

AN EXPLORATORY EVALUATION OF A NEW RISK-BASED INSPECTION SCHEME

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Government passes laws both through statute and regulation to protect people. The Building Act is one of such government regulation that obligatorily requires buildings be designed and constructed for safety, health, development, and the safeguarding of people from possible injury. In 2010, the New Zealand Government proposed a new control regime to streamline building proposal approval by introducing risk-based inspections, where inspection were circumvented in terms of risk for certain types of building works. Risk-based inspection is generally seen as accelerating the process of building approvals, therefore allowing contractors to manage their project time without a bottleneck of regulatory inspections. The study offers a preliminary evaluation of the effectiveness of this newly-introduced building inspection scheme. The larger study programme on which this paper is based gathered the perceptions of building control practitioners. Data was also collected through a questionnaire survey to homeowners/agents of completed homes. This could improve the institution of this new scheme. This paper puts this larger study into perspective for the New Zealand construction industry and academia. It finds that risk-based building inspections will likely accelerate the building process, but can only flourish if licenced building practitioners provide a quality product and stand by their work.

Keywords: New Zealand, Risk-based building inspections, Licensed building practitioners, Consent process.

1 INTRODUCTION

Building regulations in New Zealand have gone through some very dramatic changes in the past decade, mainly due to government's reaction to the so-called leaky-building crisis between 2002 and 2004. In August 2009, the Government announced a review of the Building Act of 2004 to investigate how the Act could be updated to minimize the cost of compliance without compromising the quality of building and construction (Williamson 2010). The Government's objectives were:

- Quality homes and buildings produced through a business – enabling an efficient regulatory framework,
- A regulatory system that is administered in an efficient and cost-effective manner.

The review found that there were weaknesses in certain parts of the system, such as consumer protection and systemic imbalance. The current regulatory setting has resulted in an unduly low tolerance for risk, with a strong emphasis on central and local

government protecting homeowners from the risks of building defects and failures (DBH 2010). The issues identified by the review were problems with ensuring proper responsibility allocation, undue reliance on building consent authorities, and fragmented administration of the building control system. The findings in the review have led to amendments in the Building Act of 2004 being proposed and eventually implemented in 2010, 2012 and 2013. The amendments were also occasioned by the shortage of building stock experienced in Auckland and Christchurch (exacerbated by the 2011 and 2012 earthquakes). These events have major implications on Building Control Authorities as there is evidence that inspection services already contribute to bottlenecks (DBH 2012).

Prolonging building timeframes can result in a number of unexpected costs. For example, delays in construction could cause delays in progress payments, which could lead to late payment penalties and interest incurred on debt. Labor costs could increase, due to increased inspections, and longer building timeframes causing poor use of subcontractors' time. Delays could also expose developers to the risk of contract disputes due to late delivery. The Government alludes to a national building shortage crisis that needs to be proactively addressed (MBIE 2013). However, there is significant and justifiable concern that an increased volume of building linked with a decrease in inspectorate hours on site would result in another mass failure in building quality in New Zealand (DBH 2005). For example, an increase in volume inevitably draws in less-skilled labour, hence the need for experienced/competent inspectors gets greater not smaller in boom times.

A haunting example of mass failure was evident in the leaky-building crisis (May 2003). On 18th February 2002, the Building Industry Authority (BIA) appointed a Weathertightness Overview Group to inquire into the weathertightness of buildings in New Zealand (Hunn *et al.* 2002). The group found that during testing periods, building regulators become more risk-adverse and increased their regulatory functions to reflect this. Building Consent regulators therefore increased their procedures and processes evidently increasing their time spent reviewing building code aspects. Inspection types have also increased in conjunction with time on-site for building inspectors, and more frequent inspection during construction.

Experience from overseas building-control bodies (DCLG 2012a, 2012b) and the Orlando housing project (York 1991), where risk-based inspection and Contractor Quality Assurance programmes focus inspectorate efforts where needed, suggests that gains in construction time are possible without diminishing building quality. This research found that the scheme provides building regulators a tool to accelerate building processes without compromising cost and quality. This provides a blueprint for the adoption of risk-based building inspections as a regulatory tool in accelerating building processes, forecast to grow worldwide through 2020 (Betts 2009).

2 LITERATURE REVIEW

2.1 Moving to a More Balanced Approach to Building Regulatory Control

Government passes laws both through statute and regulation to protect people. New Zealand's Building Act of 2004, for example, states that buildings are designed and constructed for safety, health, and development without injury. The Government

recently announced their proposed amendments to the Act: We want competent building professionals and trades-people to be able to get on with building without unnecessary costs and delays. We want the amount of council oversight to be related to the risk and complexity of the building work and the skills of the people doing the work. And we want consumers to be confident that the people building their home will do the job well and stand behind their work. (Williamson 2010)

Current consenting practice results in higher than necessary costs. A common issue raised during the review is that the number of inspections during the course of construction is excessive in the case of simple buildings (DBH 2010). In November 2010, a Bill in Parliament proposed changes to make accountabilities clearer, and provide for a risk-based building consent system. The Bill argues that demand for houses per year outstrips what New Zealand's building industry and systems can currently sustain. For example, Auckland's population is projected to grow to between 2.2 and 2.5 million over the next 30 years, thus around 400,000 additional dwellings will be required by 2040. Consequently, at least 13,000 additional houses would have to be built annually. Auckland already has a shortfall of about 10,000 homes, and current levels of house building are less than half the volume required. At present, only 5,000 consents for new homes are issued per year in Auckland, and not all these are necessarily built (Auckland Council 2013). In New Zealand as a whole, only about 24,000 houses are built each year. Further, the rebuilding of Christchurch is anticipated to take up a large part of national construction capacity, with the affected councils expected to struggle with compliance requests (MBIE 2013). If streamlining could address these inspection bottlenecks, it is projected that the demand vs. supply shortfall would improve on the new dwelling consents issued in 2012 for two of New Zealand largest and developing cities (16,929 consents, with Auckland at 4,582 and Canterbury at 4,037), thereby addressing Auckland's shortfall of 13,000 houses a year in accordance with their 2013 Auckland Plan (Statistics New Zealand 2012).

2.2 Risk-Based Inspection

Black and Baldwin (2010) have argued that risk-based regulation has achieved broad acceptance within many governments and regulatory organizations. Risk-based inspections are an established practice in a number of areas of UK health, safety, and environmental enforcement. Examples are found in the enforcement of food safety, fire safety, environmental pollution and occupational health and safety (DCLG 2012a, 2012b). In each case, the frequency of inspection and associated enforcement actions are based on a combination of the risks posed by the activity and the standard of management. At its simplest, Rothstein *et al.* (2006) conceives risk-based regulation as assigning resources in proportion to risks to society (such as health, safety, or environmental risks), considering both the impacts themselves and the likelihood that they happen, in order to establish appropriate levels of control. The Department of Building and Housing, New Zealand, envisages striking a better balance between regulation and risk, so building consent authority's oversight and control of building work is in proportion to the risks and consequences of failure, and the skills and capability of the people involved (DBH 2010).

Currently, a majority of building projects are required to go through a standard process of applying and being granted building consents, undergoing building

inspection by building consent authorities at various stages during construction and application, and obtaining a code compliance certificate on completion of work consented. The adoption of risk-based approaches is anticipated to streamline the process for low-risk applications, and would see Licensed Building Practitioners taking responsibility for acknowledging that plans and construction comply with building codes. Under the new arrangement, building consent authorities would continue to inspect critical construction stages. This approach is based on the principle that competent and capable building practitioners can design and construct simple buildings without the level of third-party oversight that is currently applied. The inspection process is typically viewed by inspectors and homebuilders as a form of quality control (May and Wood 2003).

3 THE RESEARCH

3.1 Research Questions

The literature review provided an in-depth analysis into the New Zealand building controls dilemma during the rebuilding of its cities after natural disasters, and the impending population growth of its largest city. It explored the concept of a process review of risk based as an alternative to resourcing building officials. This provided the benefit of minimizing time and cost without undermining quality. This process also came with a caution, as past dramatic regulatory changes have led to drastic results in the leaky-building crisis. Overseas research also showed an imbalance in regulatory functions, occasioning regulatory changes using risk-based inspections. The review concluded that there is a need to examine risk-based inspection as a regulatory tool in New Zealand. Thus the following research objectives are suggested:

- (1) Understanding the impact of reduced regulatory intervention in building construction and any effect on performance.
- (2) Validating the research findings through experts in the New Zealand construction industry.

3.2 Research Methodology

This research was undertaken to gain insights into the general nature of the risk-based scheme as a regulatory tool. It was not geared toward developing precise statistical projections or descriptions, but rather to evaluate the-risk based scheme through regulatory building practitioners and to identify any relevant issues. The main form of data collection was semi-structured interviews with building control practitioners in New Zealand. Deliberate area sampling of large Building Consent Authorities throughout New Zealand (Auckland, Hamilton, Wellington, and Christchurch) for this survey not only covered the majority of the population but also the geographic makeup of the country.

The second approach was to pilot risk-based inspection through Auckland Council Building Controls, as this is the largest council in New Zealand, and had previously represented seven regional councils before its amalgamation in 2010. Interviewee variety is essential to the quality of data sourced in qualitative research, therefore all participants that will be engaged for future research will have a practical understanding

of regulatory building inspections. Adopting a semi-structured questionnaire will provide flexibility during interviews to clarify questions as practitioners elaborate further on their responses. All interviews will be recorded and transcribed verbatim, then analysed through the use of qualitative-analysis software package, NViVo. This will be followed by questionnaire surveys directed to builders, designers and homeowners of their experiences with the risk-based inspection scheme. The research findings will be validated using the data gathered through interviews and survey participants.

4 CONCLUSION

This study finds that the new building inspection scheme could provide building regulators a tool to accelerate building processes. The fact that the scheme is risk-based may mean that inspections could be carried out without compromising cost and quality. In situations where resources are stretched, and the pool of competent talent is lacking, the new scheme also provides regulatory teams a useful tool. If there is one message to take out of the so-called leaky-building crisis, it is that there is a colossal price to pay if regulators do not deal adequately with the challenges discussed in this paper, notably the shift in balance of regulatory oversight. The conclusion of the current study programme should provide a blueprint for the adoption of the risk-based building inspections as a regulatory tool in accelerating building processes.

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