a 'staged approach'

In the **large** urban portion of the sample, there were building consents issued for stand-alone and duplex, but not for walk-up apartments or apartments over 10m.

In the **major** urban portion of the sample, all types of buildings were under construction. The number of building consents by stage and building type is shown in Table 2.

Table 2 Number of cases at each stage by building type

	Type of building			
Stage	stand-alone house	duplex or terrace	apartment block	Total by stage
consent	7	4	5	16
inspect	8	4	5	17
compliance	8	4	5	17
Total	**23**	**12**	**15**	**50**

The regional spread of the data set was consistent with the regional split of building work being done by Kāinga Ora. The dwellings were on Crown-owned land between Auckland to the north, Gisborne to the east and Invercargill to the south west (see Table 3).

Table 3 Number of cases at each stage by region

	Region of building			
Stage	Auckland	rest of North Island	South Island	Total
consent	5	7	4	16
inspect	8	5	4	17
compliance	8	5	4	17
Total	**21**	**17**	**12**	**50**

The total number of unique cases (one building consent is one case) for data analysis was 28. Five of the 28 unique cases were looked at for consent, inspection and compliance; 12 were looked at for inspection and compliance, but not consent; and 11 were looked at only at the consent stage.

Collectively, the expert panel completed a qualitative review of 38 unique building consent files. Their review included the 28 cases used to prepare this data set and 10 further cases.

4. Findings

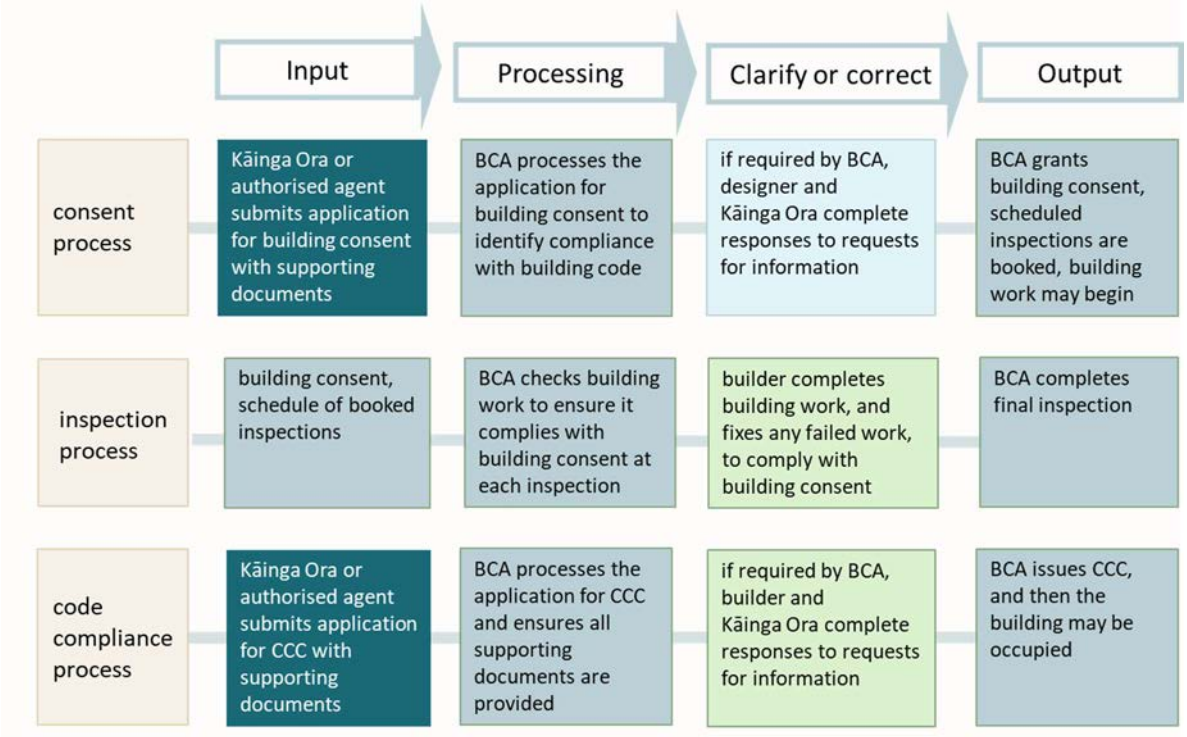
The limitations to the scope and findings of this review are set out in section 3.1. Some limitations are repeated in this section to clarify the findings presented.

The expert panel findings, based on their assessment of cases are presented in two parts:

- design work and processing of building consents
- building work, inspection, and code compliance processes.

Figure 3 below, outlines the standard building consent processes as applied to Kāinga Ora builds. This diagram was developed to provide context to support the reader's understanding of the findings presented in this section.

Figure 3 The three building consent processes showing input, process and output for each



4.1. Design work and processing of building consents

The findings in section 4.1 address the quality, capability, and risk management aspects of design work and the processing of building consents. Refer to the first row of Figure 3.

4.1.1. Quality of submitted design work, and of the consented design

Kāinga Ora typically appoints agents to engage with a building consent authority (BCA).

Designers submitted adequate design work given each designer was working to their client's brief

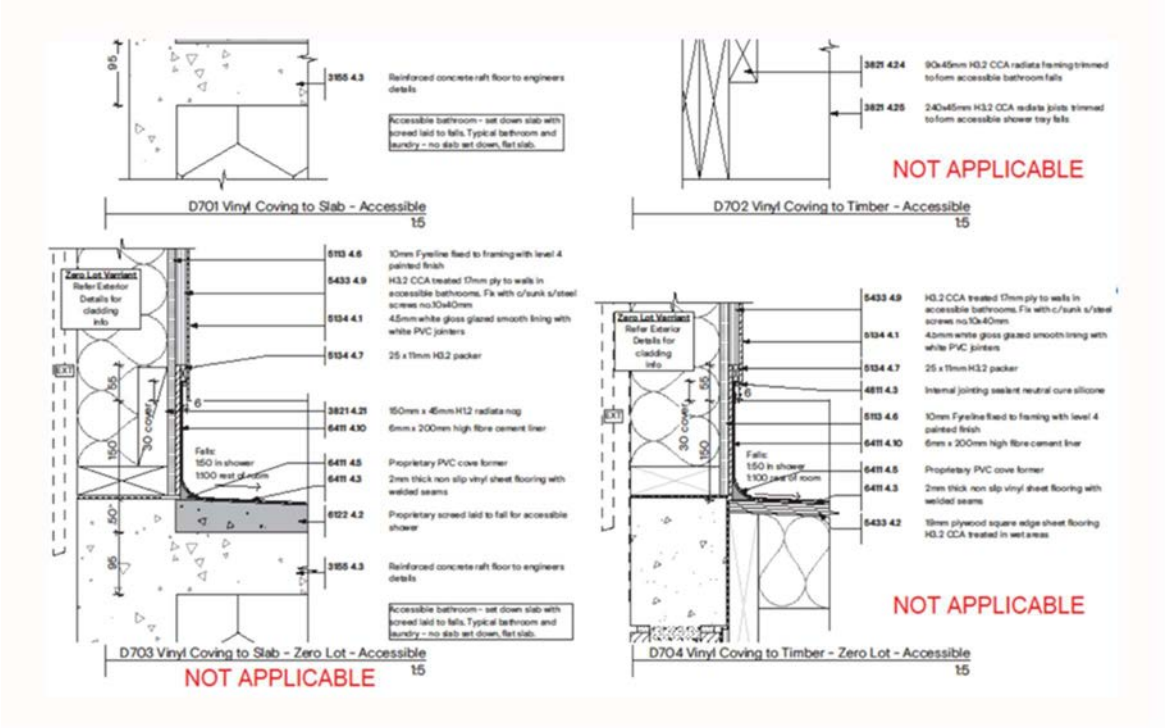
The expert panel observed that the design firms working on Kāinga Ora building consent applications were generally competent, with some exceptions. For example, where the design suggested that a less experienced staff member had received insufficient supervision. Also, applications for building consent sometimes lacked a proposed schedule of inspections when one would be expected. Review

of the plans suggested that the architect's role in designing the Kāinga Ora dwellings had been constrained by design briefs from Kāinga Ora.

Submissions of design work for building consent were unreasonably large

The number of pages submitted in a building consent application was excessive for simple residential buildings. Submissions included pages that were not applicable and/or not required for the particular building design. An example of redundant information supplied in consent applications is provided in Figure 4 below.

Figure 4 Example of redundant information supplied in an application



The median number of pages was 1000. The range and median number of pages submitted for 16 building consents is shown in Table 4. Most (10/16) applications were between 700 and 1600 pages, including two MultiProof cases which had submissions of 1100 and 1600 pages.[29]

Table 4 Number of pages in a submission for building consent

	Type of building			
Submission size (to nearest 100 pages)	stand-alone house (n=7)	duplex or terrace (n=4)	apartment block (n=5)	All building types (n=16)
minimum	700	200	200	200 *
maximum	1600	1600	2200	2200 **
median	**1000**	**1000**	**1300**	**1000**

* For two stand-alone houses and one duplex on one building consent.

** For 36 one-bed units in four apartment blocks on one building consent.

[29] What to provide the BCA You will not need to provide the BCA with information you provided to support your MultiProof application (such as calculations, certificates of design work etc).

One BCA requested removal of non-project specific information from a submission:

Please remove all non-project specific specifications and technical guides... For example you have supplied [an] Existing Buildings Guide and an entire Project Specification for the Lot 1 BC.
Quoted from an RFI for a stand-alone dwelling in a large urban area.

Requests for information

Building control officers made requests for information when processing each of the 16 cases.

Requests were necessary because not all elements of the application were complete or easily found. The most common reason for the first request for information (RFI) was to seek clarification about aspects of the plans or specifications supplied. Less commonly, modification of the submitted plans and/or specifications was necessary for code compliance. Three examples are given below:

BCA picked up issues and processed speedily once relevant info acquired.
Expert case notes for a stand-alone house in a large urban area.

The structural specifications supplied from [designer] states that the floor slab is to be 20MPa however the foundation detail shows 25MPa fibre mix concrete. Please cross out or remove this contradiction as this will lead to error onsite.
RFI for an application relying on a MultiProof certificate.

Architectural RFIs… 23 of the 24 RFIs raised by [named BCA] were reasonable to raise…Overall, the RFI process was efficiently carried out…The one RFI that was not reasonable was where the BCA officer referenced the wrong detail.
Expert case notes for duplex houses in a major urban area.

There were three cases where changes to the original application were needed because geotechnical and/or natural hazard information had not been obtained and/or applied to the original design. In one case the building site had a flooding hazard. The submitted design did not address the hazard and an amendment was later made to the building consent. Investigation of why the relevant information was not obtained prior to design and/or not applied during design was out of scope.

For apartment blocks, the submitted designs were consented with little change during processing. Investigation as to why fewer RFIs were made by building control officers about the designs of apartments than for designs of stand-alone houses was out of scope.

Processing of building consents generally met statutory requirements

The BCAs usually processed bespoke designs within the statutory time frame of 20 working days. The median processing time for the 16 building consents was 19 working days.[30] The shortest processing time of eight days was for three four-bedroom dwellings on one major urban site. The longest processing time was 43 days for stage one (foundations) of an apartment block.

The process worked fine, with the consent being issued in less than 20 processing days...basic but minor errors [by designer] resulted in RFIs.
Expert case notes for a stand-alone dwelling in a major urban setting.

[30] Working days excludes weekends and statutory holidays and may be referred to as ‘statutory days’.

In most cases building control officers issued RFIs proactively, with a median of 14 days between lodgement and the first RFI sent to the applicant for building consent. Of the 16 cases, 25 per cent of the first RFI letters were sent out in nine or fewer days.

For 25 per cent of the cases the first RFI letter was sent close to the end of the processing period (between day 19 and day 24). In each of these cases, the initial submission was over 1000 pages. Otherwise, there was no common factor as they included three types of buildings, and were from four BCAs and both major and large urban areas.

For context, wider industry observation on consent timeframes is that one stand-alone house, on one site with appropriate supporting information, takes six to ten hours for a competent building control officer to process to approval, and an allowance of 40-60 per cent more time for each additional house designed by the same team on the same site. Where there are multiple houses on one site, the processing time would be about eight hours for the first house, plus five hours for each additional house.

Time to respond to RFIs added significantly to the building consent approval date

Time taken for designers to respond to RFIs added significantly to the calendar date for building consent. The median number of days taken by designers and/or Kāinga Ora to respond to requests for information (working days that the statutory clock was on pause) was 29 days and ranged between three and 72 days for the 16 cases.

In one case, Kāinga Ora took over a month to provide information to the designer before the designer could respond to the BCA.

> *RFIs for three items should not have taken this long.*
> Expert case notes for a stand-alone dwelling in a major urban setting.

The processing times for applications with MultiProof certificates were 17 days for three two-bedroom houses, and 18 days for six stand-alone houses. The time taken by the designer or Kāinga Ora to respond to RFIs in these two cases was five and 18 days respectively.

4.1.2. Capability of the designers and building control officers

Kāinga Ora had contracted private companies to do architectural and engineering (eg structural, fire, electrical, and services) design work.

Findings about capability have been inferred from review of documents for the 38 unique cases.

The sample included one case were a BCA in a large urban setting had contracted a private company to process a building consent for a one duplex and two detached houses. The processing work for all other cases in our sample was carried out by building control officers employed by the BCA. The reasons why BCAs did not contract out more of this work out was out of scope.

Designer capability was adequate; no systemic capability issues were apparent in documents

The reviewed plans and specifications showed that Kāinga Ora had engaged competent design firms.

A local residential architect and engineer contracted by Kāinga Ora for a project in a large urban setting made effective use of their knowledge of local ground conditions and residential design.

The complexity of the design work required was occasionally not well matched to the company that won the contract to do the design work.

> *Level of detailing provided was at commercial level - too onerous for residential.*
> Expert case notes for a duplex houses in a large urban setting.

One firm, had been stretched to design a three-story walk up apartment.

> *I'm sure this company is better suited to 1-2 story dwellings. It would have been more efficient to engage designers more suited to moderately complex buildings.*
> Expert case notes for a duplex houses in a large urban setting.

Building control officer capability appeared adequate for timber-framed houses

Overall, the requests for information were appropriate to assure the building control officer that there were reasonable grounds to accept that a timber-framed design a met the building code.

When processing apartment buildings, building control officer capability appeared insufficient

On the basis of review of the processing documents, building control officers showed limitations when processing building consents for apartment blocks. As a result, there was a flow on effect at construction and inspection stages.

Building control officers appeared to lack familiarity with Kāinga Ora MultiProof designs

Building control officers 'over' and/or 'under' processed applications that included MultiProof design work. In one case, the explanation, by the designer, of the way that the MultiProof design was to be used, was not well set out.

4.1.3. Attitude to and practice of risk management by BCAs, designers and Kāinga Ora

BCAs appeared lenient toward accepting bulky applications for building consent

BCAs typically did not reject Kāinga Ora building consent applications for processing where they contained excessive irrelevant information. One BCA manager reported, during a workshop, that after rejecting bulky applications, subsequent applications were improved as they included only project-specific relevant information.

The building control officers typically made fair requests for further information

To be sure that there were reasonable grounds for making a decision, building control officers made requests further information. The experts found that the requests, overall, were appropriate.

At the margins, the experts identified examples of building control officers requesting information that would not necessarily be useful to a licenced building practitioner for the construction of the dwelling, but could be useful if build quality issues were detected in the future. On the other hand, requests that expert panel members thought would be appropriate to ascertaining reasonable grounds for decisions were not always identified in the records.

Use of staged consents was largely appropriate

Staging of building consents reflected the iterative nature of design for larger apartment blocks, for example, where the in-ground foundation work was completed and a code compliance certificate was issued before building work on the superstructure of the apartment could commence.

Risk management practice by designers and Kāinga Ora added preventable expense

The expert panel observed three cases where an engineer was engaged to do design work without any obvious need, given the low complexity of the project. This indicates that a more risk averse and more expensive approach was taken than was necessary.

A known site risk with Kāinga Ora sites is poor-quality ground. Expected practice is that the designer reviews land information about ground quality and natural hazards and then applies this to their design of the foundation. Through the consenting process, BCAs identified several foundation designs that were submitted, but were not appropriate to the site, which added delays and costs to the project. Identifying who was responsible for obtaining the necessary land information under the Kāinga Ora project management arrangement was outside the scope of this report.

After the original consent application, the RFI process identified an issue with potential flooding. Time from the original application to issuing the amendment for flooding was over 12 months.
Expert case notes for a duplex development in large urban setting.

Four amendments were required, including an alternative foundation type and retaining wall to boundary. The foundation change appears to have delayed construction by two months. Site investigations should have been carried out – who was responsible for site info?
Expert case notes for a stand-alone dwellings in a large urban setting.

Amendment 1: Foundation. PS1 not correct. Soil report not done by a geotechnical engineer. Ground repair needed geotechnical sign off. Standard B2 cover letter adds no value and shirks responsibility. "Amendment 2: The RAB substitution resulted in alternative solutions of significance with inadequate and incorrect detailing/justification…Who took responsibility for this?"
Expert case notes for a duplex development in large urban setting.

4.2. Building work, inspection and code compliance processes

The findings in section 4.2 address the quality, capability, and risk management aspects of building work, inspections and the processing of code compliance certificates. See rows two and three of Figure 3.

4.2.1. Quality of building work was generally acceptable

It appears from the records reviewed that the quality of builds was generally acceptable.

'Not completed' or 'not built to consent' were the main identified reasons for an inspection failure

For stand-alone, duplex and terrace houses, the main reason (when a reason was ascertained) for a building control officer failing building work at an inspection was that the building work had not been completed (see Figure 5). For apartment blocks, the main reason (when ascertained) for failing an inspection was that the building work did not comply with the consented documents.

Table 5 Reasons for an inspection failure

	Type of building			
Reason for first inspection failure	stand-alone house (n=7)	duplex or terrace (n=4)	apartment block (n=5)	Total (n=17)
not completed	3	1	0	4
not to consent	1	0	4	5
paperwork delay	1	0	1	2
varied/not checked*	2	2	0	6
Sub totals **	**7**	**3**	**5**	**15**

* Some inspections were failed for several reasons, while others were not discerned from BCA records.

** Two cases had no inspection failures.

Wide variation in the time taken between application and issuing of a code compliance certificate

The median number of days to issue a code compliance certificate was 35 days (see Table 6). In 25 per cent (4/17) of cases, the certificate was issued (includes both processing by BCA and responding by agent and/or Kāinga Ora within 20 working days. By contrast, 25 per cent (4/17) of certificates took substantially longer (56-61 working days) to issue.

Time for collection of producer statements (PS3 and PS4) and records of work by the project manager caused some delays.[31,32] Two BCAs required documents that were needed to complete the territorial authorities' records for resource consent before approving the issue of the code compliance certificate.

Table 6 Time elapsed to gain a code compliance certificate

	Type of building			
Time period from application to issue of CCC	stand-alone house (n=8)	duplex or terrace (n=4)	apartment block per stage (n=5)	Time period for all buildings (n=17)
minimum time (days)	4	10	24	4*
maximum time (days)	59	56	61	61**
median time (days)	**24**	**30**	**41**	**35**

* For four single-storey dwellings in a large urban setting.

** For stage two of a five-storey apartment block in a major urban area.

4.2.2. Capability of the builders and building control officers

Kāinga Ora generally contracted 'volume builders' to do the building work in the cases in this review.

BCA managers generally relied on building control officers to inspect building work, including of apartment blocks. Determining why BCAs were not contracting more engineers to do inspections, or whether a different building control officer did final inspections was out of scope of this review.

[31] Producer Statements Explained. PS3 (provided by the contractor) and PS4 (provided by the engineer).

[32] Code compliance when the owner is unable to provide a record of work.

Builder capability was adequate; no systemic capability issues were apparent in documents

The inspection records showed that the clear majority of builders had sufficient capability for their role. Records for two building projects suggest that there were periods of inadequate oversight from the respective builder's construction manager.

All stand-alone, duplex and terrace developments were completed in under 16 months. The quicker builds took four months (see Table 7). The data reported for apartment blocks is per stage.

Table 7 Build time from issue of building consent to issue of code compliance certificate

	Type of building			
Time period from consent to completion	stand-alone house (n=8)	duplex or terrace (n=4)	apartment block per stage (n=5)	Time period for all buildings (n=17)
minimum time (months)	4	6	9	4 *
maximum time (months)	15	12	27	27**
median time (months)	13	10	19	12

* For three single-storey dwellings in large urban setting.

** For stage two of a five-storey apartment block in a major urban setting.

Building control officer capability was adequate for timber-framed houses

On the basis of the inspection records reviewed, building control officers appeared capable when inspecting building work for timber-framed houses. There were indications of possible capability issues, however the number of cases reviewed was too small to make any further inference.

The quality of notes and photographic records varied, with some good practice evident.

When inspecting apartment buildings, building control officer capability appeared insufficient

In the **major** urban settings, inspection reports revealed a pattern of building control officers not demonstrating the necessary capability to identify weaknesses in the construction of apartments, for example, where records suggested that the inspector attempted to run a standard inspection which is arguably not suited to the complexity of the building.

In other cases, the expert reviewers inferred (from what was missing from documents) that the building control officer was struggling. For example, where BCA documentation lacked explicit records of what quality assurance, quality control and construction monitoring had been undertaken by specialists, which building control officers could have drawn upon to help establish reasonable grounds for their decisions.

4.2.3. Attitude to and practice of risk management by BCAs, builders and owner

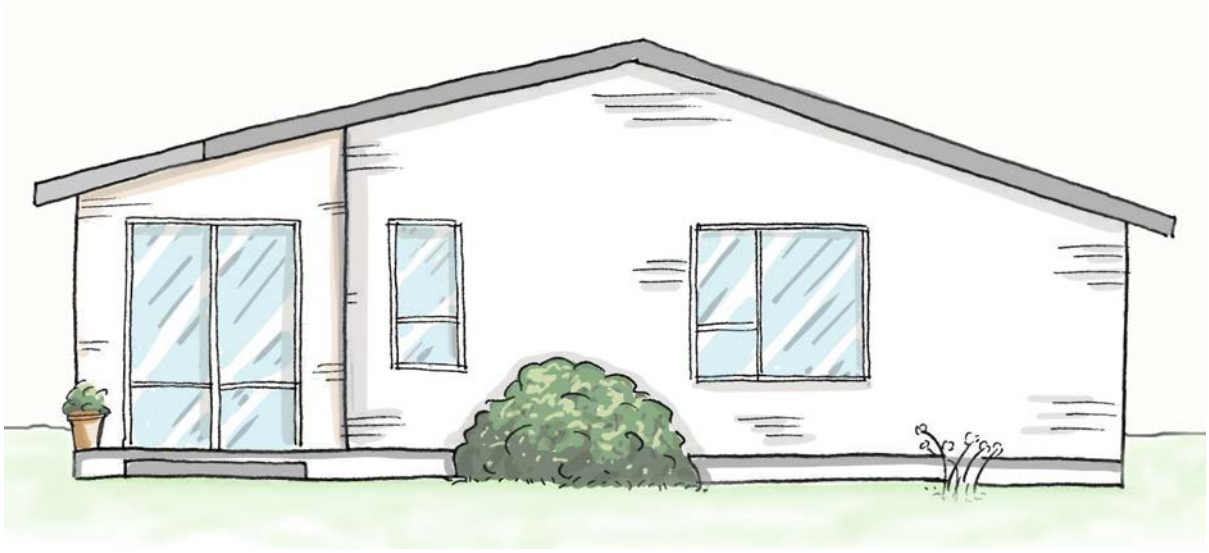
Building inspectors appear to be the main quality control during construction

The inspection records made by building control officers typically included the reasonable grounds (justification) when building work failed an inspection, but conversely, inspection records commonly did not include the reasonable grounds used to justify an inspection pass.

The expert panel did not identify any references in the inspection records held by BCAs to quality assurance checks by Kāinga Ora or the builder's project manager. There were no records of

architects carrying out onsite observations. Engineers provided producer statements (PS4) for some apartment blocks, however, there were many cases where there was no record that an engineer had been engaged to monitor work.

"again no evidence of project coordination to ensure compliance with consent(s)"
Expert case notes for a stand-alone dwellings in a large urban setting.



5. Discussion

This discussion first addresses the three key questions addressed by this review.

The key questions were:

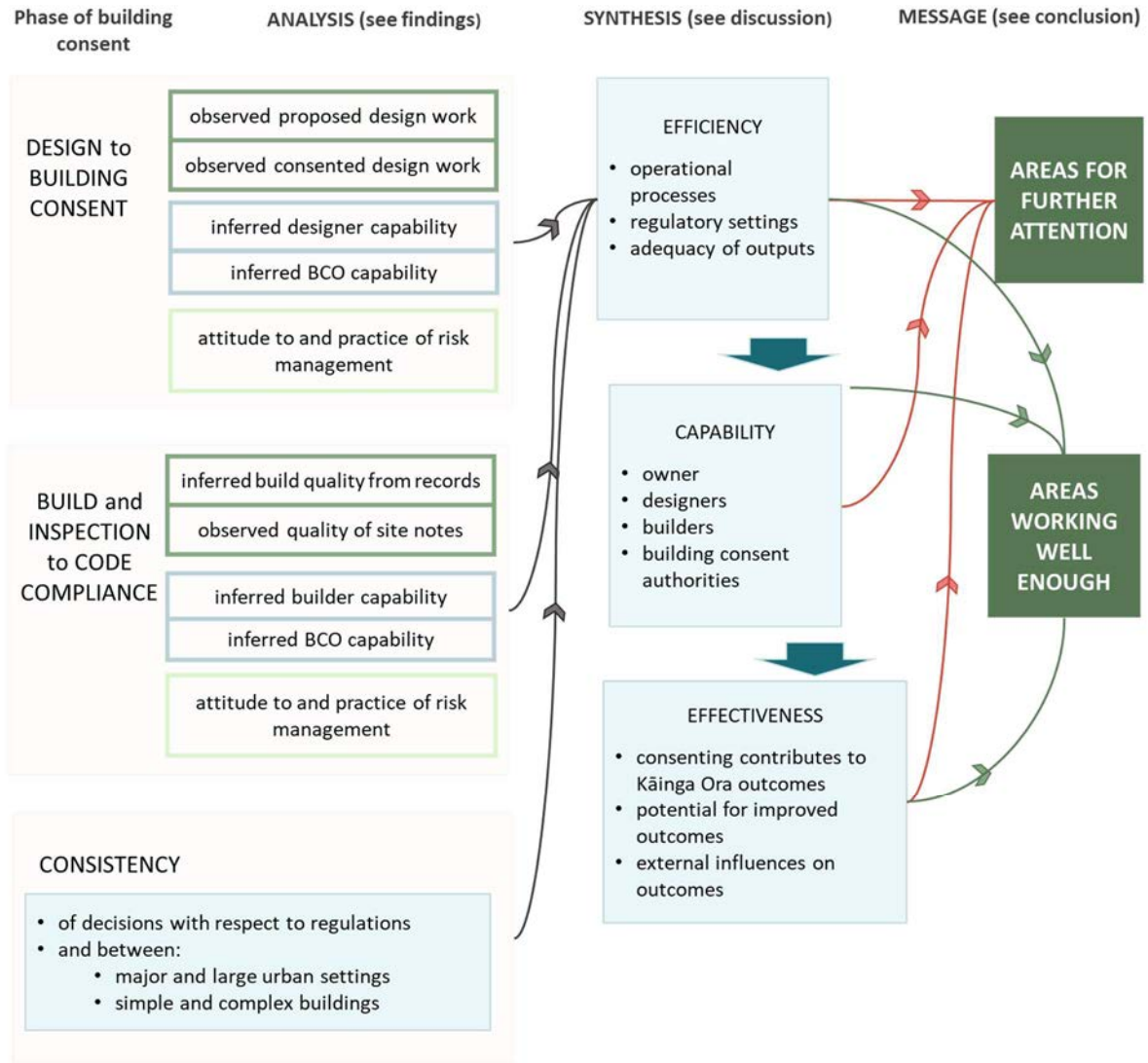
- What major design, build and building consent practices affect efficiency and effectiveness?
- What, if any, systematic capability issues exist in the end-to-end building consent process?
- What level of consistency was evident across urban area size and building complexity?

Secondly, this discussion sets out baseline statements from which future efficiency gains could be measured.

Thirdly, and importantly, the discussion sets out the opportunities for improving the outcomes for Kāinga Ora that lie outside the building consenting processes.

The review framework, illustrated in Figure 5, sets out the stepped approach followed by the expert panel to develop the findings, and then the more iterative approach to developing discussion points.

Figure 5 Framework for assessment and synthesis



5.1. Efficiency of major design, build and building consent practices

On the basis of the findings of this review, the major design, build and building consent practices that increase efficiency with respect to Kāinga Ora housing occurred when:

- designers:
  - were working in their core field of practice and had strong local knowledge
  - submitted project specific applications that were well organised and indexed
  - ensured that foundation designs were correctly based on accurate site investigation
- builders:
  - had completed work to plan and had paper-work ready for each booked inspection
- building control officers:
  - were working in their core field of practice – typically timber-framed buildings
  - provided clear documentation of 'reasonable grounds' for decisions when inspecting building work.

By contrast, the efficiency of building consent system processes was decreased when:

- applications were difficult to navigate given their large size and/or irrelevant information
- MultiProof designs were modified so that they needed to be processed as bespoke designs
- the RFI process was not completed promptly
- builders had not completed work ahead of the booked inspection
- BCAs inspected work that was beyond their usual scope of expertise.

5.2. Effective practice

On the basis of this review, current building regulations related to building consenting processes were sufficient to meet their intended purpose.[33] The provisions allow BCAs to address barriers to efficiency identified in this review. Effective application of building regulations was observed:

- One BCA used an RFI to reinforce expectations that only project-specific applications for building consent would be processed. The manager of this BCA reported that as a result, subsequent applications were smaller, and acceptable for processing.
- Another BCA was observed contracting in suitably qualified and experienced contractors which addressed capability and/or capacity needs. However, other BCAs had not addressed capability (and/or capacity needs), and had allocated their employed building control officers to cases that were beyond their scope of expertise.

The reasons why more BCAs were not using regulations available to them is unknown. Further investigation is warranted to identify the barriers to greater use of building regulations by BCAs.

A BCA may refuse a materially insufficient and inadequate application.[34] We considered that many of the applications, processed by BCAs, were insufficient for decision-making as there was a lack of clarity about which parts of the application were specific to the building project. We saw RFIs that were a consequence of insufficiently organised, inadequate submissions for building consent.

A BCA must have a system for assessing the need for contractors and may contract suitably qualified, experienced engineers.[35] Inspection records for apartment blocks indicated that BCAs could have made better use of inspections by the owner's engineer.

[33] See purpose of *Building Act 2004* and MBIE description of the building regulatory system
[34] Refusing to process or grant building consent.
[35] *Building (Accreditation of BCAs) Regulations 2006.*

5.3. Capability issues in the end-to-end building consent process

In large and major urban settings, no capability issues were identified in relation to consenting or inspecting the more simple, stand-alone, duplex or terrace houses (typically timber-framed).

However, on the basis of the inspection records, the capability of building control officers appeared insufficient for the most complex public housing being built in the area.

This review could not determine whether this pattern was localised to the BCAs in the sample or whether it was more widespread. This pattern presents a risk to Kāinga Ora of increased maintenance costs for its apartment buildings.

Further investigation, using a larger sample, would be required to establish the extent of this pattern.

MBIE has the system-level responsibility for monitoring and managing the unintended (and inefficient) practices that may well be driven by the imperitive that BCAs must maintain accredition.

As the regulatory steward, MBIE may choose to investigate the role that accreditation reviews, among other factors, play in driving BCAs to be be less than fully efficient in the delivery of their regulatory function.

Capability observations with respect to Kāinga Ora as owner, designers (architects and engineers), builders and building control officers are discussed in more detail below.

5.3.1. Architects, engineers and builders

The expert panel perspective is that observations of the capability of designers and builders reflects the approach taken by Kāinga Ora to procurement and project management, rather than a systemic capability issue in the design and building workforce.

Kāinga Ora can set clearer expectations at procurement around observation and supervision to address observed lapses in practice among architects and engineers. This would include insisting on obtaining and applying accurate, appropriate site information so that the design suited the specific project.

It would be useful for Kāinga Ora to engage architects in construction observation. Kāinga Ora permits, but does not seem to proactively engage architects to undertake construction observation services. This study did not identify an example of architect presence on site.

The supervision of engineering work by the design engineer is expected practice.[36] There were examples of construction monitoring by engineers, with the owner's engineers inspecting and providing PS4s. Fewer than expected examples of construction monitoring during construction of apartments were identified in the cases reviewed.

Re-inspections will incur additional fees that may be passed on to Kāinga Ora. This review did not investigate why the building project managers had not postponed an inspection where the necessary building work had not been completed.

To mitigate the occasional observations of relative inexperience of the building workforce onsite, Kāinga Ora could change the design of its procurement processes. The use of volume home builders as the principal contractor with local builders, independent sub-trades and labourers brought on

[36] Specialist roles for medium-density housing projects.

through sub-contracts may be diluting the sense of ownership of the build, and potentially reducing the focus on outcomes.

5.3.2. BCAs and building control officers

Capability in relation to consenting or inspecting timber-framed houses in large and major urban areas appeared sufficient with no systemic capability issues identified.

Comments in records showed that some building control officers provided informal guidance to project leads. This long-standing practice is not required but helps the lead builder achieve the minimum standard set by the building code, and to build to the consented plan.

While not a systemic capability issue, *per se*, there was an issue where building control officers were assigned to process and/or inspect more complex buildings (ie apartments in major urban areas). This pattern of behaviour by the BCAs could have a range of causes and warrants follow-up study.

When processing a building consent, building control officers did not clarify engineering design details where, in the expert reviewers' opinion, there was good reason to have asked for clarification. If building consent is acquired where there are engineering design issues, there is risk of increased maintenance costs to Kāinga Ora. When inspecting engineering work, building control officers often did not, in the expert reviewers' opinion, produce the expected inspection records.

Where an engineer is involved in the design, it is reasonable to expect that the engineer will carry out construction monitoring and provide records in the form of producer statements (PS4) to the BCA. Expert reviewers observed less than expected use of construction monitoring reports, by building control officers, as reasonable grounds for decision-making.

Greater use of inspections by the owner's consultant engineer, or by technical experts (in house or contracted), may be a better approach than allocating all inspection of engineering work to building control officers.

Evidence suggested that the BCAs viewed the initial process of issuing a building consent as the completion of a task in its own right, rather than as part of an end-to-end consenting system. This separation of sequential processes into discrete work areas is reinforced where a BCA uses different software and personnel for consenting to what it uses for inspection records.

While the building control officers typically made fair requests for further information, based on observations and experience, the expert panel was concerned that the BCA accreditation scheme may be driving a sub-set of requests that are potentially beyond reasonable grounds. We expect that BCAs sometimes collected information in case there was an issue in the future.

In order to maintain accreditation, a BCA must maintain its compliance with all accreditation requirements. Accreditation is about policy, process and systems, and the intention is that by having these in place, consistency of decision-making and capability will improve.

Further research is necessary to determine whether the way that BCA accreditation is monitored has contributed to reduced effectiveness of the consenting processes. The recently published independent review of the of the BCA accreditation scheme by Litmus, echos this:

> As the scheme becomes more detailed and focused on process outcomes, it risks becoming less effective at contributing to system level outcomes.[37]

[37] Litmus September 2020. Page 5.

5.4. Consistency of building consent practice and risk management

Although the sample was limited, the review provided useful evidence on the consistency of building work and inspections nationally. In particular, the review highlighted areas that warrant further investigation.

The following general observations of the consistency of BCA practice were made:

- Building control officers consistently demonstrated professional attitude in their practice.
- BCAs were, broadly speaking, consistent in the processing and inspecting of simpler (mostly timber framed) buildings. However, there was a pattern of insufficient experience evident in processing and inspecting documents for, and construction of, the more complex buildings.

The number of cases in this review is too small to comment further with any confidence.

5.5. Baselines for future monitoring of efficiency gains

The secondary purpose of this report was to:

- provide a valuable baseline for identifying efficiency gains delivered through greater use of 'MultiProof' and modular components by Kāinga Ora, and in time, the efficiencies achieved through Consentium, the independent BCA.[38]

The following statements set a 2021 baseline to allow measurement of efficiency gains in the future:

1. **The quality assurance processes** followed by Kāinga Ora did not look at code compliance, therefore, compliance risk is largely carried by the BCA.

2. **Construction monitoring** Construction monitoring by structural engineers was less evident in records than expected, as a result, the beneficial overlap of construction monitoring and building control processes was not realised.

3. '**MultiProof' designs** did not appear to achieve any benefit during the processing of a building consent, and frequently resulted in extraordinary quantities of paperwork which may confuse the builders and BCAs. In part, this reflected the particular way that Kāinga Ora used MultiProof at procurement, with its unusual provision for performance-based specifications. The general failure to provide project-specific content, for whatever reason, made applications using MultiProof certificates difficult to navigate.

4. **Responsibility** for obtaining site information, particularly geotechnical information, was sometimes unclear meaning that designs were submitted that should have, but did not mitigate poor ground and/or natural hazards and so required a variation or amendment.

5. **Modular components** (such as bathroom pods) were not observed in the sample of cases.[39]

[38] Consentium, the stand alone, independent BCA is not accredited to process consents for apartment buildings above four stories as it does not hold the correct level of accreditation. As Consentium is not a territorial authority, it cannot grant a building consent on land subject to natural hazards.
[39] Concision is New Zealand's largest, most experienced off-site manufacturer of panelised and modular components for the building construction industry has a MultiProof certificate tailored for Kāinga Ora housing.

5.6. Achieving better outcomes for Kāinga Ora

This section of the discussion addresses factors that affect the efficiency of the end-to-end building consent processes and overall effectiveness for new Kāinga Ora housing, and sets out how better outcomes can be achieved.

Kāinga Ora, as owner, appeared to rely fully on the building consent process to identify and manage risk related to code compliance and delivery of all stand-alone housing. Kāinga Ora quality assurance did not include checking of design work for compliance with the New Zealand Building Code or checking that building work was of sufficient quality.

This review does not comment of the rationale for this strict separation.

Early in the review, the expert panel identified that the initial review design was limiting in that it excluded investigation of factors that the experts considered to be significant

Beyond the building consenting processes, the following actions present the greatest opportunity to improve the efficiency of building consent processes and achieve better outcomes for Kāinga Ora:

1. Reduce the size of applications for building consent
2. Reduce the time taken to respond to RFIs
3. Review the impact of Kāinga Ora procurement and project management
4. Reinforce the need to obtain and apply accurate, appropriate ground information
5. Revisit how Kāinga Ora could better use the MultiProof scheme.

Some of the commentary and recommendations in section 5.6.1 to section 5.6.5 necessarily overlap.

5.6.1. Reduce the size of applications for building consent

The findings describe the substantial size of recent applications for building consent. BCAs appeared lenient toward bulky applications, yet the expert panel struggled to navigate these documents.

Good documentation can reduce:

1. time delays and the potential for requests for information during consent approval
2. inaccuracies in prices and quotes
3. disputes between the builder and the owner/designer
4. the need for ‘extras’ (the cost of carrying out work not originally included is usually greater than that if it had been there at the start)
5. the need for amendments during construction.[40]

We expect that the designers were not the primary driver of the excessive information. However, designers can better organise their documents, and follow practice advisory documents. BCAs provide guidance on their expectations, for example, some recommend standards for naming digital files for designers to follow.[41]

The expert panel estimate that a well-organised application form and plans and specifications (for a simple building) of 10-20 per cent of the current size would be sufficient for a builder to successfully follow on site. The panel acknowledges that some of the pages in submissions for building consent contained material necessary to the BCA to determine reasonable grounds. However, there is still ample scope to remove irrelevant information, or information that is easily obtained elsewhere.

[40] BRANZ (April 2018) Bulletin: Good Plans and Specifications sets aspirational goals and BRANZ research
[41] Auckland City Council preparation guidance and naming standards.

Applications for building consent that relied on MultiProof designs were larger than the median size of applications for bespoke Kainga Ora designs observed in this review.[42]

An immediate action available to Kāinga Ora is to remove redundant information from applications for building consent; essentially to require that their contracted designers provide focussed, project-specific documents.

A second level of action would be for Kāinga Ora to find out why designers provided excessive information as agents for Kāinga Ora, when they are known to submit tighter work for other clients.

Where a BCA has written a local policy that emphasises that they may refuse to process a materially insufficient application, but does not also set expectations for a concise, well-organised application, this policy may inadvertantly contribute toward overly-large documents being submitted.[43]

As the regulatory steward, MBIE may choose to clarify for all parties:

- the purposes of plans and specifications and of building consent processes
- the overall balance point between the use of building consent processes to manage the risk to owners, to manage risk and long-term liability to the BCA, and to inform the builder during construction and the owner carrying out maintenance in the future.

5.6.2. Reduce the time taken to respond to RFIs

The time taken by Kāinga Ora agents to respond to RFIs, in particular during the building consenting process and the code compliance process was, in many cases, longer than the number of statutory days that a BCA took to process application. Establishing acceptable RFI time requirements, offers a significant time-saving opportunity for Kāinga Ora.

Time taken by Kāinga Ora and agents to respond to the BCA requests is strongly related to such matters as the quality/size of current MultiProof docs, and project management processes. These matters are set out elsewhere in this discussion.

An immediate action available to Kāinga Ora is to investigate the:

- adequacy of documentation submitted (completeness, relevance, size and navigation)
- authority and responsibility for the response (the designer for all technical matters).

5.6.3. Review the impact of Kāinga Ora procurement and project management

On the basis of documents reviewed, we suspect that the approach to procurement followed by Kāinga Ora is contributing to the type of firms that are winning contracts, and therefore to some of the inefficiencies observed in this review.

The approach to contracting would suggest that, especially under the MultiProof scheme where most of the design work is already done, the architect contracted by Kāinga Ora does not hold the vision for the building, and is more of a collator of design documents. We suggest that this approach:

- increases the number of requests for information as sometimes simple errors had not been picked up at a pre-submission quality check, and at others, more fundamental work in relation to geotechnical assessment was not included when it normally would have been
- increases the time taken for RFI responses by the designer.

[42] Refer to 5.6.4 for discussion on MultiProof.

[43] Refusing a consent application on assessment prior to processing.

Construction monitoring by engineers has a cost, but delivers benefits in the longer term. Currently the level of construction monitoring for buildings is light.

When the builder (head contractor) has sub-contractors and labour only workers on site, it was not clear who was providing oversight of the project, particularly regarding the integration of work completed by different sub-trades. The quality of work done by project managers was variable.

An immediate action available to Kāinga Ora is to consider providing more holistic quality assurance by including building consent requirements in addition to Homestar checks. This could include checks that current suppliers are submitting correct and easily processed applications for building consent, and to check how well the builder and project manager are controlling the building work ahead of inspections by the BCA.

A second level of action would be for Kāinga Ora to set clearer expectations at the procurement stage, for example by:

- setting responsibilities for obtaining and using geotechnical and hazard information
- setting expectations for construction monitoring by engineers and supervision by architects
- getting the right supplier (and project manager) for the complexity and scale of the work - focus on obtaining contractors with the right skillset who are able to maintain a clear chain of command to mitigate any issues around inexperience and lack of clarity for builders and tradespeople onsite.

5.6.4. Reinforce the need to obtain and apply accurate, appropriate ground information

There were several sites were substantial delays in construction resulted from inadequate collection and or communication of site information. As a result, variations or amendments to the consent were required, such as a change to the type of foundation used. Kāinga Ora may need to exert greater central control to manage this issue, while ensuring it is not a drag on efficiency.

An immediate action available to Kāinga Ora is to emphasise the roles and responsibilities, and the chain of command, particularly between ground work contractors and designers.

A second level of action would be for Kāinga Ora to set responsibilities for obtaining and using geotechnical and hazard information in procurement documents and/or to set correct foundation design as a success criteria for contracted design services.

5.6.5. Revisit how Kāinga Ora could better use MultiProof.

The MultiProof scheme has the potential to deliver consenting-related efficiencies for Kāinga Ora.

Kāinga Ora also uses MultiProof to address matters unrelated to streamlining consenting.

Kāinga Ora includes MultiProof designs with some tender documents as an initial, rather than the final design. Some Kāinga Ora MultiProof certificates have a performance-based specification to allow for potential issues with local supply of materials, and to not favour one supplier or brand over another.[44]

The current approach has not delivered streamlined consenting, in part because the building consent submissions had not been tailored to include only the variations for the particular building

[44] Any brand of product can be used so long as it will meet the performance specification.

and building site. Understandably, the 1000-page applications for building consent did not get a ten-day turn-around at the BCA.

Our review of processing documents raised concerns about the extent to which the rules around use of MultiProof certified designs were understood by Kāinga Ora and their contracted designers. Designers contracted to Kāinga Ora appeared to show a lack of ownership of a MultiProof design and were often not deleting irrelevant material. The BCAs, and sometimes the builders, were then left to decide which variation should be consented, and consequently built.

An immediate action available to Kāinga Ora is to improve the delivery of, and communication about, building consent documents that rely on a MultiProof certificate (in particular those with performance-based specifications).

A second level of action would be for Kāinga Ora to use the findings of this review to inform preparation of substantially more streamlined certificates and simplified documents, and to use these certificates effectively to streamline consenting and reduce costs.

6. Conclusion

This conclusion sets out messages to the Minister from the independent expert panel commissioned by the Ministry of Business, Innovation & Employment (MBIE).

Our conclusion is based on our observations of consenting documents provided by the building consent authorities (BCAs), as well as data extracted from these documents, and information provided by MBIE and Kāinga Ora – Homes and Communities. As our review did not include the brief to designers or quality assurance by Kāinga Ora, we had little evidence on which base any comment on the quality control work done by Kāinga Ora.

This review identified that efficiency is potentially constrained by decisions made by Kāinga Ora, monitoring by central government, and the settings of local policies developed by BCAs. Further investigation is needed to identify specific drivers affecting end-to-end building consenting.

Future reform in practice, rather than additional regulation, may be the better way to support the social outcomes sought by Kāinga Ora for new public housing built on Crown land.

The conclusion firstly identifies where the building consenting processes were working well enough, and secondly sets out areas for further attention to improve efficiency for Kāinga Ora consenting.

6.1. Areas working well enough

Based on the evidence reviewed, the expert panel considers that the building consent processes were not a significant constraint on the construction of new Kāinga Ora public housing, and that the building consent processes are fit for purpose if people use them properly.

Broadly speaking, the actions of building control officials in applying consent processes were appropriate. Overall, BCAs were doing more than is necessary to meet their minimum requirements.

6.2. Areas for further attention

Our review, albeit limited, found that the most critical issues affecting efficiency predominantly sat outside the building consenting processes, and that these issues influenced the work produced by the contracted designers, builders and building control officers.

The following actions present the greatest opportunity to improve the efficiency of building consent processes for new Kāinga Ora public housing built on Crown land:

1. Reduce the size of applications for building consent
2. Reduce the time taken to respond to requests for information (RFI)
3. Review the impact of Kāinga Ora procurement and project management
4. Reinforce the need to obtain and apply accurate, appropriate ground information
5. Revisit how Kāinga Ora could better use the MultiProof scheme.

Kāinga Ora is well positioned to ensure achievement of these actions and their resulting benefits.

MBIE, as regulatory steward, is best positioned to identify and investigate how the wider regulatory system, including the BCA accreditation scheme, may limit the effectiveness of building consenting processes. In particular, BCAs were accepting large, difficult to navigate applications for building consent, but have the discretion to reject them. In addition, BCAs were assigning building control officers to inspections of building work that was beyond their usual scope of expertise, but have the discretion to contract in expertise to ensure that sufficient capability and capacity are maintained.

7. Glossary

Term and link	Meaning of the term as used in this report
additional terms	An online glossary of building consent terms and abbreviations
BCA	An authority accredited and registered to assess and issue building consents
Building consent	Building consent means formal approval by a building consent authority to an owner to carry out building work under section 49. Essentially it is permission to carry out the building work in accordance with the approved plans and specifications.
Building control official	A person who performs building control functions, such as processing building consents, undertaking inspections of building work, or issuing code compliance certificates.
Building work	Design, site work, and construction, alteration, demolition or removal of a building.
Code compliance certificate	A formal statement issued under section 95 of the *Building Act*, that building work carried out under a building consent complies with that building consent.
Consistency	Consistency is an indicator of best practice regulation where decision-making criteria are clear and provide certainty of process. In the building regulatory system, consistency refers to the expectation that a similarly experienced building control officer would make a similar decision on a similar building on a similar site.
Effectiveness	Effectiveness is the extent to which building regulatory processes deliver the intended outcomes and impacts.
Efficiency	Efficiency is the extent to which building regulatory processes minimise unintended consequences and undue costs and burdens.
Request for information (RFI)	A request made by a building control officer if further information is required when processing a building consent, inspection or code compliance certificate.
Reasonable grounds	Reasonable grounds mean that a reasonable person in the same circumstances would consider there was a reasonable basis for the decision.
Homestar	Homestar, run by the New Zealand Green Building Council is a national, residential rating tool to evaluate homes in terms of their warmth, as well as their health, sustainability, energy and water efficiency qualities. Kāinga Ora uses Homestar.
MultiProof certificate	National Multiple-Use Approval is issued under section 30F of the *Building Act*. It establishes that the plans and specifications to which it relates comply with the building code. It does not confer the right to carry out building work that requires a building consent. MultiProof is a trade name.
Plans and specifications	A plan is anything drawn or represented on a horizontal plane, as a map or the horizontal section of a building. See Standard NZMP 4212: 1998 Glossary of Building Terminology.
Process	A set of interrelated or interacting activities that use inputs to produce an intended output for regulated parties.

8. Appendices

8.1. Terms of Reference

Monitoring efficiency in building consenting processes: Kāinga Ora housing

This 'terms of reference' sets out purpose, scope and approach.

The building consenting system

MBIE is the policy agency responsible for the stewardship of the building consenting system. The way building consenting works for Crown-development proposals such as for Kāinga Ora housing is the same as for non-Crown proposals, and is governed by the *Building Act 2004*. The consenting process starts with design of the plans and specifications by designers (such as architects and engineers), followed by building consent, construction, quality assurance and finishes at the point of issuing a code compliance certificate.

Mandate for this review

The Minister of Building and Construction agreed in July 2020 that the Ministry of Business, Innovation and Employment (MBIE) would lead a review of the building consenting processes for housing built by Kāinga Ora, with the review report due to the Minister in mid-2021.

Purpose of the review

The purpose of the review, as set in the July 2020 report back briefing, is to:

- make an evidence-based assessment of the efficiency, effectiveness and consistency of the building consenting process for housing being developed by Kāinga Ora
- provide a valuable baseline for identifying efficiency gains delivered through greater use of MultiProof and modular components by Kāinga Ora, and in time, the efficiencies achieved by Kāinga Ora if accredited and registered as a building consent authority.

Scope of the review

This review only considers the building consenting system in relation to Kāinga Ora-led builds.

The review will assess the actions of participants in the consenting process, focusing on:

- design documentation and building consent application
- requests for information by BCAs and responses from the designers
- consent processing, including timeliness
- inspections by BCAs and build quality control by Kāinga Ora
- code compliance certificate application and processing.

The review excludes identification or investigation of any possible breach of building regulations, and will not serve as an audit of individual designers, builders or BCAs. Established processes will be followed if any life-safety issues are identified.

Approach of the review

The approach is to carry out a well-triangulated review of three evidence streams:

- Expert judgements on the consenting, inspection and completion documents for 50 recent Kāinga Ora house builds for a range of locations and building complexities.
- Detailed assessment of the documents for the 50 builds to provide baseline measures.
- Reference to published consenting and good practice advice about what is essential and desirable in the Kāinga Ora consenting work.

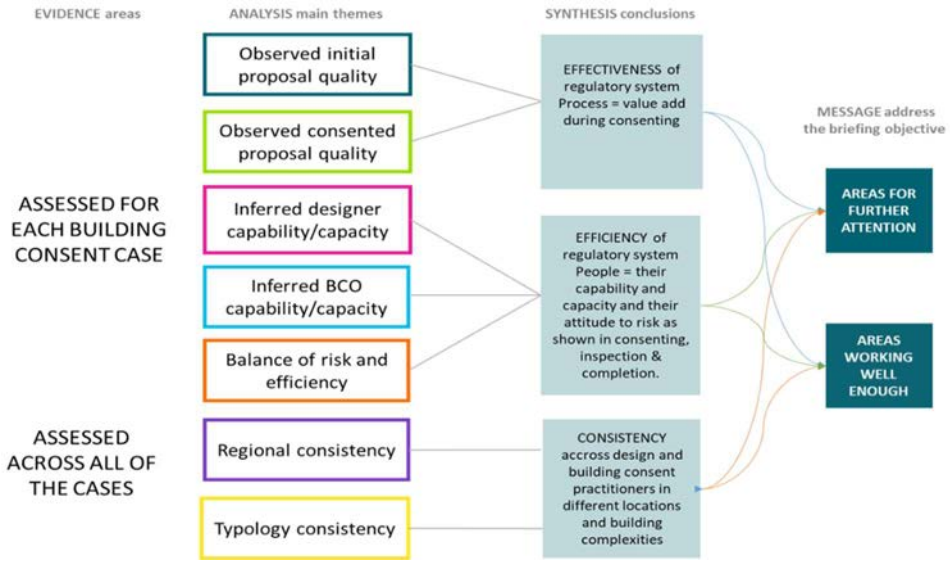
The reviewers will be highly experienced and knowledgeable in their profession. They will assess in pairs (one consenting and one design expert) that attend combined workshops to agree findings.

The indicative sample frame (below) is the basis to select 50 recent Kāinga Ora building projects at three points in the building consent process (design and consent, build and inspect, and completion) across four settings of location and building complexity. The final number of Kāinga Ora building projects reviewed will be sufficient in number and spread to identify main themes.

Stage	Residential 1 in towns or suburbs	Residential 2 in towns	Residential 2 in cities	Residential 3 and higher in cities
Design & consent	5	3	3	5
Build & inspect	5	3-4	3-4	5
Completion	5	3-4	3-4	5

Key synthesis questions and diagram

1. What major design, build and consenting practices affect efficiency and effectiveness?
2. What, if any, systematic capability issues exist in the end-to-end consenting process?
3. What level of consistency was evident across urban area size and building complexity?



Approval and contact

21 September 2020 Manager, System Strategy and Performance, Building System Performance.
For further information: info@building.govt.nz

8.2. Members of the expert panel

Ron Pynenburg	Ron is the founding Director of Pynenburg & Collins Architects Limited and is a registered architect. He has nearly 40 years of experience in commercial, community, off-the-grid, and residential architectural design. He has designed projects in some of New Zealand's most extreme environments, from Department of Conservation buildings to facilities at Scott Base in Antarctica. Alongside these building projects he has built expertise in the Building Act, New Zealand building code compliance and accessibility provisions. He regularly consults to both government and private clients on these matters as well as acting as an expert witness and providing training seminars on these matters.
Rob Tierney	Rob has over 30 years of building industry experience, including over eight years with Wellington City Council. He is currently the CEO/Principal of Farsight NZ LP. He has assisted multiple local authorities in New Zealand. He also worked with the Department of Building and Housing, which became part of MBIE in July 2012, on the development of a risk-based consenting system. In 2011, Rob was the consenting stream leader for Wellington City Council during the Rugby World Cup. Rob was the technical Chair of Building Officials Institute of New Zealand.
Mike Cox	Mike has over 30 years of experience in the building industry. He is currently a Senior Technical Building Specialist at Farsight NZ LP. He was a senior advisor at MBIE, where he provided advice to BCAs and fire engineers on fire safety and Building Act matters. He also facilitated workshops and presentations, authored design guides for specialist buildings and restructured the acceptable solutions and verification methods for New Zealand building code clauses regarding fire safety when he worked for MBIE. Prior to MBIE, he was a team leader consenting at Wellington City Council.
Martin Pratchett	Martin Pratchett is the Engineering Practice Manager for Engineering New Zealand. His role at Engineering New Zealand entails working with the engineering industry as well as local and central government to ascertain current and future issues in the profession and then work to resolve those issues. Prior to Engineering New Zealand, he worked as a structural engineer for a small consultancy firm in Lower Hutt.

8.3. Intervention logic for the regulation of buildings

Figure 6 Intervention logic summary diagram