



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Building and Energy



Reforms to the building approval process for single residential buildings in Western Australia

Consultation Regulatory Impact Statement

September 2019

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Glossary

The following is a summary of key terms frequently used in this document. The definitions listed apply unless otherwise indicated.

BCA	Building Code of Australia, which forms part of the NCC.
BMF	Building Ministers' Forum.
BSB	Building Services Board, established under section 65 of the BSR Act.
BSL	Building Services Levy
BSR Act	<i>Building Services (Registration) Act 2011 (WA)</i> .
builder	A person (natural or body corporate) registered under the BSR Act to contract for the carrying out of builder work.
Building Act	<i>Building Act 2011 (WA)</i> .
Building and Energy	Department of Mines, Industry Regulation and Safety – Building and Energy Division (merger of the former Building Commission and EnergySafety).
Building approval	Means the process of applying for and granting a building or demolition permit in WA.
Building Commissioner	Statutory office created under section 85 of the <i>Building Services (Complaint Resolution and Administration) Act 2011 (WA)</i> .
Building Confidence Report	A report by Professor Peter Shergold AC and Ms Bronwyn Weir titled, 'Building Confidence: improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia,' (February 2018)
Building permit	A permit granted under section 20 of the Building Act that authorises the carrying out of building work.
Building Regulations	Building Regulations 2012 (WA)
Building surveyor	A person (natural or body corporate) registered under the BSR Act to contract for the carrying out of building surveyor work.
CDC	Certificate of Design Compliance.
Certifier	Statutory function performed by a building surveyor under a full private certification model as proposed in Part 5.2 of this CRIS.
Class 1a building	A single dwelling, being a detached house, or one or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit.
CRIS	Consultation Regulatory Impact Statement (this document)

Government	The Government of Western Australia
LGA	Local Government Authority, including a local council or municipal body.
NCC	National Construction Code
Permit authority	Means a permit authority for a building or incidental structure in WA as defined in section 6 of the Building Act.
R-Codes	State Planning Policy 3.1 – Residential Design Codes
Regulatory Mapping Report	A report by the Economic Policy Division of the Western Australian Department of Treasury, titled, 'Making it easier to build and renovate a single residential dwelling' (September 2017)
RIA	Regulatory Impact Assessment
Single residential buildings	Means a Class 1a building as defined in the BCA.
WA	Western Australia

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About this paper

1.1 Purpose of this CRIS

In the lead-up to the March 2017 State election, the Government made a commitment to consider full private certification of building approvals for single residential buildings in WA to reduce the regulatory burden.¹

The Government has also since given its in-principle agreement to implement the recommendations of the February 2018 report titled, *Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia* (the Building Confidence Report) commissioned from Professor Peter Shergold and Ms Bronwyn Weir by the Building Ministers' Forum².

In addition, the Government has also noted the findings of a 2018 inquiry into non-conforming building products conducted by the Senate Economics References Committee of the Parliament of Australia.

The purpose of this CRIS is to seek comment from stakeholders on options for reform that will deliver on the Government's commitments and ensure that the regulatory framework for building and construction in WA continues to deliver the desired outcomes for all Western Australians.

1.1.1 Why is a CRIS needed?

Policy proposals that may result in new or amending legislation must undergo a regulatory impact assessment (RIA) in accordance with the principles set out in the Department of Treasury's *Regulatory Impact Assessment Guidelines for Western Australia* (2010).

The RIA process helps develop efficient and effective regulation that addresses a clear need in the community. It also provides an assurance to government and stakeholders that a proper assessment of options, including consultation with stakeholders, has occurred.

A CRIS is a key part of the RIA process and seeks to identify options and assess the respective costs and benefits of those options.

1.1.2 What does this CRIS cover?

This CRIS focuses only on the building approvals process for single residential buildings.

The approval process for other types of buildings, including those in Classes 2 to 9 of the National Construction Code (NCC), is being examined as part of a separate review and will be the subject of a separate CRIS due to be published later in 2019.

¹ West Australian, 'Election day – either way private certification happens' (11 March 2017) <<https://thewest.com.au/lifestyle/new-homes/election-day-either-way-private-certification-happens-ng-b88413739z>>

² Australian Government, Department of Industry, Innovation and Science, 'Building Ministers' Forum Communique' (April 2018); Building Ministers' Forum, 'Building Confidence Report: Implementation Plan', (March 2019), 17.

1.2 How to have your say

1.2.1 Making a submission

A number of questions are included throughout the CRIS. These questions are aimed at making it easier for stakeholders to make a submission. It is not expected that all respondents will consider all questions and options. Please feel free to focus on the areas that are important and relevant to you.

There is no specified format for submissions or responses. You are welcome to:

- write a letter outlining your views; or
- respond specifically to the questions included in the CRIS by completing the template on the Building and Energy website at <https://www.commerce.wa.gov.au/publications/reforms-building-approval-process-single-residential-buildings-wa-cris>

You are also welcome to suggest alternative options for addressing matters of concern to you. It would be helpful if you could include the reasons behind your suggestions as this will help the Government to better understand your viewpoint and will also assist in identifying the most suitable options for reform.

Importantly, we strongly welcome feedback from stakeholders on the potential costs and benefits of the various options.

Written submissions or letters can be emailed to BuildingReview@dmirs.wa.gov.au or posted in hard copy to the following address:



Attn: Building Approval Review Team

Policy and Legislation Branch
Building and Energy
Department of Mines, Industry Regulation and Safety
Locked Bag 100
EAST PERTH WA 6892

When making your submission, please let us know which part of the building industry you are from. For example, whether you are a builder, homeowner, building professional, or industry body.

Closing date

The closing date for providing comments on this CRIS is **Monday 9 December 2019**.

How your input will be used

The Government will carefully consider all the information gathered through this consultation process and will publish a Decision Regulatory Impact Statement outlining its final policy position.

Information provided may become public

After the period for comment concludes, all responses received may be made publicly available on Building and Energy's website. Please note that as your feedback forms part of a public consultation process, the Government may quote from your comments in future publications. If you would prefer for your name to remain confidential, please indicate this in your submission. As all submissions made in response to this paper will be subject to freedom of information requests, please do not include any personal or confidential information that you do not wish to become available to the public.

2 Background

2.1 Building and construction industry

The building and construction industry is an important economic and social driver in WA. It employs around 11 per cent of the WA workforce, and in 2017-18 contributed \$21.1 billion to the State's gross value added figure.³

Broadly, the industry comprises the three key sectors of residential building; commercial building; and infrastructure and engineering construction. The key characteristics of these sectors are described below.



Residential building

The residential building industry includes land development, home construction, home renovations and low/medium density housing. It comprises a diversity of participants, including volume builders, small to medium builders, renovators, residential developers, trade contractors, product manufacturers and suppliers and consultants.



Commercial building

The commercial sector of the building and construction industry covers buildings for commercial and community use, such as offices, schools, multi-use developments, shopping centres, hospitals, restaurants, factories, warehouses and public buildings.



Infrastructure and engineering construction

This sector of the industry delivers small to large scale projects – often involving a significant level of complexity, including public transport, pipelines, bridges, roads, highways and mining infrastructure.

In 2012, the building and construction industry in WA underwent significant reform with the implementation of the *Building Act 2011 (WA)* (the Building Act). This new legislation introduced a consolidated framework for prescribing design, construction and maintenance standards; approving building proposals; and certifying compliance with the relevant building standards and codes.

³ Government of Western Australia, Department of Jobs, Tourism, Science and Innovation. 'Western Australia Economic Profile' (January 2019).

2.2 Residential building sector

The residential sector is a key component of the building and construction industry. The greatest number of WA building businesses operate in the residential sector and it employs a significant portion of WA's construction workforce.

The residential building sector is also the part of the industry that most members of the community will come into contact with at some point in their lives. Building a new home or renovating an existing property is often one of the largest and most important decisions a person will make.

In WA, the residential building sector is a highly concentrated market, dominated by a number of large-volume home builders. These businesses are able to enjoy economies of scale in the purchase of supplies and materials by offering a set of standardised plans that are built over and over again. Approximately 70 per cent of the total number of single residential builds each year in WA are completed by volume home builders. This differs markedly from other Australian jurisdictions where smaller builders carry out the majority of the residential building works as developer/builders who market completed houses in new subdivisions.

The building and construction industry is cyclical in nature, experiencing periods of boom and bust. This is more pronounced in the residential building sector where changes in population can have a dramatic impact on the demand for services.

In WA, the reduced level of net migration over the last 3-5 years due to the downturn in the economy has had a significant flow-on effect on demand in the residential building sector. In 2017-18, the number of new single residential building approvals was 13,552, down from a high of 23,609 in 2014-15. The downward trend is expected to bottom out in 2018-19 at 12,590.⁴

2.3 Role of regulation in the residential building sector

One area of complexity for the building and construction industry is the nature of the market in which it operates. In a perfect market, all consumers have adequate information on which to make purchase decisions. They also have sufficient knowledge to understand the information available, and sufficient experience to be able to judge which product offers best value.

However, in the building and construction industry, particularly the residential building sector, there is a significant level of information asymmetry. That is, there is often a large knowledge gap between buyers and sellers. This is due to the lack of detailed information for adequate comparison, a lack of technical knowledge on the part of the buyer, and the buyer's irregular participation in the sector.

Government regulation seeks to address these complexities and provide protection both to the community and the individual consumer. The current building regulatory framework in WA does this in two ways:

1. **Building approvals process:** The Building Act requires all proposed buildings (including single residential buildings) to be approved as being compliant with minimum prescribed building standards, including the NCC, before work commences. This is achieved through the building permit process. The responsibility for granting building permits rests with 'permit authorities', which in most cases is the local government authority (LGA) in whose geographic boundary the proposed building will be built.
2. **Registration of certain building professionals:** The *Building Services (Registration) Act 2011* (WA) (the BSR Act) establishes a requirement for builders and building surveyors (among others), to be registered as 'building service providers'. A person registered as a building service provider must meet minimum levels of competence to be registered to carry out a building service.

⁴ BIS Oxford Economics, 'Building in Australia: 2018-2033 – December 2018 Update', 9.

The building control process heavily influences the quality, safety and cost of building work. Buildings must be designed, constructed and maintained in a way that meets minimum standards, delivers reasonable community and consumer expectations of performance and sustainability, and contributes to the State's economy.

3

Overview of the building approvals process in WA

3.1 Building standards

Under the *Commonwealth Constitution*, responsibility for building and construction rests with states and territories. However, since at least 1997, all jurisdictions, including WA, have adopted a consistent set of building standards through the Building Code of Australia (BCA).

Following agreement by the Council of Australian Governments, the BCA was consolidated into the NCC and has since been adopted by all states and territories as the primary technical standard for building work.

Rather than prescribe how a building must be constructed, the NCC prescribes 'performance requirements' for the safety, health, amenity and sustainability in the design, construction and livability of new buildings (and new building work in existing buildings). A performance requirement can be satisfied through the use of a deemed-to-satisfy solution, a performance solution (once known as an alternative solution), or a combination of both.

A deemed-to-satisfy solution is one that follows the prescriptive requirements contained in the NCC. These requirements may cover the materials, components and/or construction methods that are to be used, and the design factors that are to be considered.

A performance solution is any solution other than a deemed-to-satisfy solution that satisfies the performance requirements of the BCA.

Deemed-to-satisfy solutions are typically the 'time proven' methods of construction that are known to produce an acceptable outcome. Such methods may, however, prove to be inefficient or come with other intrinsic limitations. By contrast, performance solutions are flexible and allow for the development of innovative construction methods and products.

In WA, all building work resulting in a new building or alterations to an existing building (apart from very minor works) must meet the requirements of the NCC.

Compliance with the NCC is assessed as part of the building approvals process.

3.2 Building approvals process in WA - historical perspective

Prior to 2011, the building approvals process in WA was prescribed under various parts of the *Local Government (Miscellaneous Provisions) Act 1960*, and the Building Regulations 1989.

The administration of all aspects of the process, including the assessment of compliance of a proposed building with relevant building standards (referred to as 'certification') was performed exclusively by LGAs. A brief overview of the historic building approvals process is set out below.

3.2.1 Building licences

A building licence was required from a LGA if a person wished to:

- lay out land for building;
- commence or proceed with a building; or
- make any alterations to the structure of an existing building.⁵

⁵ *Local Government (Miscellaneous Provisions) Act 1960*, s. 374.

An application to a LGA for a building licence was required to be in the prescribed form (a Form 2 Application for Building Licence)⁶ and be accompanied by the building specifications and plans.⁷ The specifications and plans were required to show:

- the building or buildings proposed to be built, or the amendment, alteration, extension, or enlargement proposed to be made;
- the area of land to be occupied by each building, or by the amendment, alteration, extension or enlargement of the existing building; and
- the location of the sanitary drainage.⁸

A further breakdown of the particulars required for the purposes of the specifications and plans was outlined in the Building Regulations 1989. This included the building details, block details, performance levels and requirements, compliance with provisions of the BCA, cost estimate of the proposed works, and evidence of compliance of building products with the BCA.⁹

3.2.2 Certification function

In processing an application for a building licence, the certification function of the LGA was carried out to the requirements of the BCA.¹⁰ The LGA was also required under the legislation to employ a municipal building surveyor. The municipal building surveyor was required to examine all plans, drawings and specifications deposited with the LGA.

Where the building surveyor considered that insufficient information had been provided by the applicant, the surveyor could return it for amendment.¹¹ In such cases, the drawings and specifications would be treated as not having been deposited with the building surveyor until re-submitted by the applicant.¹² If the building surveyor approved the plans and specifications, he or she was required to stamp them with an official stamp showing the number of the approval and the date it was given.¹³

The standard processing timeframe for an application for a building licence was 35 days, or in the case of land to which the *Heritage of Western Australia Act 1990* applied, 60 days.¹⁴ However, if the LGA had not, within these timeframes, advised the applicant whether it had approved the specification and plan, the applicant could serve on the chief executive officer of the LGA a written notice requiring the local government to notify them of the outcome within 14 days.¹⁵ If the chief executive officer failed to notify the person of the outcome, the application would be deemed to be refused.¹⁶

3.3 Building approval process in WA – current situation

In November 2011, an extensive building reform package was introduced into the WA Parliament. The package comprised the Building Bill 2010 (Building Bill), together with three related building services bills covering builder registration, the building services levy, and building complaint resolution. Collectively, they were described by the then Minister for Commerce, the Hon Bill Marmion MLA, as representing “*the most significant reform to building regulation in Western Australia in 50 years*”.¹⁷

⁶ Ibid; Building Regulations 1989, r. 10(2).

⁷ *Local Government (Miscellaneous Provisions) Act 1960*, s. 374.

⁸ Ibid.

⁹ Building Regulations 1989, r.11.

¹⁰ Building Regulations 1989, r. 5(1).

¹¹ Building Regulations 1989, r. 15.

¹² Ibid.

¹³ Building Regulations 1989, r. 13.

¹⁴ *Local Government (Miscellaneous Provisions) Act 1960*, s. 374(2a) and (6).

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Minister for Commerce, Hansard – Legislative Assembly, Second Reading – Building Bill 2010, p.8493b.

A number of reasons for introducing the Building Bill were given in the Second Reading Speech, but the main rationale was to reduce delays in the building approvals process by enabling certification by a private building surveyor. This was outlined in the following terms:

“Efficient processes are critical, and delays in approvals must be eliminated. Innovation is essential in improving our living standards and growing our economy. The Building Bill 2010 plays a central role in facilitating these outcomes...”

The philosophy that underpins the Building Bill is to encourage and empower qualified people to do things right the first time, rather than to build a series of hurdles along each step of the way. The bill does not restrict who can design a building, but it requires a qualified building surveyor to certify that the building complies with building standards. The bill allows building surveyors to work in private practice or local government, and to work alongside the design team, exploring options and confirming compliance as the design progresses. This will encourage innovation in building design and get the best value from performance-based standards in the Building Code of Australia.”

Hon. Bill Marmion MLA, Legislative Assembly, Second Reading – Building Bill 2010

The Building Bill was passed and enacted as the Building Act and, together with the Building Regulations 2012, commenced operation on 2 April 2012.¹⁸ The Building Act is now the primary piece of legislation governing building approvals in WA.

3.3.1 The building approvals process

The Building Act preserves the role of LGAs as ‘permit authorities’ responsible for granting a building permit and enforcing building standards. However, a person wishing to carry out building work may, depending on the circumstances, use the services of either a private building surveyor or a building surveyor employed or engaged by a LGA (if the LGA provides a certification service in competition with private industry) to provide the NCC compliance certification. This system is colloquially referred to as a ‘partially privatised certification model’.

Under the Building Act there are two types of building permit application that may be made to a permit authority – a ‘certified’ application or an ‘uncertified’ application.

A certified application must be made for all Class 1b and Class 2 to 9 buildings. This includes hostels, multi-residential buildings, offices, shops, warehouses, hospitals and other public buildings.

For Class 1a and Class 10 buildings, that is, single residential dwellings or associated non-habitable buildings, either a certified or an uncertified application may be made.¹⁹

The major difference between a certified application and an uncertified application is that in the case of a certified application, a building surveyor engaged by the builder or owner is responsible for assessing the building plans and specifications to ensure compliance with applicable building standards, including the NCC, and for issuing a Certificate of Design Compliance (CDC). Alternatively, the CDC may be issued by a private building surveyor or one employed by a LGA providing a certification service. In the case of uncertified applications, the permit authority must arrange for a building surveyor (either private or employed by the LGA) to assess the building plans and specifications for compliance with applicable building standards.

¹⁸ WA Government Gazette 13 Mar 2012 p. 1033.

¹⁹ *Building Act*, s. 14(2); *Building Regulations*, r. 15.

3.3.2 Applying for a building permit – certified and uncertified

The common requirements both for certified and uncertified applications are that the application must:

- be made in the prescribed manner and form;
- name, and be signed by, each owner of the land on which the building or incidental structure is, or is proposed, to be located;
- name, and be signed by, the person who proposes to be named as the builder on the building permit;
- be accompanied by the plans and specifications for the building or incidental structure;
- provide prescribed information about the building or incidental structure;
- be accompanied by each technical certificate that is required to accompany the application;
- be accompanied by evidence that home indemnity insurance has been taken out (where it is required);
- be accompanied by evidence that the building services levy has been paid;
- be accompanied by the prescribed fee for the application; and
- be accompanied by other prescribed information (such as the address of the land, the contact details of the builder, and evidence that required consents have been obtained from adjoining landowners if the proposed works will affect their land).²⁰

If the application is in respect of a Class 1a (or a Class 10) building and involves the use of a performance solution as part of the build, then the details of the performance solution must also be provided.²¹

3.3.3 Certified applications

While certified applications must be made for all Class 1b and Class 2 to 9 buildings, this is optional for single residential dwellings (i.e. Class 1a buildings). Typically, however, most builders will make certified applications.

A certified application must be accompanied by the following documentation:

- a CDC signed by a building surveyor and which contains certain prescribed information;²²
- the plans and specifications that are specified in the CDC;²³ and
- a copy of each technical certificate that the building surveyor has relied on to sign the CDC.²⁴

Once the permit authority receives a certified application, it is responsible for checking that the application satisfies local planning policy and development approvals if applicable. For most single residential dwellings, this involves checking compliance with the residential zoning codes (known as the R-Codes) and any local planning schemes.

A permit authority is not obligated to rubber stamp a certified building application and may interrogate the accuracy of the CDC in cases where “it appears there is an error in the information provided for the application or in a document that accompanied the application.”²⁵

A permit authority has 10 business days to decide a certified application, or such longer period as is agreed in writing between the applicant and the permit authority.²⁶

The permit authority may require an applicant to provide (within no more than 21 days), any further information necessary to determine the application, and may require the applicant to verify the

²⁰ Building Act, s. 16; and Building Regulations 2012, r. 16.

²¹ Building Regulations, r. 16(3)(b).

²² Building Act, s. 16(e).

²³ Building Act, s. 16(f).

²⁴ Building Act, s. 16(g).

²⁵ Building Act, s. 22.

information by making a statutory declaration.²⁷ Any request for further information may only occur on a one-off basis and, once made, the timeframe for the application to be assessed is paused.²⁸

If a certified application is not processed within the required timeframe, or the agreed extension period, the application is deemed to be refused.²⁹ The permit authority must then refund the applicant the fee that accompanied the application.³⁰

The power of a permit authority to refuse to grant a building permit in respect of a certified application was considered in *Miller and City of Melville* [2012] WASAT 156, where it was held that if, for any reason, “the permit authority forms a genuine belief that there is an error as to compliance”, then the power to refuse to grant the application is enlivened.³¹

3.3.4 Uncertified applications

Uncertified applications may only be made for Class 1a and Class 10 buildings. An uncertified application must be accompanied by the plans and specifications so that they can be considered by a building surveyor employed or engaged by the relevant permit authority.³²

The major difference for an uncertified application is that in addition to checking compliance with development approval or planning requirements, the permit authority is also responsible for arranging for a building surveyor to check compliance with applicable building standards and, if appropriate, issue the CDC.

For this reason, the permit authority has 25 business days, or such longer period as may be agreed, to assess the application, rather than the 10 business days permitted for a certified application.³³ The timeframe for uncertified applications may also be extended if further information is required by the permit authority or while a development (planning) application is made and determined in parallel with the building permit application.

3.3.5 Process during construction of a single residential dwelling

Under the Building Act, once a building permit has been granted by a permit authority, the person named as the builder on the permit must ensure the works are completed in accordance with the plans and specifications specified in the CDC, and with any conditions that apply to the permit.³⁴

During construction, circumstances may arise that require a variation to be made to the plans, specifications and the CDC. This may result in the granting of a new building permit.

While requirements under the Building Act for approval of variations may be implied, there is no clear requirement or process for approval of variations. Consequently, builders do not always apply for approval, even when significant variations occur during construction. Ad-hoc arrangements are currently applied, with permit authorities using different processes and charging different fees for approving and recording variations to plans and specifications, CDCs and building permits.

For single residential dwellings, once the work is completed the builder must, within 7 days, give a notice of completion to the permit authority, together with a copy of any certificate of inspection or test.³⁵

²⁷ Building Act, s. 18(1).

²⁸ Building Act, s. 205(2).

²⁹ Building Act, s. 23(3).

³⁰ Building Act, s. 23(4).

³¹ [2012] WASAT 156 at 15.

³² Building Act, s. 16(h).

³³ Building Regulations, r. 20(1).

³⁴ Building Act, s. 29(1).

³⁵ Building Act, s. 33(2)(c).

While the Building Regulations require that certain inspections and tests be carried out for commercial buildings on completion of the installation of specified systems or at completion of the building work, no mandatory inspection and test requirements are prescribed for single residential dwellings. Although a permit authority does have powers under the Building Act to inspect the building work at any stage of construction, there is no obligation to do so. The only requirement is to carry out inspections and tests of any private swimming and spa pool safety barriers associated with a Class 1a building.³⁶

Once the notice of completion has been provided to the permit authority, the building can be occupied. Unlike for other types of buildings, there is no requirement for an occupancy permit to be issued in respect of single residential dwellings.³⁷

3.4 Building approvals process – jurisdictional comparison

Most other Australian states and territories have implemented a full private certification model for building approvals whereby LGAs and private building surveyors (often referred to as certifiers or building assessors) are empowered to grant building permits, carry out on-site inspections at certain stages, and issue compliance notices for all classes of building.

The concept of a full private certification model was first introduced in Australia in 1991 with the Model Building Act (Model Act). The Model Act was commissioned by the Australian Building Regulatory Co-ordinating Council as template legislation that could be adopted by all states and territories to facilitate best practice regulation and harmonise building regulation.

A number of major reforms were included in the Model Act, including a full private certification model whereby an owner could opt to engage a private building surveyor to certify all aspects of building requiring approval, or obtain approval facilitated by a LGA.

The Northern Territory was the first jurisdiction to adopt the majority of the Model Act provisions. The *Building Act 1993* (NT) commenced operation on 1 September 1993 and included a completely privatised system of building approval, with no involvement from LGAs.

Victoria followed suit with the *Building Act 1993* (Victorian Act) which included powers for private registered building surveyors and building surveyors employed by LGAs to certify compliance of plans and specifications with building standards;³⁸ issue building permits;³⁹ and enforce compliance during construction⁴⁰. This was explained as follows in the Second Reading Speech for the Victorian Building Bill 1993:

“The Bill introduces the option for building permits to be issued by private [building] surveyors, which will expedite the issuing of building permits. Major projects and other building projects will no longer be constrained by local council timetables as the new provision will enable private building surveyors to compete with council surveyors for business on the basis of timing and cost.”

Hon. Robert MacLellan AM, then Victorian Minister for Planning, 11 November 1993

While the Victorian Act has been amended on a number of occasions since, the role and function of private building surveyors has remained the same.

³⁶ Building Regulations, r. 27.

³⁷ Building Act, s. 41.

³⁸ *Building Act 1993* (Vic), s. 24.

³⁹ *Building Act 1993* (Vic), s. 19.

⁴⁰ *Building Act 1993* (Vic), s. 37.

Variants of the full private certification model have been adopted in New South Wales, Queensland, South Australia and the Australian Capital Territory.⁴¹ In these jurisdictions, the full private certification model applies to all classes of building, including single residential dwellings. In practice, LGAs in these jurisdictions rarely carry out a certification function. Instead, most receive and record certification documentation prepared by private building surveyors and perform enforcement and planning compliance activities where required.

Prior to 2017, Tasmania had a full private certification model similar to other jurisdictions, but this was replaced with a risk-based model following the implementation of the *Building Act 2016 (Tas)*.⁴²

Under the Tasmanian model, a building permit is not needed before commencing certain medium-risk 'notifiable building work' that does not require planning approval, including single residential dwellings. A private building surveyor is responsible for certifying compliance of plans and specifications with building standards, and for sending a Certificate of Likely Compliance to the permit authority.⁴³

Under this 'notification' variant of full private certification, the private building surveyor decides when medium-risk building work can commence. For high risk building work, including Class 2-9 buildings or a residential dwelling that requires planning approval, a private building surveyor is responsible for certifying compliance with building standards and the issuing of a Certificate of Likely Compliance.⁴⁴ A building permit must then be issued by a permit authority before work commences.⁴⁵

A key feature of the full private certification model in all jurisdictions, including the risk-based notification model for medium-risk work in Tasmania, is the requirement for the private building surveyor to carry out inspections at key milestones (known as notification events) during the build.

All jurisdictions, except South Australia, require inspections to be carried out for single residential dwellings:

- before the pouring of concrete footings or ground floor slab;
- before any covering of the structural framework; and
- once building work is complete (final inspection), but before occupancy is permitted.⁴⁶

In New South Wales and the Northern Territory, inspections of waterproofing in wet areas is also required. South Australia requires inspections of roof framing; inspections at other notification event stages may be required by the relevant council.⁴⁷

Additionally, all jurisdictions with a full private certification model prescribe, to varying degrees, a requirement for the building surveyor to formally approve the use of a performance solution and for the details to be recorded on the CDC and occupancy permit, or in some other manner.⁴⁸

⁴¹ *Environmental Planning and Assessment Act 1979* (NSW), Part 6; *Building Act 1975* (Qld); *Development Act 1993* (SA), Part 6; *Building Act 2004* (ACT), Part 3.

⁴² *Building Act 2000* (Tas) (Repealed).

⁴³ *Building Act 2016* (Tas), s.99.

⁴⁴ *Building Act 2016* (Tas), s.132.

⁴⁵ *Building Act 2016* (Tas), s.138.

⁴⁶ *Building Regulations 2018* (Vic), r.167; *Building Regulations 2006* (Qld), r.30; *Environmental Planning and Assessment Regulation 2000* (NSW), r.162A; *Building Regulations 1993* (NT), r.15A; *Building (General) Regulations 2008* (ACT), r.33; *Building Regulations 2016* (Tas), r.18.

⁴⁷ *Development Regulations 2008* (SA), r.74.

⁴⁸ *Building Regulations 2018* (Vic), r. 38; *Building Act 1975* s.26, 68A; *Environmental Planning and Assessment Regulation 2000* (NSW) r.152B (fire safety only); *Development Act 1993* (SA) s.36; *Building Act 2016* (Tas) s.132; *Building Act 1993* (NT) s.129B (disability access only); *Building (General) Regulations 2008* (ACT) r.11(1)(d).

In Victoria, Queensland, South Australia, Tasmania and the Australian Capital Territory, a formal process is also prescribed for building surveyors to approve design developments and variations that occur during the build.⁴⁹

While variations typically occur on commercial building projects where the use of 'design and construct' contracts is more common, they can also occur on single residential dwellings, particularly in the case of renovations or bespoke projects.

3.4.1 Protecting against conflicts of interest

All jurisdictions that have a full private certification model have recognised the potential for actual and perceived conflicts of interest between a private building surveyor's commercial relationship with the owner or builder, and their public function of certifying building design compliance and approving the commencement and completion of building work.

In Queensland, New South Wales, South Australia, Tasmania and the Northern Territory, building surveyors are required to comply with a code of conduct when performing building approval functions.⁵⁰ A breach of the relevant code of conduct can result in registration being cancelled or suspended.

In Victoria, the Victorian Building Authority can approve codes of conduct for registered building practitioners, including building surveyors.⁵¹ However, no code of conduct has been approved to date. In Victoria, Queensland, New South Wales, South Australia and the Australian Capital Territory, the legislation also includes provisions detailing how all or some conflicts of interest should be managed.⁵² Table 1 below provides a summary of the key components of the building approval process across the Australian states and territories.

⁴⁹ *Interpretation of Legislation Act 1984* (Vic), s.41A, *Building Act 1993* (Vic), s.30A and 30B; *Planning Act 2016* (Qld), s.78, 79, 81 and 82; *Development Act 1993* (SA) s.36; *Building Act 2016* (Tas), s.136; *Building Act 2004* (ACT), s.31-34.

⁵⁰ *Building Act 1975* (Qld), s.129; *Building Professionals Act 2005* (NSW), s.4; *Development Act 1993* (SA), s.97(3); *Occupational Licensing Act 2005* (Tas), s.53; *Building Act 1993* (NT), s.14(1)(f).

⁵¹ *Building Act 1993* (Vic), s.177-177D.

⁵² *Building Regulations 2018* (Vic), r.265; *Building Act 1975* (Qld), s.127-128; *Building Professionals Act 2005* (NSW), s.66-71; *Development Regulations 2008*, r.93B; *Building Act 2004* (ACT), s.139D.

Table 1: Jurisdictional comparison – building approvals process

	Full private certification model	Mandatory inspections	Prescribed requirement to document performance solutions	Prescribed process for approving variations to design	Code of conduct for building surveyors/certifiers
Western Australia	x	x	✓ (only commercial buildings)	x	x
Victoria	✓	✓	✓	✓	x
New South Wales	✓	✓	✓	x	✓
Queensland	✓	✓	✓	✓	✓
South Australia	✓	✓	✓	✓	✓
Tasmania	✓ (only certain types of buildings)	✓	✓	✓	✓
Northern Territory	✓	✓	✓	x	✓
Australian Capital Territory	✓	✓	✓	✓	x

4 Problem statement

Broadly, there are two major problems that have been identified with WA's current building approvals process for single residential dwellings. These are:

1. *Efficiency*, that is, does the process cause unnecessary delays and impose additional costs on industry and consumers.
2. *Effectiveness*, that is, does the process ensure buildings comply with applicable building standards and ensure the health, safety and amenity of the public.

Each of these problems is discussed further below.

4.1 Efficiency of the building approvals process in WA

During 2016, Building and Energy (Building Commission as it was then) hosted summits with key stakeholder groups to identify ways to streamline regulatory requirements for building in WA.⁵³ The key stakeholder groups included:

- peak builder/trade contractor groups;
- local governments;
- building surveyors and design professionals; and
- planning authorities and advocacy groups.

A general perception expressed by some stakeholder groups was that the current building approvals process, particularly for single residential dwellings, creates inefficiencies due to:

- inconsistent processes and planning standards applied by permit authorities in assessing applications for building permits; and
- timeframes for granting building permits under the Building Act not being met.

Although a range of measures to improve efficiency in the building approvals process were pursued following the summits⁵⁴, the same perceptions continue to persist. These inefficiencies have been reported to be acutely experienced by volume home builders who regularly interact with the building approvals process.

4.1.1 Inconsistent processes

Under the Building Act, the permit authority must not grant a building permit unless satisfied that, among other things, the applicant for the building permit has complied or is complying with each provision of a local government policy or requirement.⁵⁵

With 139 local government permit authorities in WA, inconsistency arises from applying and checking compliance with different requirements for planning, health, engineering, fire safety, the use of kerbs during construction, verge bonds and other applicable local laws.

There is also significant variability between permit authorities in dealing with other requirements under the Building Act, including the following:

- How building permit applications are assessed. For example, some permit authorities take the view that for the purposes of the Building Act an application for a building permit is lodged

⁵³ Government of Western Australia, Department of Commerce, 'Building Summit: Background Paper' (August 2016).

⁵⁴ Government of Western Australia, Department of Commerce, 'Building Summit snapshot' (August 2016).

⁵⁵ Building Act, s.20(1)(q).

when it is first submitted, while others consider the application to be lodged once a certain level of information and documentation is submitted.

- The recording of performance solutions in the CDC. Under the Building Regulations, details of each performance solution proposed to be used must be included in a building permit application for a commercial building⁵⁶, however the level of specificity required can vary across permit authorities.
- Variations from the approved plans and specifications made during the build. For example, some permit authorities require a new building permit to be granted; some simply accept amended approval documentation; and some require a staged process, with building permits issued at various stages of the build.

A builder who interacts with multiple permit authorities may therefore need to alter their business processes to meet the different requirements. Potentially, this can increase costs and reduce competitiveness.

4.1.2 Planning requirements

One of the local government policies that must be satisfied prior to the grant of a building permit for a single residential dwelling is compliance with the R-Codes. That is, the building design must be determined to comply with the local planning scheme, including the R-Codes.

The R-Codes provide a standard for the control of residential development throughout WA. In addition, the R-Codes set requirements for density and block size, and for design objectives, such as:

- types of dwellings;
- maximum plot ratio;
- minimum open space;
- maximum dwelling height;
- required boundary setbacks;
- area streetscapes; and
- access and parking.

The R-Codes are a State Planning Policy incorporated by reference into the local planning scheme of permit authorities. However, certain provisions of the R-Codes may be amended or replaced depending on the relevant local planning policy.⁵⁷

Reforms to WA's planning laws have removed the requirement for development approval for single residential dwellings that meet the deemed-to-comply requirements of the R-Codes.⁵⁸ Development approval is, however, still required for variations from the R-Codes.

While those reforms have substantially reduced the number of development approvals for single residential dwellings and the associated time delays, they are understood to have created uncertainty during the building approvals process.

Currently, there is no process to confirm if the building design meets the deemed-to-comply requirements of the R-Codes. Some permit authorities offer a voluntary service to confirm if the requirements are met, but a large portion of building permit applications are made with no certainty about whether the permit authority agrees that the design complies with the R-Codes.

⁵⁶ Building Regulations, r.16(3)(c).

⁵⁷ *Planning and Development Act 2005 (WA)*, s.26, 77 and *Planning and Development (Local Planning Schemes) Regulations 2015 (WA)*, r.25 .

⁵⁸ *Planning and Development (Local Planning Schemes) Regulations 2015 (WA)*, Schedule 2 Part 7 cl. 61.

This uncertainty means that the need to seek a development approval for a variation to the R-Codes (even if minor) may not be identified until the building permit application is assessed by the permit authority. A development approval needs to go through a full assessment (with a 60-day statutory timeframe), which can lead to building schedule delays, increasing the costs for the builder and owner.

Whilst planning requirements are outside the scope of the Building Act (and, by extension, this CRIS), they have been identified by some stakeholder groups as a major cause of frustration and inefficiency in the building approvals process. A report by the WA Department of Treasury in 2017 reached a similar conclusion, stating:

“A frequently cited impediment was a lack of clear and concise information and interpretations on the policies, laws and regulations home builders must comply with when building or renovating single residential dwellings. This can lead to incomplete applications, variable interpretations, disagreements and ultimately delays”.

Department of Treasury, Making it easier to build a single residential dwelling, September 2017 (page 4)

More recently, the Department of Planning, Lands and Heritage (DPLH) has proposed to amend WA’s planning laws to introduce a fast-track 30-day development approval for single residential dwellings, and a voluntary ‘deemed to comply’ check for single houses (with a fee for service) to provide certainty to those building or doing additions to their home.⁵⁹ If implemented, such reform may address a significant portion of stakeholder concerns.

4.1.3 Delay in the granting of building permits

Under the Building Act, a permit authority has 10 business days in which to determine the outcome of a certified application for a building permit (that is, one which includes a CDC prepared by a private building surveyor). For an uncertified application, the permit authority has 25 business days in which to determine the application. The timeframes may only be extended in circumstances where:

- the application is incomplete and further information has been requested by the permit authority;
- planning approvals need to be confirmed after the application is lodged; or
- where the applicant agrees in writing to an extension.

Where the permit authority fails to grant the building permit within the statutory timeframe or any permitted extension, the application is deemed to be refused and any fees paid must be refunded.⁶⁰

Despite the strict statutory timeframes, stakeholders reported during the 2016 building summits that permit authorities were taking longer than permitted to approve building permit applications.

Delay in the granting of building permits creates inefficiency and leads to unnecessary costs for builders and consumers. However, it is difficult to fully quantify the extent of this inefficiency.

In the period from 2011 to 2016, WA experienced a major increase in the number of single residential dwelling approvals; from 17,055 approvals in 2011 up to 23,097 in 2014 and 23,609 in 2015. The

⁵⁹ Government of Western Australia, Department of Planning, Lands and Heritage, ‘Action Plan for Planning Reform – Better planning better places’ (August 2019) page 22 <<https://www.dplh.wa.gov.au/getmedia/075dc761-ad2a-4f43-99e2-91a246bb4114/PRJ-PR-Action-Plan>>.

⁶⁰ Building Act, s23(3) and (4).

number of approvals decreased to 18,098 in 2016 and fell to 13,552 in 2018. The forecasted 5-year average for 2019-2023 is 13,838 approvals per annum.⁶¹

It could be expected (albeit not proven) that the surge in approvals from 2011 to 2016 placed high levels of demand on permit authorities and that may have led to some difficulties in meeting the statutory timeframes. Having said that, survey data collected and analysed on behalf of the Western Australian Local Government Association (WALGA) suggests otherwise.

Of 27 local governments surveyed in 2014/15, WALGA reported that 100 per cent assessed building permit applications (certified or uncertified) within the statutory timeframes. The major cause of delays identified by survey respondents was incomplete building permit applications and non-compliance with R-Codes.

“The information received in the survey demonstrates that Local Governments considered a significant volume of applications during the 2014/15 financial year and all (100%) were assessed within the timeframe required by the Building Act 2011.

Based on the survey results, a majority of the issues associated with delays experienced for building permits applications relate to the proposal requiring planning approval due to non-compliance with the R-Codes and relevant Local Government policies.

Furthermore, the issue with delays also lies with deficiencies in the information provided by the applicant.”

WALGA, Review of Building Permit Survey Responses: Independent Analysis

The findings of the WALGA review are supported by the Western Australian Auditor General's recent performance audit into local government building approvals. On 26 June 2019, the Auditor General's *Report 28: June 2018-19 on Local Government Building Approvals* (the Audit Report) was tabled in the Legislative Council. The objective of the audit was to assess how effectively local government entities regulate residential building permits using their powers as permit authorities under the Building Act.

The Auditor General audited a sample of four local government permit authorities (LPGAs) and found that they had:

- adequately assessed applications and issued nearly all permits within legislated timeframes in the period July 2016 to June 2018; and
- improved the timeliness of approvals over the last 4 financial years.

The Auditor General was, however, concerned that LPGAs *“had different approaches to when they started, paused and stopped the clock”* and that they undertook *“limited monitoring and inspections of building works”*.

While the cause of delays may be due to variable and interconnected factors, ensuring as far as practicable that unnecessary delays are avoided is important to WA's long-term economic interests.

⁶¹ Building in Australia: 2018-2033, op cit, 9.



Questions for consultation

1. Do you consider that the current approvals process under the Building Act creates unnecessary delays? If yes, please tell us why.
2. If you answered yes, what do you consider to be the primary cause of delays (e.g. planning requirements, inconsistent policies, lack of clear forms and guidance)?
3. Regardless of the reform options outlined in Chapter 5 of this CRIS, should it be mandatory to submit evidence of planning compliance from the relevant LGA (i.e. development approval, or a 'deemed to comply' check single houses) with a building permit application? Please provide reasons for your view.
4. What (if anything) could be done to ensure building permit applications contain all required information?

4.2 Effectiveness of the building approvals process in WA

The essential purpose of regulating the building industry is to ensure buildings are safe to occupy. An *effective* building approvals process is therefore one which ensures buildings comply with the applicable standards, including the NCC, and that those persons involved in carrying out the works do so in a manner that guarantees the safety, health, amenity and sustainability of the design and performance of the building.

This is not an easy task. The building and construction industry comprises many thousands of different businesses, completing billions of dollars' worth of building works. It is not possible, nor reasonable, for governments and regulators to closely monitor every project through each of its stages. Rather, the role of governments is to ensure sufficient regulatory controls and enforcement measures are in place so owners can be confident that their buildings meet applicable standards and appropriate levels of workmanship.

Internationally, the Grenfell Tower fire in London in 2017, which resulted in 72 deaths and the greatest loss of life in a residential fire in the UK in a century, placed a spotlight on ensuring effective regulatory frameworks around construction, maintenance and the ongoing use of buildings.

The subsequent independent review of the building regulatory system in the UK by Dame Judith Hackett found that a clear model of risk ownership, adequate regulatory oversight and effective enforcement tools are paramount to ensuring building safety.

“The role of regulators should be to seek assurance that standards are being adhered to throughout all stages of construction and use. It is for industry to demonstrate to the regulators that compliance with those standards is being achieved, including innovation.

Where there is failure to comply there must be more effective means of ensuring not only that the deficiencies are put right but that those who were responsible for compliance with the standards are held accountable for their failure.”

Dame Judith Hackett, Independent Review of Building Regulations and Fire Safety: Interim Report, December 2017 (page 21)

More locally, deficiencies in the effectiveness of the building approvals process has been highlighted by both the Building Confidence Report and the results of audits conducted by the Building Commissioner. This is discussed in sections 4.2.1 and 4.2.2 below.

4.2.1 Building Confidence Report

In mid-2017, Professor Peter Shergold and Ms Bronwyn Weir were asked by the BMF to undertake an assessment of the effectiveness of building approvals processes and compliance frameworks across all Australian states and territories, including WA. In February 2018 Professor Shergold and Ms Weir submitted their Building Confidence Report to the BMF.

Overall, the Building Confidence Report concluded that there are significant shortcomings in the building approvals process across all Australian states and territories in terms of ensuring effective compliance with, and enforcement of, the NCC. These shortcomings challenge the assumption the general public is entitled to hold that the buildings in which they live, work and receive services are safe.

“Without clear, visible and accountable compliance procedures, public confidence in the ability to oversee a performance-based building and construction industry will be eroded. People need to be persuaded that the NCC is being administered to a high standard. Effective implementation is crucial.”

Building Confidence Report, February 2018 (page 9).

The Building Confidence Report made 24 recommendations for improvement. The recommendations are principle-based in that they identify the general reform principles that should be applied, rather than setting out detailed prescriptive changes. This avoids a one-size-fits-all approach and allows for the recommendations to be tailored to suit the relevant state and territory regulatory frameworks.

For single residential dwellings, the Building Confidence Report identifies three major areas of reform to improve the effectiveness of the building approvals process. These are:

- ensuring the integrity of private building surveyors;
- improving the quality and adequacy of documentation and record keeping; and
- requiring on-site inspections of all building works.

Each of these reform areas is discussed briefly below.

Integrity of private building surveyors

The Building Confidence Report reviewed the differing roles of private building surveyors across the country, noting that in some jurisdictions the building surveyor is permitted to issue the building permit (full private certification), whereas in others (such as WA), the building surveyor can only issue the CDC.

The Building Confidence Report took the view that private certification carries with it an inherent conflict of interest between the public function performed by the building surveyor and the private contractual arrangement with the owner or builder. However, the authors did not conclude that the potential for conflict of interest is any greater under a full private certification model than under a partially privatised model.

“A building regulatory model that includes private certification carries with it an inherent potential for conflict of interest. That is not to say that a model where only a government official certifies building design and construction is entirely free from potential conflict. There is evidence that government processes can be open to poor practices. However, the private certification model will always have a significant potential conflict of interest given the commercial relationship that must necessarily exist between the designer/builders and building surveyor.”

Building Confidence Report, February 2018 (page 11)

The Building Confidence Report therefore recommended that each state and territory should ensure that its regulatory framework includes controls to mitigate the potential for conflicts of interest, and tighten oversight. These controls include:

- clearly defined processes for dealing with conflicts of interest and changes to an appointment during the build;
- a mandatory code of conduct for building surveyors, which, if contravened, can be a ground for disciplinary action;
- providing private building surveyors with sufficient powers and guidance to issue directions to fix or stop work; and
- mandatory reporting obligations for suspected fraudulent conduct.

Quality and adequacy of documentation and record keeping

The adequacy of documentation prepared and approved as part of the building approvals process was identified by the Building Confidence Report as often poor and steadily declining, thereby increasing the potential for disputes and non-compliance.

Poor quality documentation leads to builders improvising in ways that may not be compliant with the NCC. The integrity of documentation for future use is compromised when approval documents do not reflect the as-built building (including any variations from the original design and performance solutions), or where they contain insufficient detail to properly inform building risk and maintenance requirements. The Building Confidence Report recommended that, at a minimum, the regulatory framework should:

- prescribe specific requirements about the recording and approving (including written reasons) for the use of performance solutions; and
- incorporate clear obligations for the building surveyor when approving and documenting variations to design made throughout the build.

Mandatory on-site inspections of all building works

The Building Confidence Report found that fundamental to an effective building approvals process is a requirement for on-site mandatory inspections by an independent inspector at key stages of the build.

“If the actions of individuals, organisations or governments are visible, then pro-social behaviors are more assured and the need for legal or regulatory intervention is lessened.”

Building Confidence Report, February 2018 (page 9)

For single residential dwellings, the Building Confidence Report recommended that, at a minimum, mandatory on-site inspections should be carried out on:

- in-situ reinforcement in footings/slabs (stage 1 of the building process);
- frames (including roof constructions) (stage 2);
- fire-related wall systems (stage 3);
- pool barriers (stage 4); and
- final post-completion of all work (stage 5).

The ability for building surveyors to order inspections at other stages of the build was also recommended.

4.2.2 Findings of audits by the Building Commissioner – single residential dwellings

General and compliance⁶² audits conducted by the Building Commissioner in recent years, including audits of CDCs, wall and roof framing and bushfire construction, support the notion that the current building approvals process in WA has not ensured that the requirements of the NCC have been met.

Audit of CDCs

The role of building surveyors who certify that a building design demonstrates compliance with the NCC is pivotal because this assessment is relied upon by permit authorities, builders and home owners.

In the 12 months to 30 November 2018, the Building Commissioner assessed 123 randomly selected Class 1a CDCs issued by building surveyors in WA. This covered the work of 105 private building surveyors and 18 building surveyors employed by local government permit authorities. The audit assessed 5,317 elements of work and found that:

- in 77 per cent of elements checked, the documentation listed in the CDC sufficiently demonstrated that the proposed building work would comply with each applicable standard; and
- no assessments demonstrated all applicable building standard requirements; 41 demonstrated over 80 per cent of requirements, 73 demonstrated between 60 and 80 per cent of requirements, 8 demonstrated between 40 and 60 per cent of requirements and 1 demonstrated between 20 and 40 per cent of requirements.

Each of the 1,223 'not demonstrated' elements was assessed using a risk rating tool developed by Building and Energy. Of these, 28 were rated as having a very low risk of leading to significant problems with the standard of building work, 637 were rated as low risk, 424 were rated as medium risk and 134 were rated as high risk.

While only a small sample, approximately 46 per cent of CDCs were assessed by the Building Commissioner as having a medium to high risk of leading to significant problems with building work, if not corrected.

⁶² Building and Energy checks for compliance against the performance requirements contained in the BCA. This may include but is not limited to checks against the approved plans and associated documents, Australian Standards and manufacturers' installation instructions.

The City of Gosnells has also provided the Building Commissioner with data on certified applications lodged in 2016/17 and 2017/18 for single residential dwellings (see Table 2 below). The data shows that 53 per cent of applications were non-compliant with the Building Act, with 8 to 9 per cent being refused and 45 per cent receiving an approval after further work by the private building surveyor. The most common reason for refusal was due to certified applications being lodged without having a required prescribed approval.

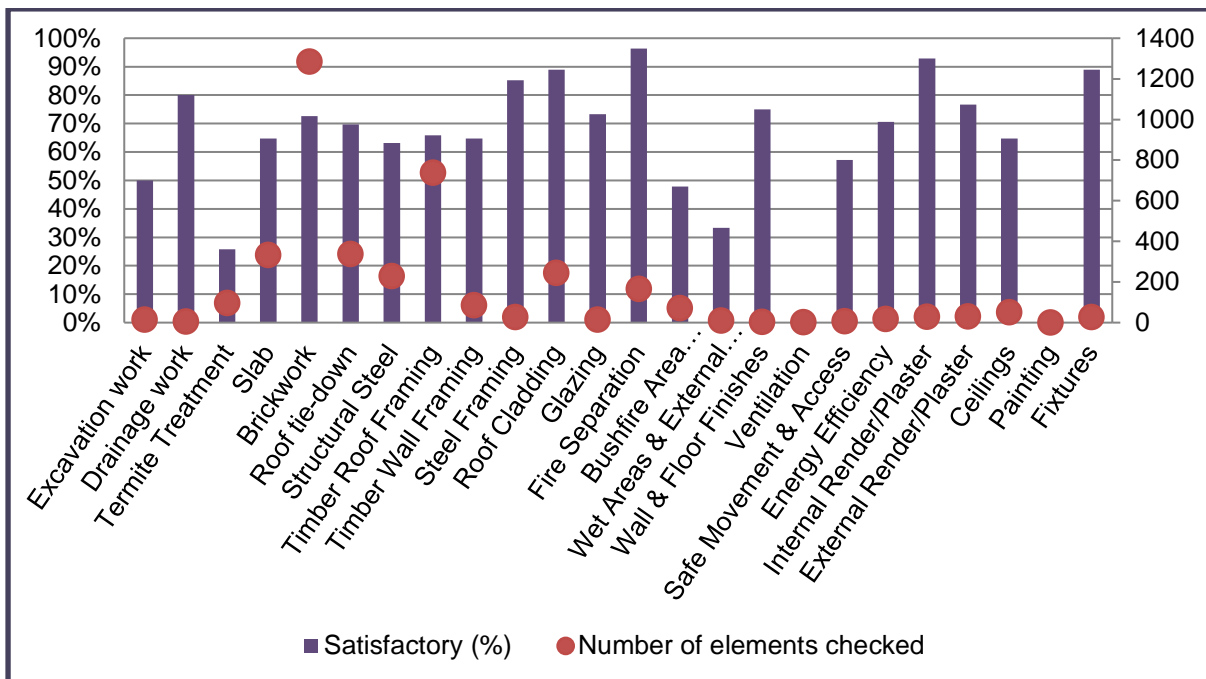
Table 2: City of Gosnells: Certified applications for building permits (single residential dwellings)

Year	Certified applications lodged	Further information required	Non complying applications	Applications refused	Applications approved
2016/17	484	221 (45.6%)	254 (52.4%)	37 (7.6%)	447 (92.3%)
2017/18	401	179 (44.6%)	213 (53.1%)	37 (9.2%)	364 (90.8%)

General audits during construction

During the 2018 calendar year, the Building Commissioner also undertook a number of general audits of single residential dwellings under construction. Figure 1 below shows the percentage of satisfactory compliance with the approved plans and specifications and the NCC.

Figure 1 – Building inspection outcomes 2018 calendar year



By matching the inspection point data in Figure 1 to the stages for on-site inspection recommended in the Building Confidence Report, it is possible to produce an estimate of the level of satisfactory compliance with the NCC, or approved designs, for the buildings audited.⁶³ This is shown in the following table (Table 3).

⁶³Note: the timing of inspections made by the Building Commissioner may not allow for the full list of building elements to be inspected at each site as would be done through a mandatory inspection program where inspections are timed to coincide with specified building stages. The information provided is the best proxy currently available.

Table 3: 2018 inspection point data on satisfactory compliance with applicable building standards (excluding those for swimming pool barriers), based on on-site inspection stages 1, 2, 3 and 5 recommended in the Building Confidence Report

Building Confidence Report inspection stages	Satisfactory	Unsatisfactory	Satisfactory (%)
Stage 1: In situ reinforcement in footings and slab	133	82	62%
Stage 2: Frames, including roof construction	942	472	67%
Stage 3: Fire-related wall systems	159	6	96%
Stage 5: Final, bushfire area requirements and ceilings	67	55	55%
Total	1,301	615	68%

Based on the above groupings of inspections, 62 per cent of elements inspected at stage 1 would be considered satisfactory; 67 per cent at stage 2; 96 per cent at stage 3; and 55 per cent at stage 5. For stages 1, 2 and 5, this is considered to show relatively low levels of compliance when checked against the requirements in the approval and applicable building standards.

In order for a structural system to meet the applicable building standards, all inspection points relevant to that area must be constructed in a satisfactory manner. Compliance is achieved when 100 per cent of these elements are assessed as satisfactory. Accordingly, the assessment in Table 3 translates into percentage of compliance/non-compliance as follows:

- Stage 1: 62 per cent of elements were satisfactory, resulting in 42 per cent overall compliance
- Stage 2: 67 per cent of elements were satisfactory, resulting in 10 per cent overall compliance
- Stage 3: 96 per cent of elements were satisfactory, resulting in 93 percent overall compliance
- Stage 5: 55 per cent of elements were satisfactory, resulting in 27 per cent overall compliance.

These outcomes are further explained in Table 4 below.

Table 4: Full compliance with building standards, based on on-site inspection stages 1, 2, 3 and 5 recommended in the Building Confidence Report

Building Confidence Report inspection stages	Inspection with at least one element checked	Fully compliant	At least one unsatisfactory element	Fully compliant %	Average number of elements inspected
Stage 1: In situ reinforcement in footings and slab	132	56	76	42	1.6
Stage 2: Frames, including roof construction	137	14	123	10	10.3
Stage 3: Fire-related wall systems	83	77	6	93	2.0
Stage 5: Final, bushfire area requirements and ceilings	41	11	30	27	3.0

NB: It is noted that the more inspection elements there are in a stage, the lower the likelihood is of the stage being found compliant.

Similarly, data provided by the City of Gosnells⁶⁴ for inspections of in-situ footings (stage 1) for single residential dwellings built between 2010 and 2018 shows satisfactory compliance rates of between 47 to 85 per cent (see Table 5 below). However, the City did report that most problems were remedied after the inspection.

Table 5: City of Gosnells: Total Inspections of in situ footings (stage 1)

Year	Compliant		Non-compliance		Total inspections
	Total	%	Total	%	
2010	133	47.3	148	52.7	281
2011	264	49.5	269	50.5	533
2012	236	58.4	168	41.6	404
2013	262	63.7	149	36.3	411
2014	242	79.1	64	20.9	306
2015	431	84.8	77	15.2	508
2016	284	74.7	96	25.3	380
2017	197	68.4	91	31.6	288
2018 (Jan-July)	66	56.9	50	43.1	116

⁶⁴ The City of Gosnells is the only permit authority that routinely inspects residential construction in its area.

Wall and roof framing

In 2014, the Building Commissioner conducted an audit into metal roof construction⁶⁵ and found that of the 123 buildings examined, only two had compliant roof construction across the inspection points relating to structural tie-down systems.

For each building, up to 12 inspection points⁶⁶ were reviewed (1079 in total across all roofs inspected) and only 33 per cent were deemed satisfactory (1.6% compliance). The low levels of compliance with roof construction were attributed to a number of factors, including:

- inadequate information relating to common WA construction methods in the standards;
- a lack of competent supervision; and
- changing technologies.

Since the results of the audit were published, considerable effort has been made to educate the industry and encourage compliance. However, during general audits conducted by the Building Commissioner in 2018, the overall satisfactory rate of similar inspection points was still only 59 per cent. Just sixteen (14% compliance) of the 117 metal clad roofs inspected were fully compliant with applicable building standards. Table 6 below compares the findings of the 2014 audit with the more recent 2018 inspections on roof construction (stage 2).

⁶⁵ Building Commission, April 2016, *General Inspection Report One: A general inspection into metal roof construction in Western Australia*.

⁶⁶ Not every dwelling contained 12 inspection points in its design or construction.

Table 6: Comparison of 2014 audit with results of 2018 roof inspections (n=117)

	Roof report (2014)		Steel sheet roof inspections (2018)		
	Elements inspected	Satisfactory %	Elements inspected	Elements satisfactory	Satisfactory %
Tie-down straps: Corrosion protection	73	11	63	35	56
Tie-down straps: dimensions, placement and attachment and appropriate fixings	105	21	92	46	50
Timber roof battens 1200 mm edge zone for sheet roofs ⁶⁷	64	63	16	12	75
Timber roof batten general area sheet roofs	62	31	15	11	73
Metal roof batten	54	15	38	36	95
Rafter correctly tied down	104	41	56	19	34
Connections remainder of roof	101	30	59	34	58
Collar ties	90	49	34	49	69
Timber truss correctly tied down	9	11	10	3	30
Tie-down of timber roof beams	83	35	52	12	23
Steel member: Tie-downs	71	27	43	16	37
Other compliance	120	38	No direct comparison available		
Total	936	33	472	279	59

Bush fire compliance

The Building Commissioner recently conducted an inspection of bushfire construction compliance for new houses in bushfire prone areas.⁶⁸ The purpose of the audit of a small sample of dwellings was to assess how industry was adapting to new bushfire design standards and to see what might be done to assist industry to more effectively comply with changes.

While a report on the inspections is yet to be published, the key findings are understood to include the following:

- The buildings inspected generally showed a low level of compliance with the required building standards for bushfire construction.
- The majority of plans and specifications did not contain clear construction details, or sufficient information to demonstrate that a building constructed in accordance with those plans and specifications would comply with the applicable bushfire building standards.

⁶⁷ Inspection points of tie-down straps, placement and attachment and appropriate fixings have been combined to align with how inspections for the initial roof report were conducted.

⁶⁸ Building and Energy, August 2018, General Inspection Report 3: A General Inspection into Bush Fire Compliance in Western Australia (unpublished).

- Some buildings included materials or methods of construction that were not in accordance with the deemed-to-satisfy provisions of the NCC, nor assessed or documented as a performance solution.
- Incorrect interpretations of the building standards for bushfire prone area construction resulted in buildings that do not comply with the applicable bushfire standards.
- Buildings were not constructed in accordance with the assumptions listed in the bushfire risk assessment that was included as part of the plans and specifications specified in the CDC.
- Building surveyors accepted bushfire risk assessments without checking for accuracy. This resulted in building designs that do not comply with applicable building standards.
- Bushfire risk assessments have not been done in accordance with the stated methodology, resulting in building designs that may not comply with the applicable building standards.

The following factors have been identified as likely contributors to low levels of compliance:

- Market forces limit the time spent documenting bushfire safety requirements in the design.
- Client pressure to produce outcomes that may not meet the applicable standards.
- Lack of adequate detailing on the plans and specifications on how to achieve compliance.
- Misinterpretation of the requirements of the applicable standards.
- Lack of appropriately trained site supervisors.
- No independent inspection of the completed building.

Conclusions

Overall, the audit data collected by the Building Commissioner suggest that the current building approvals process in WA may not be effective in ensuring adequate levels of compliance with the NCC in CDCs and in constructed single residential dwellings.

Other than fire separation on single residential dwellings, the percentage of satisfactory elements was between 55 and 67 per cent for the mandatory inspection stages recommended by the Building Confidence Report.

Inspection reports by the Building Commissioner indicate that poor documentation and inadequate supervision of the building process are at the base of problems and that the current reliance on voluntary inspections by permit authorities, and audits and industry education by the Building Commissioner, are not sufficient to improve standards.

For instance, despite routine inspections by the City of Gosnells, compliance in footing construction has declined over the past few years (see Table 5 above) and after four years of working with industry to improve standards for metal roof construction, there is still only a 59 per cent satisfactory rating across the key inspection elements, with a low number of roofs that are compliant overall (see Table 6 above).

This strongly suggests there is a need in WA to improve effective compliance with applicable building standards and ensure the community has the confidence that buildings will meet the expected requirements of public safety and longevity.



Questions for consultation

5. Do you consider that the current approvals process under the Building Act ensures adequate levels of compliance with the NCC? If yes, please tell us why.
6. If you answered no, what do you consider to be the causes for inadequate levels of compliance with the NCC?

5 Proposals for reform

This chapter outlines various options for reform to address the problems identified in Chapter 4. Three options are presented in this section:

Option 1 – Business as usual

Under Option 1, the current building approvals system continues to operate with no change. As this would not address the problems identified with the current process, this option forms the baseline (business as usual) against which Options 2 and 3 are assessed.

Option 2 – Introduce full private certification

Under Option 2, the Building Act would be amended to allow private building surveyors (acting as certifiers) and LGAs to grant building permits for single residential dwellings. This option also includes relevant reforms recommended in the Building Confidence Report to improve effective compliance and enforcement of the applicable building standards, including the NCC.

Option 3 – Improvements to the current building approvals process

Under Option 3, a partially privatised model for building approval would be retained, but various improvements would be made to the Building Act to address the current problems and adopt relevant recommendations from the Building Confidence Report.

Important assumption

It is beyond the scope of this CRIS to propose reforms to planning laws. However, the reforms recently proposed by DPLH to create a fast-track 30-day development approval process for single residential dwellings that require only minor variations to the R-Codes, and a 'deemed to comply' check for single houses, are considered complementary.

Options 2 and 3 assume that these complementary reforms will be made to WA's planning laws.

Without such reforms, there is a risk that building will commence in contravention of local planning requirements, leading to the possibility of even greater delays being experienced while those requirements are enforced.

5.1 Option 1: Business as usual

The business as usual, or status quo, approach means making no changes to the Building Act and retaining the current partially privatised model for approvals of single residential dwellings.

This would mean that:

- any inconsistency and delays in the granting of building permits would continue; and
- the safety, health, amenity and sustainability of the design and performance of buildings may continue to be compromised by not ensuring effective compliance with building standards, including the NCC.

This option does not deliver on the Government's commitments as outlined in section 1.1 of this CRIS, and is considered the least preferred approach.



Question for consultation

7. Do you support the business as usual option? Please provide reasons for your view.

5.2 Option 2 – Introduce full private certification

5.2.1 Overview

Option 2 proposes reforms to the Building Act to allow private registered building surveyors (hereinafter referred to as ‘certifiers’) to perform certain statutory functions in relation to single residential dwellings. Those functions include:

- certifying design compliance with applicable building standards, including the NCC;
- granting a building permit authorising the commencement of works;
- carrying out mandatory on-site inspections at key stages of the build;
- issuing rectification orders during the build to address identified non-compliance with applicable building standards; and
- notifying and lodging approval documentation with the relevant LGA.

Under this option, LGAs could choose to compete with private certifiers for work involving single residential building approvals, or they could opt out. In either case, each LGA would still retain responsibility for the enforcement of applicable building standards after completion of the build when the role of the certifier has ceased.

The Building Commissioner would retain responsibility for regulating certifiers and other building professions.

To improve compliance with the NCC, Option 2 would also incorporate relevant reforms from the Building Confidence Report, namely:

- compulsory continuing professional development (CPD) for certifiers;
- the implementation of conflict of interest provisions for certifiers;
- mandatory obligations on certifiers to report builders to the relevant government authority if they do not comply with approved plans or with directions to rectify non-compliant work;
- a requirement that applications for building approval must be accompanied by a minimum standard of design documentation (including for performance solutions) that clearly demonstrates compliance with the NCC;
- requirements for certifiers to document, record and endorse verified performance solutions on the CDC, as well as document and approve variations made during the build; and
- mandatory on-site inspections at critical stages of building work.

This option does not include registering any new professions. The Building Confidence Report identified the need to register certain types of building professionals, including building designers, site supervisors and engineers. This need was identified through an indication that large numbers of practitioners operating in the industry lack competence, do not properly understand the NCC and/or have never had proper training on its implementation. Moreover, the adequacy of design documentation was found to be generally poor.

The implementation in WA of the registration requirements recommended in the Building Confidence Report is being examined separately to the reforms to the building approvals process. Accordingly, proposed amendments to the registration framework will be the subject of a separate CRIS to be released later in 2019.

Set out below in Table 7 is a summary of the proposed reforms that form part of Option 2 for single residential buildings.

Table 7: Proposed reforms under Option 2

Key element	Proposed reform
Stage: Prior to commencement of building	
<p>1. Role and function of the certifier</p>	<ul style="list-style-type: none"> • The Building Act would allow a registered building surveyor, or a LGA, to perform the statutory function of certifier. Only one certifier may be engaged for the building work at any one time (from receiving an application to final inspection). • A certifier would be responsible for receiving applications, issuing CDCs, granting building permits, carrying out inspections and issuing relevant notices. • The Building Act would require that the certifier must be paid for work undertaken, even if they are unable to issue a compliance/inspection certificate because the building design or construction does not comply with the applicable standards. This would give certifiers a greater degree of independence when certifying compliance, and is modelled on a similar requirement in Queensland.^[1] • As LGAs would no longer be granting building permits and thus would not be able to monitor planning compliance, the certifier would be required to obtain evidence of planning compliance from the relevant LGA and submit that with the building permit application. • The certifier would assess applications against the legislative requirements and would assess the adequacy of design documentation and any performance solution documentation against prescribed requirements. • It would be the responsibility of the applicant to pay the applicable Building Services Levy direct to the Building Commissioner; and the Construction Training Fund levy direct to the Construction Training Fund. This would require the certifier to issue a notice of estimated building value in order for the applicant to calculate the relevant levies. • Evidence of payment of the Construction Training Fund levy and Building Services Levy, as well as evidence of Home Indemnity Insurance, would need to be provided to the certifier. The certifier would be required to sight this evidence of payment of the levies before a building permit could be granted. • The certifier would have the power to refuse an application for a building permit, but must give reasons for the refusal. An owner would have the right to appeal the decision of the certifier. • The certifier would be required to notify and lodge approval documentation with the relevant LGA (if the LGA is not acting as the certifier), as the LGA would retain responsibility for the building once completed. • The role and function of the certifier would end once a notice of completion is issued and provided to the LGA, or when a certifier's appointment is terminated in accordance with prescribed circumstances.

^[1] *Building Act 1975* (Qld) s146.

Key element	Proposed reform
<p>2. Design compliance and documentation</p>	<ul style="list-style-type: none"> • The Building Act would prescribe the minimum standard of design documentation required to demonstrate compliance with applicable building standards. This documentation would be required to be checked and endorsed by the certifier. This would include any design documentation required to be submitted for building approval (e.g. plans and specifications). • The prescribed requirements for performance solutions would include an endorsed verification statement for each performance solution used, including details of the assessment method used to establish compliance (e.g. modelling, test results, engineer’s advice). The building owner would also be required to consent in writing to the use of the performance solution. • The prescribed requirements would be modelled on those in Schedule 2 of the Director’s Determination under the <i>Building Act 2016</i> (Tas).⁶⁹ (See the cost benefit analysis for Key element 2 of this CRIS.) • The Building Act would require compliance with the documentation requirements before a building permit could be granted.
<p>3. Conflicts of interest</p>	<ul style="list-style-type: none"> • Owners would be required to engage a certifier, either personally or through an agent (e.g. builder). The Building Act would require the appointment to be documented. • The Building Commissioner would be responsible for approving changes to a certifier where there is no written agreement between the parties. • A change in the appointment of a certifier (to another certifier) prior to the final inspection would not be able to occur unless: <ul style="list-style-type: none"> ○ both the owner and certifier agree in writing; or ○ the owner (or their agent) obtains the consent of the Building Commissioner; or ○ the certifier obtains the consent of the Building Commissioner. • Where an owner (or their agent) seeks to change the appointment of the certifier, the Building Commissioner would not consent to the termination unless reasonably satisfied that: <ul style="list-style-type: none"> ○ the certifier is incapacitated; ○ the certifier is no longer entitled to perform their functions (e.g. they are no longer registered as a building surveyor); or ○ the certifier has engaged in misconduct. • The Building Act would prescribe a requirement that a certifier must not accept an appointment where there is a direct or indirect pecuniary interest (beyond remuneration for work) in the design or building work. • Failure to abide by the requirements would be grounds for taking disciplinary action against the registered building surveyor (e.g. suspension or cancellation of registration).

⁶⁹ https://www.cbos.tas.gov.au/_data/assets/pdf_file/0017/405017/Directors-determination-Directors-Specified-List-Sep-2017.pdf.

Key element	Proposed reform
Stage: During the build	
<p>4. Mandatory inspections at key stages</p>	<ul style="list-style-type: none"> • The certifier would be responsible for monitoring compliance with applicable building standards during the build. • The Building Act would prescribe a requirement for on-site inspections to be carried out by the certifier at certain notified stages in order to assess compliance with applicable building standards. • Where the LGA is performing the function of certifier, it is proposed that the inspection function could be carried out by an agent or employee of the authority. • The following minimum inspection stages would be prescribed: <ul style="list-style-type: none"> ○ in situ reinforcement in footing and slabs (stage 1); ○ frames, including roof construction (stage 2); ○ fire-rated wall system (stage 3); and ○ final post-completion of all work (stage 4). • The certifier would have the power to specify additional inspections at the time of granting the building permit. • If, after the inspection, the certifier deems that work is not of a satisfactory standard (i.e. does not meet applicable building standards), or does not reflect the building permit, the certifier would be empowered to require rectification work and/or to stop the building work. • Where a builder fails to comply with a requirement within the prescribed time, the certifier would be responsible for referring the matter to the relevant LGA for further enforcement action (orders, infringements etc.) and reporting the builder to the Building Commissioner.
<p>5. Documenting variations</p>	<ul style="list-style-type: none"> • Where a need to materially vary from the plans and specifications is identified, the Building Act would expressly require the owner or its agent (i.e. the builder) to apply to the certifier for an amended CDC and building permit. • The application to vary would need to have the written approval of the owner. • The certifier would be responsible for complying with the requirements for documenting variations and clearly detailing how the variations comply with applicable building standards. • A copy of the amended documentation would be provided to the owner/builder and lodged with the relevant LGA.
Stage: Post-completion	
<p>6. Recordkeeping</p>	<ul style="list-style-type: none"> • The certifier would be responsible for preparing and lodging documentation with the relevant LGA in whose geographic boundary the building will be situated.

Key element	Proposed reform
	<ul style="list-style-type: none"> The Building Act would provide that within a specified time (e.g. 7 business days) after granting, issuing or amending a building permit, an inspection certificate or a certificate of completion, the certifier must provide the relevant LGA with a copy of the permit or certificate and any other relevant documentation, including the CDC and plans and specifications. LGAs would retain responsibility for keeping all records lodged by the certifier and may charge fees to cover all associated costs.
7. Enforcement	<ul style="list-style-type: none"> LGAs would retain responsibility for enforcement of applicable building standards after the notice of completion is issued by the certifier. LGAs would continue to have all necessary powers to enforce compliance for dangerous/non-compliant building work and buildings. An appropriate funding source would be required to perform this role, possibly in the form of a levy or lodgment fee. Where a builder fails to comply with a requirement to rectify, or an instruction to stop work issued by the certifier during the build, the certifier would refer the matter to the LGA for further enforcement action (order, infringement, etc.) and/or the Building Commissioner for disciplinary action. To ensure the integrity of the building approval system, audits of certifiers would be the responsibility of the Building Commissioner.
Increased registration requirements	
8. Building surveyors	<ul style="list-style-type: none"> The BSR Act (and associated regulations) would be amended to require registered building surveyors to comply with a prescribed Code of Conduct and complete mandatory Continuing Professional Development (CPD). Building surveyors would be required to demonstrate completion of a minimum level of CPD in order to renew their registration. Units of competency would focus on the NCC. Breach of the Code of Conduct would constitute a disciplinary matter under the BSR Act. The Building Services Board (BSB) may then take action to suspend or cancel the building surveyor's registration.



Questions for consultation

- Do you support Option 2? Please explain your answer.
- Are there elements of Option 2 that you do not support? If yes, please tell us which elements you do not support, and why.

5.2.2 Overall impact analysis for Option 2

Efficiency

This reform option may address some, but not all of the *efficiency* problems with the current building approvals process. The ability for an owner (or a builder acting as the owner's agent) to engage a certifier of their choice, and therefore deal with a smaller number of certifiers than under the business as usual option, has the potential to reduce the reported variability and inconsistencies between LGAs. Owners/builders would become familiar with the specific process of the limited number of certifiers they choose to deal with.

This improvement notwithstanding, if the major causes for delays in the granting of building permits are inadequate documentation and poor compliance with planning requirements, then this may not change under a full private certification model. Verification that the proposed building work complies with planning requirements would need to be obtained from the relevant LGA prior to the granting of a building permit. Likewise, the certifier would be unable to grant the building permit where prescribed documentation requirements are not met.

Option 2 would also involve a major overhaul of the current building approval process for single residential dwellings. While LGAs would be permitted to continue to perform the role of certifier, the experience in other Australian states and territories suggests that many may choose not to perform this function.

The removal of LGAs from the role of granting building approvals in WA could be expected to result in some disruption and delay for the industry, at least initially, as roles and responsibilities are reorganised. Indeed, the introduction of a partially privatised certification model under the Building Act in 2012 took considerable time for the industry to adapt to, and some processes are still to be resolved.

There is also a reasonable likelihood that many registered building surveyors currently employed by LGAs may seek to enter the market as private certifiers. This would cause difficulties for LGAs both in terms of competing as certifiers, but also in performing enforcement activities.

Underpinning this full private certification option is the obvious assumption that registered building surveyors are willing and able to enter the market as private certifiers. Recently, the cost of professional indemnity insurance (PII) has risen significantly for certifiers in other states and territories. Largely, the increases are attributable to changes in the risk premiums charged by insurers following highly publicised failures associated with aluminum composite panel (ACP) cladding and other non-conforming building products.

This increase in PII premiums may deter building surveyors from entering the market, leading to a shortage of private building surveyors and negative impacts on the building approval process.

In a recent decision by the Victorian Civil and Administrative Tribunal in a matter involving the owners of the Melbourne Lacrosse building and the builder, certifier and fire engineer, it was held that the certifier was proportionately liable (33 per cent) for damages related to the failure of ACP cladding.⁷⁰

It is understood that as a consequence of this decision, PII insurers reconsidered their position on PII cover. As from 1 July 2019, all PII insurers have applied exclusions for ACP cladding and there is anecdotal evidence that some insurers may also apply exclusions to other non-conforming building products.

⁷⁰ *Owners Corporation No.1 of PS613436T v LU Simon Builders Pty Ltd (Building and Property)* [2019] VCAT 286.

A national Senior Officers' Group (SOG) has acknowledged that the certifier PII issue has progressed from being a matter that all jurisdictions were monitoring, to an emerging urgent issue with the potential to lead to a significant tightening of the PII market nationally and an increasing risk of a complete withdrawal of private insurers.

If insurers do completely withdraw from the PII market for building professionals, there will likely be few private building surveyors left to provide CDCs for the construction of residential or commercial buildings as they may become personally liable for part or all of the cost of rectifying any problems that may later occur in buildings they have certified.

As building permits cannot be granted unless permit applications are accompanied by a CDC, this eventuality would be especially problematic for any decision to introduce full private certification.

As WA is not a market-maker for insurance, any changes to PII premiums and policy terms in other states and territories would also apply to building surveyors in this state.

While the full impact of changes to PII is unknown, there is a risk that it may become uneconomic for building surveyors to perform the role of certifier. Alternatively, the high cost of PII policies could create a significant barrier to entry to the market and reduce competition.

Effectiveness

The PII issue notwithstanding, Option 2 would be expected to address the *effectiveness* problems with the current building approvals process. Effective compliance with applicable building standards (including the NCC) and the overall quality of residential building work is likely to be improved by implementing the majority of the recommendations of the Building Confidence Report. This includes:

- increasing the professionalism and competency of practitioners;
- improving the standard of documentation;
- implementing a process for documenting and approving variations;
- requiring inspections of building work; and
- clarifying enforcement responsibilities.

Adopting all of the recommendations of the Building Confidence Report would mitigate conflicts of interest that inherently occur in full private certification models, but cannot fully extinguish them. The possibility for private gain over public good cannot be entirely avoided when imposing a public duty on private entities with commercial interests.

5.2.3 Cost benefit analysis

Set out on the following pages is a cost benefit analysis for those key elements of Option 2 that were able to be costed. A complete summary of those cost benefit analyses can be found at Appendix 1 of this CRIS.

Using a combination of quantitative and qualitative factors, the cost benefit analyses measure the likely impact of Option 2 on the three stakeholder groups primarily affected; namely, consumers, industry and government.

Each analysis assesses all costs and benefits to the extent possible. It is important to note, however, that the full value of benefits for most changes have been impossible to calculate and so estimated costs have only been weighed against the benefits of mandatory inspections.

A range of assumptions has also been relied upon to prepare the analysis. Building and Energy would welcome feedback from stakeholders on these assumptions. Overall, the costs of Option 2 are estimated to be \$26-31 million a year (PII costs have not been able to be reliably estimated). Meanwhile, the major benefits of this option, in the form of avoided costs from detecting non-compliance/defects during the build, are estimated to be \$14-27 million a year.

Thus, this option is estimated to increase the average cost per build by \$1,900-\$2,200.

While not every owner will benefit, on a community level the cost can be considered justifiable due to the overall improvement in buildings and the potential to avoid future rectification work, as well as a reduction in the life safety dangers that arise from non-compliant buildings.

Key Element 2: Design compliance and documentation

Key element 2 proposes that a responsibility be placed on designers to prepare design documentation to a minimum standard of detail. This design documentation would be checked against a set of legislated requirements, including an obligation to ensure that plans and specifications adequately detail compliance with applicable building standards, including the NCC.

The intention is to ensure that plans are drafted with sufficient detail for builders to more easily achieve compliance, and to reduce the need to improvise during construction. This, in turn, would reduce the risk of error and non-compliant building work.

The current requirements detailed under the *Building Act 2016* (Tas) are considered a suitable model. These are contained in the Director's Specified List published by the Director of Building Control under section 20(1)(d) of the *Building Act 2016* (Tas) and include matters pertaining to the following:

- the site where the dwelling is to be located;
- the floor, slab, roof, reflected ceiling and drainage plans;
- room heights, elevations and sections;
- retaining walls, masonry construction, exterior wall cladding and interior wall lining;
- flooring and wet areas;
- fire safety;
- glazing, energy efficiency and ventilation to deal with condensation; and
- swimming pools and spas.

A full copy of the Director's Specified List can be download from the following website:

https://www.cbos.tas.gov.au/_data/assets/pdf_file/0017/405017/Directors-determination-Directors-Specified-List-Sep-2017.pdf

Requirements for a minimum standard of design documentation would also ensure sufficient detail is provided when performance solutions are used. The current requirements in the Building Regulations are minimal and are not consistently enforced. These would be increased and a process introduced for the detailing of performance solutions. This process would be likely to include a requirement for a written statement about each performance solution, and details of the NCC assessment method(s) used to verify compliance with the relevant building standard. The performance solution would also be required to be documented in the CDC.

An obligation to ensure that the owner is made aware of, and consents to, the performance solution would also be included, as well as a requirement for processes to be put in place to ensure that subsequent owners are notified that a performance solution has been used in the construction of the building.

Satisfactory compliance with the legislated design documentation standards would need to be demonstrated before a building permit could be granted. While it is not feasible to estimate how much the changes outlined above would contribute to avoided rectification costs, the following summary identifies the key impacts.

Summary of cost benefit analysis for Key Element 2

	Cost	Benefit
Consumers	Additional costs likely to be passed on to consumers via increased fees charged by designers.	Reduced rectification costs (in cases where problems occur outside the builder's warranty period).
Industry		
Builders	Nil	Removes need to cross reference with standards as all information will be contained in plans and specifications. Improved compliance with NCC and reduced rectification costs.
Certifiers	Approximately \$455 ¹ each for documentation of plans and performance solutions. This equates to approximately \$6.28 million per annum. ²	Improved compliance with applicable building standards and reduced likelihood of claims on professional indemnity insurance.
Government	Nil	Improved compliance with the legislation, leading to improved public safety and longevity of buildings.

Assumptions

¹ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

²Annual cost based on 13,800 building commencements in 2018.



Questions for consultation

10. What specific information do you think should be required in order for design documentation to sufficiently detail compliance with the NCC and thus ensure that builders can more easily build in accordance with the building standards?
11. Do you agree that the minimum standard of design documentation requirements set out in the Director's Specified List under section 20(1)(d) of the *Building Act 2016* (Tas) are a suitable model? If no, please tell us why.
12. Do you support the proposal that the Building Act should require compliance with the minimum standard for design documentation prior to the granting of a building permit? If no, please tell us why.
13. Should the building surveyor be required to make a written statement about how each performance solution meets applicable building standards and what assessment methods have been used to make this determination? If no, please tell us why.
14. Do you agree with the identified costs, benefits and assumptions used in the above cost benefit analysis? If no, please tell us why.

Key Element 4: Mandatory inspections

The intention of implementing a mandatory building inspection scheme is to provide a high level of assurance that buildings are constructed in accordance with applicable building standards. This redresses the lack of balance in the current system whereby emphasis is placed on assessing and approving the design but there is no process to ensure construction complies with the approved design and NCC.

Key element 4 also seeks to address reported inadequate supervision of building work, and alleviate the current situation of voluntary ad-hoc inspections that leads to inconsistency and uncertainty.

As indicated in Table 7 above, the Building Act would be amended to include a requirement for on-site inspections to be carried out at a minimum of four stages. Those stages are:

1. Footing and slabs (stage 1);
2. Frames, including roof construction (stage 2);
3. Fire-rated wall system (stage 3); and
4. Final completion of all works under the building permit (stage 4).

The responsibility for carrying out the inspections under Option 2 would rest with the certifier. In cases where the LGA is the certifier, the inspection function could be carried out by either an employee of the LGA or an agent of the LGA.

The Building Confidence Report did not recommend specific elements to be included in a final inspection. However, based on known problems in WA as highlighted by the audits carried out by the Building Commissioner, it is considered that ceilings and bushfire construction compliance in bushfire prone areas should be specifically included in a final inspection.

Likewise, it may be appropriate for identified construction problem areas, such as waterproofing of wet areas, to form part of the mandated inspection regime. Also, with smaller blocks becoming the norm, adequate protection of adjacent/adjoining property is an ever increasing issue that may also warrant inspection.

It may, however, be considered unnecessary to include an inspection of fire-rated wall systems in single residential buildings.

The impact analysis for Key element 4 as set out below is based on carrying out four inspections per build for every build. It is assumed that if re-inspections are required, the builder will be liable for the associated cost.

Costs and benefits have been based on indicative average problems, avoiding any consideration of unlikely or exaggerated events. The costs have been calculated realistically and the benefits estimated conservatively.

Only direct costs have been included and so there is no inclusion of cost for damage to household items, alternate accommodation costs or other loss or inconvenience likely to be incurred by householders. There is also no cost component for insurance claims or actions to determine liability and impose sanctions where warranted. It has also been assumed that only one type of problem will occur during a build.

The major benefits associated with mandatory inspections are derived from rectifying defects during the build, rather than after completion. The savings from avoided costs have been estimated based on the indicative costs to rectify common types of non-compliance that occur during the critical stages of construction (based on the audit data from the Building Commissioner outlined in Chapter 4 of this CRIS), versus the costs of rectification or remediation of damage five or more years after completion.

The savings from avoided costs are calculated by deducting inspection costs, rectification costs, and re-inspection costs from the cost to remediate problems five or more years later. Appendix 1 Table C sets out the method used to calculate the estimated avoided cost savings. Appendix 3 provides a full breakdown of how these costs were determined.

It should be noted that estimating the cost savings for avoided rectification costs five or more years after completion is difficult given the multitude of variants that could occur if a non-compliant aspect of building work is not detected immediately and rectified. As already stated, the approach has been conservative but in the worst cases, the benefit would be avoiding personal injury or death.

Overall, the cost benefit analysis indicates that four mandatory inspections would add approximately \$800 to the cost of a build in WA, or \$11 million per annum for the industry. It is estimated that reinspections would occur in 30% of builds initially, equating to \$828,000 per annum, with this cost being borne by the builder.

However, the benefits in avoided costs due to building problems being rectified early is estimated at up to \$5,600 per build, or \$14-27 million per annum for industry.

It is accepted that only those consumers who may otherwise have faced rectification costs will benefit from mandatory inspection. However, the overall costs per build are relatively low (estimated at \$800), and at a community-level this cost may be considered justifiable in comparison to the alternative possible damage and resulting cost. For example, if a roof blows off a house and the entire contents of the home are lost, the cost to replace those contents and repair the associated damage would be significant. Personal injury or death may also occur.

Additionally, if inspections are not done there is no incentive for the industry to improve, and the costs of fixing problems will continue to be borne by consumers.

Summary of cost benefit analysis for Key Element 4

	Cost	Benefit
Consumers	\$800 per build. ¹ Increased costs from rectifications may be passed on by builders in the form of higher project costs.	<ul style="list-style-type: none"> Increased confidence in quality of build. Reduced insurance claims or repair costs for damage resulting from non-compliant work. Estimated financial benefit of up to \$5,600 per build and between \$14 million and \$27 million for industry.²
Industry		
Builders	<ul style="list-style-type: none"> Time to notify and arrange inspections. Lost time and costs if problems need rectification. Rectification costs of \$250 to \$1,360 per affected build, equating to between \$3.1 and \$8.3 million for industry per annum.³ Re-inspection costs of \$200 per inspection to be paid by the builder.¹ Re-inspections estimated at 30 per cent of builds initially.⁴ This equates to \$828,000 per annum for the industry.⁵ 	<ul style="list-style-type: none"> Increased certainty with respect to the quality of building works. Problems dealt with early and at less cost than later rectification. Potentially lowered insurance costs.

Certifiers	Nil	Reduced insurance premiums in longer term as risk is reduced.
Government	Nil	Improved compliance with applicable building standards and improved public safety and longevity of buildings.

Assumptions

¹ Four inspections per build, for every build. Costs calculated on likely WA local government costs and benchmarked against Queensland local government costs, and include indirect costs.

² See Appendix 1 Table C. Indicative savings calculated by deducting inspection cost, rectification cost at time of build, and re-inspection cost from rectification cost at 5+ years.

³ See Appendix 1 Table C for indicative costs of rectifying problems at inspection.

⁴ Based on Building and Energy audit data. Variation is 3 per cent to 75 per cent of unsatisfactory work, dependent on what is being inspected. Averaged unsatisfactory rating is 30 per cent.

⁵ Based on 13,800 building commencements in 2018. Source: John Fiocco, October 2018, Final Report to the Minister for Commerce – Security of Payment Reform in the WA Building Industry.



Questions for consultation

15. Should mandatory inspections apply to every single residential dwelling build in WA if Option 2 is progressed? If no, please tell us what alternative system could be implemented to ensure adequate assessment of compliance with building standards during the build?
16. Should mandatory inspections for single residential dwellings include all of the four stages proposed? If no, please tell us why.
17. Should there be alternative or additional mandatory inspections to the four proposed stages? If yes, please provide details.
18. Should the Building Act prescribe inspection elements that must be covered in the final inspection? If yes, please outline.
19. Do you agree with the identified costs, benefits and assumptions used in the cost benefit analysis for this Key Element of Option 2? If no, please tell us why.

Key Element 5: Formal process for variations

The intention behind the implementation of a requirement to assess and approve variations is to increase compliance with the NCC while at the same time addressing inconsistent approaches and fees charged across permit authorities.

A formal process would also alleviate issues around product and materials substitution and other variations from approved plans, thereby ensuring that owners are fully aware of variations that occur.

Variations may occur at any time before or during construction. Currently there are no prescribed requirements under the Building Act for dealing with variations. Inconsistent ad hoc arrangements are applied, with permit authorities using different processes and charging different fees (ranging from \$100–\$315) for approving and recording variations to plans, compliance certificates and building permits.

Having no formal requirements for variations means that builders do not always apply for approval, even when significant variations occur during construction. Owners are also typically unaware of variations to the approved plans. Moreover, the integrity of building records for future use is compromised when approval documents do not reflect the as-constructed building.

Option 2 proposes that the Building Act prescribes a requirement for variations to be recorded on the plans and specifications, the CDC and the building permit. Where a need to materially vary from the plans and specifications is identified, a variation request would be lodged with the certifier, accompanied by a fee.

An additional cost to lodge the amended documentation with the relevant LGA for record keeping would also be included. Copies of the amended documentation would be required to be provided to both the builder and owner.

Summary of cost benefit analysis for Key Element 5

	Cost	Benefit
Consumers	Costs associated with formally approving variations and lodging with LGAs are likely to be passed on to consumers.	<ul style="list-style-type: none"> Increased assurance of compliance with applicable building standards. Reduced likelihood of rectification works.
Industry	Additional costs of preparing variation documents approximately \$455, plus a lodgment fee payable to the LGA of \$120. ¹ Overall, this equates to approximately \$634,800 per annum. ²	Increased consistency in process, and increased assurance that variations comply with applicable building standards.
Government	Lodgment and record keeping for variations will impose a cost on LGAs, but this will be off-set by fees charged by LGAs.	Accurate building records that reflect as-constructed buildings.

Assumptions

¹ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

² Based on a survey of seven metropolitan LGAs undertaken by Building and Energy in December 2018, it is assumed that approximately 8 per cent of builds require material variations to plans and specifications. The total-per-annum cost is calculated based on 13,800 commencements in 2018.



Questions for consultation

20. Do you support a requirement to apply to the certifier for formal approval of variations to the design made during the build? If no, please tell us why.
21. Should the requirement apply to all variations made, or only those that are identified as involving a material change? Please provide reasons for your answer.
22. Do you agree with the identified costs, benefits and assumptions in the cost benefit analysis for this Key element of Option 2? If not, please tell us why.

Key Element 6: Record keeping

Under Option 2, the Building Act would provide that within a specified time after the granting, issuing or amending of a building permit; or an inspection certificate; or a certificate of completion, the certifier must provide the relevant LGA with a copy of the permit or certificate and any other relevant documentation, including the CDC and plans and specifications.

LGAs would retain responsibility for storing all records lodged by the certifier. As the cost to the LGA for managing building records will no longer be funded from building approval fees, LGAs would charge lodgment fees that are expected to cover the costs associated with receiving building records and storing them long term.

Summary of cost benefit analysis for Key Element 6

	Cost	Benefit
Consumers	Nil	Assurance that buildings comply with the NCC.
Industry		
Builders	Nil	Confidence that all documentation associated with the building permit is stored safely with the LGA.
Certifiers	Payment of lodgment fees associated with submission of certain documents to LGAs.	Confidence that all documentation associated with the building permit is stored safely with the LGA.
Government	Nil	Comprehensive accurate building records (i.e. variations, performance solutions, inspections).



Question for consultation

23. Do you agree with the identified costs and benefits for this Key element of Option 2? If not, please tell us why.

Key Element 7: Enforcement

Option 2 proposes that certifiers would be responsible for enforcing compliance with building plans and applicable building standards during construction, and for ensuring that the builder carries out the rectification work (if any) required following an inspection. If a requirement to rectify non-compliant building work is not complied with, the certifier would be required to refer the matter to the LGA for them to take further enforcement action against the builder (e.g. via a building order and/or other enforcement action).

This recognises that most private practitioners are unlikely to possess the resources, skills or incentive necessary to take enforcement action through to court proceedings. It is also consistent with enforcement frameworks in other Australian jurisdictions that operate a full private certification model.

Certifiers would also be responsible for notifying the Building Commissioner of negligent or incompetent practice by the builder. In such cases, the Building Commissioner would have the responsibility for taking any enforcement action against the builder.

LGAs would retain responsibility for enforcement of applicable building standards after the notice of completion is issued by the certifier and the building work is complete. LGAs would also continue to have all necessary powers to enforce compliance in relation to dangerous/non-compliant building work.

The auditing of certifiers' professional conduct, and the taking of enforcement action against them in appropriate circumstances, would be the responsibility of the Building Commissioner.

Summary of cost benefit analysis for Key Element 7

	Cost	Benefit
Consumers	Some costs of enforcing compliance likely to be passed on to consumers.	<ul style="list-style-type: none"> Assurance that buildings comply with the NCC. Assurance that certifiers will be regulated in terms of their competence and professional conduct.
Industry		
Builders	Nil	Nil
Certifiers	Small administrative burden associated with issuing a rectification notice and referring cases of non-compliance with a rectification notice or of concerns about the professional conduct of the builder to the LGA or Building Commissioner (as appropriate).	Certainty that responsibility for taking legal action against a builder and disciplinary action for unprofessional conduct by the builder rests with the LGA and Building Commissioner (as appropriate).
Government	<ul style="list-style-type: none"> Cost of enforcement by LGAs is no longer funded from building approval fees. Increased cost for Building Commissioner and Building Services Board in respect of disciplinary action against certifiers - additional cost is estimated to be \$451,200 per annum for carrying out audits of certifiers.¹ Loss of experience in LGAs as building surveyors shift to private sector as certifiers. 	Legal mechanisms will be in place to ensure that builders and certifiers are held to account.

Assumptions

¹ Based on an additional 2.5 full time equivalent building surveyors (including on-costs) to monitor compliance. Private certification involves increased complexity and higher risk.



Questions for consultation

24. How should LGAs be funded to carry out enforcement functions? Please explain your answer.
25. Do you agree with the identified costs, benefits and assumptions for this Key Element of Option 2? If not, please tell us why.

Key Element 8: Increasing registration requirements for building surveyors

The proposal to require building surveyors to demonstrate that they have maintained knowledge of the NCC on renewal of their registration aims to improve compliance with building standards. This proposal would involve building surveyors having to undertake mandatory continuing professional development (CPD). The NCC is a living document and mandatory CPD will assist building surveyors to remain up to date in their knowledge.

Compliance with a prescribed code of conduct for building surveyors would also be required. Any breach of the code of conduct would constitute a disciplinary matter and could lead to action to suspend or cancel a building surveyor's registration.

Summary of cost benefit analysis for Key Element 8

	Cost	Benefit
Consumers	Additional costs for industry may be passed on to consumers via increased fees.	Increased assurance of professional service and better compliance.
Industry	CPD costs estimated at \$1,600,000 pa. ¹	Enhanced knowledge of NCC.
Government	Nil. Costs assumed to be fully offset by charges to industry.	Greater ability to hold practitioners accountable for their professional conduct.

Assumptions

¹ Estimate based on Consumer Protection mandatory CPD for real estate and settlement agents of \$8 million over 5 years.

5.3 Option 3 – Improvements to the current building approvals process

5.3.1 Overview

Option 3 proposes to reform the Building Act to improve the effectiveness of the current system, but retain LGAs as the only authority permitted to perform certain statutory functions for single residential building, including:

- granting a building permit and authorising the commencement of works;
- carrying out mandatory on-site inspections at key stages of the build; and
- enforcing compliance with applicable building standards and building permits.

Under Option 3, the current application processes for both certified and uncertified applications would also be retained. Where relevant, all the key elements outlined in the table below would apply equally to both processes.

To improve compliance with the NCC, Option 3 also incorporates relevant reforms from the Building Confidence Report, namely:

- a requirement that a minimum standard of design documentation, including for performance solutions, must be submitted to clearly demonstrate compliance with the NCC;
- requirements to document verified performance solutions and record them on the CDC;
- requirements to document and approve variations made during the build; and
- mandatory on-site inspections at critical stages of building work.

Set out below in Table 8 is a summary of the proposed reforms that form part of Option 3 for single residential buildings.

Table 8: Proposed reforms under Option 3

Key element	Proposed reform
Stage: Prior to commencement of building	
1. Role and function of the building surveyor and the permit authority	<ul style="list-style-type: none"> • The Building Act would continue to require the relevant permit authority to perform the statutory functions relating to building approval applications. • A registered building surveyor would continue to be responsible for assessing compliance with prescribed building standards and issuing CDCs.
2. Design compliance and documentation	<ul style="list-style-type: none"> • The Building Act would prescribe the minimum standard of design documentation that is required to demonstrate compliance with applicable building standards. This would apply to all design documentation submitted for building approval (e.g. plans and specifications). • The requirements for performance solutions would include a statement of verification for each performance solution used, together with details of the assessment method used to verify that the performance solution complies with the NCC (e.g. modelling, test results, engineer’s advice). The owner would also be required to consent in writing to the performance solution. The building surveyor issuing the CDC would be responsible for compliance with these requirements.

Key element	Proposed reform
	<ul style="list-style-type: none"> The prescribed requirements would be modelled on those in the Director's Specified List under section 20(1)(d) of the <i>Building Act 2016</i> (Tas).⁷¹ (See page 42 above.) The permit authority would need to be satisfied that the design documentation complies with the documentation requirements. The Building Act would require compliance with the documentation requirements prior to the granting of a building permit.
3. Conflicts of interest	<ul style="list-style-type: none"> LGAs are independent of industry and have a mandate to act in the public interest. Retaining LGAs is a key protection against the conflicts of interest that are inherent in full private certification. It also means that fewer of the safeguards recommended by the Building Confidence Report need to be adopted. Building surveyors contracted for the purpose of carrying out inspections on behalf of permit authorities would be subject to conflict of interest controls and would therefore require the building surveyor to be independent of the builder.
Stage: During the build	
4. Mandatory inspections at key stages	<ul style="list-style-type: none"> The Building Act would prescribe a requirement for on-site inspections to be carried out by the permit authority at certain notified stages to assess compliance with applicable building standards. The following minimum stages would be prescribed: <ul style="list-style-type: none"> In-situ reinforcement in footing and slabs (stage 1); frames, including roof construction (stage 2); fire-rated wall system (stage 3); and final post-completion of all work (stage 4). The permit authority would have the power to specify additional inspections at the time of granting the building permit. For example, additional inspections could be required for work that incorporates a performance solution. If, following an inspection, the permit authority deems that work is not of a satisfactory standard (i.e. does not meet applicable building standards), or is inconsistent with the building permit, the permit authority would require the building work and/or the rectification work to stop.
5. Documenting variations	<ul style="list-style-type: none"> Where a need to materially vary from the plans and specifications is identified, the Building Act would expressly require the owner or their agent (i.e. the builder) to apply to the permit authority for an amended building permit. The building surveyor who issued the CDC would be required to amend the CDC accordingly and clearly detail how the variations comply with applicable building standards.

⁷¹ https://www.cbos.tas.gov.au/_data/assets/pdf_file/0017/405017/Directors-determination-Directors-Specified-List-Sep-2017.pdf.

Key element	Proposed reform
	<ul style="list-style-type: none"> • The amended CDC would need to be lodged with an application for a variation to the permit authority. The application would be required to have the written approval of the owner. • An approved variation would involve the permit authority documenting the variation and amending the original building permit (which may include conditions). • Copies of the amended documentation detailing the variation would be required to be provided to the owner and the builder.
Stage: Post-completion	
6. Record keeping	<ul style="list-style-type: none"> • The LGA in whose geographic boundary the building is to be situated would continue to be responsible for record keeping, including building permit records, plans and specifications for proposed buildings, and records of existing buildings.
7. Enforcement	<ul style="list-style-type: none"> • Permit authorities would continue to be responsible for enforcement of applicable building standards during the build and throughout the life of the building. • The permit authority would undertake inspections, carry out investigations of suspected non-compliance with Building Act requirements and building standards, and, where appropriate, would enforce these requirements through building notices and orders, infringement notices or prosecutions. • To ensure the integrity of the building approval system, audits of certifiers would continue to be the responsibility of the Building Commissioner.

5.3.2 Overall impact analysis for Option 3

Efficiency

This reform option minimally addresses some of the *efficiency* problems with the current building approvals process, and the inclusion of detailed design documentation standards, including for performance solutions and variations from approved plans, would reduce inconsistencies to some degree.

However, the main causes for the reported delays in obtaining building approvals under the current system would be more difficult to address under Option 3. Likewise, the problems associated with incomplete applications and inconsistencies in processes across LGAs would also be unlikely to be addressed.

In relation to the issues currently being experienced in relation to compliance with planning requirements, it would be possible under Option 3 to require evidence of planning compliance before a building permit application is assessed, but this would not need to be an essential component of Option 3.

The area where Option 3 does present an opportunity to improve efficiency in the building permit process is in investigating the feasibility of introducing a fast-track approvals process that might reduce the certified application timeframe. Retaining LGA's in the building approval process provides the opportunity to consider a process that allows a building permit to be granted for a certified application prior to all "non-critical" Building Act requirements for a building permit application being met, possibly within a reduced timeframe of between 2 to 5 days. Construction could not commence

until a building permit is granted by the LGA, and any prescribed "non-critical" requirements would need to be satisfied within a prescribed time after the building work starts.

To qualify for fast-track approval, a building permit application would firstly be required to be accompanied by evidence of planning compliance issued by the relevant local government. Other considerations for determining whether there is sufficient detail in the documentation provided to support the granting of a fast-track approval would be prescribed by the Building Regulations. In practice, this would likely be a general requirement that the application is sufficiently complete and accurate.

In order to ensure any "non-critical" elements are met, a condition(s) might be attached to such building permits to require these elements to be satisfied by a prescribed time.

Formalising such a process would require minimal legislative change and would result in little disruption to the industry. It also has the potential to reduce the timeframe for commencing building work. However, it does rely on stakeholders being able to agree on the key conditions for fast-tracking and this would require extensive consultation to ensure the essential Building Act requirements are met prior to the LGA granting a building permit



Questions for consultation

26. Question 3 of this CRIS seeks comment on verifying planning compliance. Please tell us if you support a requirement to submit evidence of planning compliance with a building permit application as part of Option 3, and why?
27. Is there merit in exploring a fast-track approval process such as that described above?
28. If you answered yes to Question 27, what do you consider to be the key conditions that would need to be met in order to allow construction to commence? Are these key conditions able to be clearly defined?
29. Please provide any suggestions for an alternative fast-track process that could be considered.

Effectiveness

It is expected that Option 3 would improve the *effectiveness* of the building approvals system by increasing the level of compliance with building standards, thereby improving the quality of residential buildings in Western Australia.

Improvements to the quality of buildings would be achieved by:

- reducing the risk of error, and increasing compliance, through improved design and performance solution documentation available to builders and regulators;
- the implementation of a formal process for documenting variations to approved plans where required; and
- independent mandatory inspections at various stages during the build.

Compared to Option 2, Option 3 presents less of a cultural shift for the building industry as it would retain the essential elements that have always been present in the WA building approvals system.

Moreover, Option 3 would involve less legislative and procedural change than Option 2, meaning minimal industry disruption, and minimal cost and time to transition to the new system.

Implementing Option 3 in preference to Option 2 would also avoid any problems associated with conflicts of interest, by retaining local government as the independent authoriser and inspector of building work.

Under the current system, WA building surveyors have been limited in their role, with no legislated on-site responsibilities. It is further noted that building surveyors are an ageing workforce and there are concerns around future supply shortages. Mandatory inspection of building work would facilitate training and skills development through LGAs, and has the potential to attract more entrants into the profession and ease the anticipated future shortage.

Option 3 may also limit the risk associated with any tightening of the professional indemnity insurance (PII) market. A model that does not involve the private sector being responsible for granting building approvals and enforcing building standards means that pressures on obtaining PII should be reduced. However, nationwide trends in PII insurance will continue to impact the availability and cost of insurance in WA.

5.3.3 Cost benefit analysis

Set out on the following pages is a cost benefit analysis for those key elements of Option 3 that were able to be costed. A complete summary of the cost benefit analysis can be found at Appendix 2 of this CRIS.

The cost benefit analyses use a combination of quantitative and qualitative factors to measure the likely impact of Option 3 on the three major affected stakeholder groups, those being consumers, industry and government.

As with Option 2, a range of assumptions has been relied upon to prepare the cost benefit analysis. Feedback on these assumptions has been sought under Option 2.

Each cost benefit analysis assesses all costs and benefits to the extent possible. However, it is important to note that as the full value of benefits for most of the changes proposed under Option 3 has been impossible to calculate, estimated costs have been balanced against the benefits of mandatory inspections.

Overall, the results indicate that the annual cost of implementing the improvements included in Option 3 would be likely to be between \$22 million and \$28 million.

The benefit from avoided costs (i.e. the costs of having to rectify non-compliant buildings) is estimated to be between \$14 million and \$27 million a year. This is the same as for Option 2.

The average cost per build under Option 3 is estimated to be between \$1,600 and \$2,000 across all buildings. This compares to between \$1,900 and \$2,200 under Option 2. Although not every individual owner will benefit, the costs can be justified on a community level due to the expected overall improvement in the standard of buildings and the potential reduction in life safety dangers that arise from non-compliant buildings.



Questions for consultation

30. Do you support Option 3? Please give reasons for your answer.

31. Are there elements of Option 3 that you do not support? If so, which elements and why?

Key Element 2: Design compliance and documentation

Option 3 proposes that designers be responsible for preparing design documentation to a minimum standard of detail. Design documentation submitted for building approval would be checked against the legislated requirements, same as for Option 2.

The impact analysis for this key element is the same as that outlined under Option 2. Please refer back to [Key Element 2](#) – Design compliance and documentation in Option 2.

Satisfactory compliance with the legislated design documentation standards would need to be demonstrated before a permit authority could grant a building permit.



Question for consultation

32. Under Option 3, do you support the proposal that compliance with minimum standards for design documentation should be required prior to the granting of a building permit? If no, please tell us why.

Key Element 4: Mandatory inspections

Option 3 proposes that the Building Act be amended to prescribe a requirement for on-site inspections to be carried out at a minimum of four stages. Those stages would be:

1. Footing and slabs (stage 1);
2. Frames, including roof construction (stage 2);
3. Fire-rated wall system (stage 3); and
4. Final completion of all works under the building permit (stage 4).

The major benefits associated with mandatory inspections are derived from rectifying defects identified during the build, rather than five or more years after completion.

The impact analysis for implementing this key element is the same as that outlined under Option 2. Please refer back to [Key Element 4](#) – Mandatory Inspections in Option 2.

Under Option 3, the responsibility for carrying out the inspections would rest with the permit authority. The inspections would be expected to be carried out by an agent or employee of the permit authority.

Permit authority responsibility for inspections mitigates conflict of interest concerns and ensures state-wide coverage, while at the same time facilitating the retention of critical experience in building control.

For the purposes of the cost benefit analysis, the most costly one-size-fits-all inspection regime has been assumed; that being four inspections per build for all builds. The additional costs associated with imposing mandatory inspections could be reduced under Option 3 by requiring inspections to be carried out on a percentage of builds rather than on all builds.

This would be similar to the system that operates in South Australia, which has a regime whereby councils carry out inspections on 66% of building approvals for any construction involving roof framing. Under this system, every builder must notify the council at mandatory notification stages, and the council then determines in accordance with an inspection policy whether or not to conduct an inspection.



Questions for consultation

33. If Option 3 is adopted, should mandatory inspections apply to every single residential dwelling build in WA, or a sample of builds? Please provide reasons for your answer.
34. If a sample of builds is preferred, how should the sample be selected?

Key Element 5: Formal Process for Variations

Option 3 proposes that the Building Act would prescribe a requirement for variations to be recorded on the plans and specifications, as well as on the CDC and the building permit. Where a need to materially vary from the plans and specifications is identified, an application for a variation would be lodged with the permit authority, accompanied by a fee. Copies of the amended documentation would also need to be provided to both the builder and owner.

The impact analysis for implementing this key element is the same as that outlined under Option 2, except that it would not include a lodgment fee of \$120 for lodging records with the LGA. Please refer back to [Key Element 5](#) – Formal Process for Variations in Option 2.



Questions for consultation

35. Do you support a requirement that variations to the design made during the build must be submitted to the permit authority for formal approval? If no, please tell us why.

5.4 Comparison of options

Table 9 below compares Options 2 and 3 against the baseline of Option 1.

Table 9: Options comparison

Key elements	Option 1 Business as usual	Option 2 Full private certification	Option 3 Improvements to current approval process
Permit authorities/certifiers	<ul style="list-style-type: none"> LGAs appointed as permit authorities (PAs). 	<ul style="list-style-type: none"> Private building surveyors operate as certifiers. LGAs can choose to compete for single residential building work anywhere in the state, or opt out. 	<ul style="list-style-type: none"> No change from Option 1.
Building approval applications	<ul style="list-style-type: none"> Planning compliance confirmed by PA during building permit assessment. Voluntary verification of planning compliance offered by some LGAs. 	<ul style="list-style-type: none"> Mandatory verification of planning compliance submitted with a building permit application (i.e. development approval or a 'deemed to comply' check for single houses). 	<ul style="list-style-type: none"> No change from Option 1. Where evidence of planning compliance is submitted with a building application, a fast-track approval process could apply (if implemented).
	<ul style="list-style-type: none"> PAs assess applications against Act requirements and (where appropriate) grant building permits. 	<ul style="list-style-type: none"> Certifiers assess applications against Act requirements and (where appropriate) grant building permits. Requirements for certifiers to lodge approval documentation with relevant LGA. 	<ul style="list-style-type: none"> No change from Option 1.
Design compliance and documentation	<ul style="list-style-type: none"> No design documentation requirements. Regulation requirements for performance solutions are minimal and not consistently enforced. 	<ul style="list-style-type: none"> Minimum standard of design documentation prescribed. Designers become responsible for complying with minimum standard of documentation requirements/processes. Requirements introduced for performance solution documentation and processes. Certifier to assess design/performance solution documentation against prescribed requirements. Certifier to be satisfied documentation complies with prescribed requirements prior to granting building permit. 	<ul style="list-style-type: none"> Minimum standard of design documentation prescribed. Designers become responsible for complying with minimum standard of documentation requirements/processes. Requirements introduced for performance solution documentation and processes. Building surveyor issuing CDC must document performance solutions in CDC. PA to be satisfied documentation complies with prescribed requirements prior to granting building permit.

Key elements	Option 1 Business as usual	Option 2 Full private certification	Option 3 Improvements to current approval process
	<ul style="list-style-type: none"> • Certificate of design compliance issued by registered building surveyor (can be privately engaged or work for permit authority). 	<ul style="list-style-type: none"> • Certificate of design compliance issued by certifier. 	<ul style="list-style-type: none"> • No change from Option 1.
Conflicts of interest	<ul style="list-style-type: none"> • Minimal conflict of interest controls. 	<ul style="list-style-type: none"> • Strengthened conflict of interest controls. 	<ul style="list-style-type: none"> • Strongest conflict of interest controls.
Mandatory inspections of building work	<ul style="list-style-type: none"> • PA may inspect building work. 	<ul style="list-style-type: none"> • Mandatory inspections of building work at prescribed stages carried out by certifiers. 	<ul style="list-style-type: none"> • Mandatory inspections of building work at prescribed stages carried out by PA.
Process for variations	<ul style="list-style-type: none"> • Informal process for amending building permit is available but inconsistently applied. 	<ul style="list-style-type: none"> • Requirement to apply to vary from approved design documentation. • Process for certifier to assess and approve variations during construction, amend building approval documentation, provide amended documentation to builder and owner. • Certifier required to lodge amended documentation with LGA. 	<ul style="list-style-type: none"> • Requirement to apply to vary from approved design documentation. • Process for PA to assess and approve variations during construction, amend building approval documentation, provide amended documentation to builder and owner.
Enforcement	<ul style="list-style-type: none"> • PA responsible for enforcing compliance with building permits/standards, including any rectification work. • PA responsible for all enforcement action, including prosecutions. • Building Commissioner responsible for dealing with negligent or incompetent practice. 	<ul style="list-style-type: none"> • Certifiers enforce compliance with building plans/building standards during construction, including any rectification work. • Mandatory reporting by certifiers to relevant government authority for: <ul style="list-style-type: none"> ○ non-compliance requiring further enforcement action; and ○ negligent or incompetent practice. • LGA responsible for further enforcement actions, including prosecutions. • Building Commissioner responsible for dealing with negligent or incompetent practice. 	<ul style="list-style-type: none"> • Permit authority is responsible for enforcing compliance with mandatory inspections.

Key elements	Option 1 Business as usual	Option 2 Full private certification	Option 3 Improvements to current approval process
Record keeping	<ul style="list-style-type: none"> LGA responsible for maintaining building records. 	<ul style="list-style-type: none"> LGA responsible for maintaining building records. Certifier responsible for lodging all building approval documentation with the LGA within a specified time. 	<ul style="list-style-type: none"> No change from Option 1.
Registration requirements (building surveyors)	<ul style="list-style-type: none"> No CPD requirements. No code of conduct. 	<ul style="list-style-type: none"> Mandatory CPD requirements for registered building surveyors. Code of conduct for certifiers. 	<ul style="list-style-type: none"> No change from Option 1.

5.4.1 Summary of key impacts of Options 2 and 3

Below is a summary of the comparative costs and benefits of Option 2 and Option 3.

	Costs	Benefits	Comments
Option 2 – Full private certification			
Total per year across the industry	\$26–\$31M	\$14–\$27M	Significant disruption, risk, and time to implement
Average cost per build	\$1,900–\$2,200	Up to \$5,600 for <u>affected</u> buildings	
Option 3 – Improvements to current building approvals process			
Total per year across the industry	\$22–\$28M	\$14–\$27M	Moderate disruption, risk, and time to implement
Average cost per build	\$1,600–\$2,000	Up to \$5,600 for <u>affected</u> buildings	

5.4.2 Concluding remarks

The cost benefit analyses set out in this CRIS indicate that costs will increase for both Option 2 and Option 3 and that both options will improve the quality of building.

However, Option 3 would cost somewhat less and would involve significantly less disruption and risk than introducing the full private certification model in Option 2.

It is also important to note that removing LGAs from the building approvals process (as per Option 2) would be a major structural change that would be likely to result in most qualified building staff moving to the private sector where ongoing livelihood is dependent on the market. This would leave LGAs with considerably reduced capacity for dealing with building problems once building work is complete.

It is also often problematic for the private sector to meet demand in more remote areas of the state in a timely and cost effective manner.

APPENDIX 1 – Cost benefit summary full private certification

Table A: Cost benefit summary for full private certification for single residential dwellings

	Status quo		Full private certification	
	Cost	Benefit	Cost	Benefit
Consumers				
			Costs will increase as new and additional costs are passed on via fees. Estimate \$1900 - \$2200 per build. ⁷²	Increased confidence in quality of build. Reduced insurance claims or repair costs for damage resulting from non-compliant work. Estimated up to \$5600 for affected buildings. ⁷³
Industry – Private certifiers				
Improved documentation for <ul style="list-style-type: none"> plans performance solutions 	Building and Energy audits show current documentation contributes to buildings being non-compliant with NCC		Approx. \$455 ⁷⁴ each for documentation of plans and performance solutions. Approx. \$6.279 million pa. ⁷⁵	Removes need to cross reference with standards as all information will be contained in plans. Improved compliance with NCC and reduced rectification costs for builders. Reduced likelihood of claims on PII for certifiers.
Formal variation process	Differing processes and costs across LGs. Fees range from \$100 - \$315.		Cost increase will be for additional documentation of the proposed variation – approx. \$455 ⁷⁶ - and a lodgement fee with the LG – approx. \$120. Approx. \$634,800 per annum for the industry. ⁷⁷	Increased consistency in processes and increased assurance that variations comply with NCC.

⁷² This estimated cost per build has been calculated by adding all of the costs that have been estimated for the proposed elements of full private certification.

⁷³ The estimated savings are based on mandatory inspections. There are also likely to be savings from other measures such as improved documentation but these have not been able to be estimated.

⁷⁴ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

⁷⁵ Annual cost based on 13,800 building commencements in 2018.

⁷⁶ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

⁷⁷ Based on a survey of seven metropolitan LGAs done by Building and Energy in December 2018, it is assumed that approximately 8% of builds require material variations to plans and specifications. Based on this 8% of variations required, total per annum cost calculated by reference to 13,800 commencements in 2018.

CRIS Reforms to the building approval process

	Status quo		Full private certification	
	Cost	Benefit	Cost	Benefit
Inspections				Reduced insurance premiums in longer term as risk is reduced.
Professional indemnity insurance	Increasing cost. WA certifiers are charged the same premiums as interstate certifiers although they cannot issue building permits. Nationally premiums are increasing and there is a trend to place exclusions on coverage due to the insurance sector's response to building cladding liabilities.		Increasing cost. ⁷⁸ Potential loss of cover if insurers place exclusions in policies.	
Industry – Builders				
Building approval fees		Fee regulated. <i>Certified application (residential)</i> 0.19% of value of build. \$570 based on value of \$300,000 ⁷⁹ . <i>Uncertified application (residential)</i> 0.32% of value of build. \$960 based on value of \$300,000.	Average fee \$1620. ⁸⁰ Approx. \$660 increase on uncertified application. Lodgement fee with LG ⁸¹ \$120 per build and \$1,656,000 pa for industry.	Choice over which certifier(s) are used. Will reduce some variability for builders.

⁷⁸ Insurance broker source estimates premiums have risen from approximately below 1% of fee income prior to 2018 to 2% of fee income in 2018. For businesses with \$5million cover the average premium for fee income of \$500K - \$1M pa has risen from \$7,137 to \$8,925; for fee income of \$1M - \$3M pa from \$15,905 to \$22,649.

⁷⁹ Median cost of single residential dwelling. Sources: Master Builders Association “Building costs”: <https://www.mbawa.com/building-costs/> Housing Industry Association “How much does it cost to building a house?” <https://www.realestate.com.au/advice/how-much-does-it-cost-to-build-a-house/>.

⁸⁰ Refer to Table B.

⁸¹ Lodgement fee estimated at \$120 for 13,800 builds during 2018.

CRIS Reforms to the building approval process

	Status quo		Full private certification	
	Cost	Benefit	Cost	Benefit
Inspections			<p>Approx. \$11 million pa or \$800 per build.⁸² Time to notify and arrange inspections.</p> <p>Lost time and costs if problems need rectification.</p> <p>Rectification costs⁸³:</p> <ul style="list-style-type: none"> • \$250-1,360 per affected build <p>\$3.1-8.3M for industry.</p> <p>Reinspection costs to be paid by builder - \$200⁸⁴ per inspection.</p> <p>Reinspections estimated at 30% of builds initially.⁸⁵ This equates to \$828,000 per annum for the industry.⁸⁶</p>	<p>Increased certainty and problems dealt with early and at less cost than later rectification.</p> <p>Potentially lowered insurance costs.</p> <p>Indicative savings⁸⁷ are:</p> <ul style="list-style-type: none"> • \$0-5,600 per build for affected buildings. • \$14-27M for industry.
Government – Department of Mines, Industry Regulation and Safety				
CPD system			New cost - \$1,600,000 pa. ⁸⁸	
Certifier audits			Additional cost - \$451,200. ⁸⁹	
Government – Local government				

⁸² Four inspections per build, for every build. If reinspections required the builder to be liable. Costs calculated on likely WA local government costs and benchmarked against Queensland local government costs and include indirect costs.

⁸³ See Table C for indicative costs of rectifying problems at inspection.

⁸⁴ Cost based on 4 inspections per build for every build. Costs calculated on likely WA local government costs and benchmarked against Queensland local government costs and include indirect costs.

⁸⁵ Based on Building and Energy Division audit data. Variation is 3-75% of unsatisfactory work dependent on what is being inspected. Averaged unsatisfactory rating is 30%.

⁸⁶ Based on 13,800 building commencements in 2018. Source: John Fiocco, October 2018, Final Report to the Minister for Commerce – Security of Payment Reform in the WA Building Industry.

⁸⁷ See Table C. Indicative savings calculated by deducting inspection cost, rectification cost at time of build and reinspection cost from rectification cost at 5+ years.

⁸⁸ Based on Consumer Protection mandatory CPD for real estate and settlement agents of \$8 million over 5 years.

⁸⁹ Based on an additional 2.5 FTE building surveyors including on costs. Private certification involves increased complexity and higher risk.

CRIS Reforms to the building approval process

	Status quo		Full private certification	
	Cost	Benefit	Cost	Benefit
		Regulated roles and income.	Reduced income for enforcement as no longer issue building permits. Lodgement fees will offset record keeping costs. Loss of expertise as people move to the private sector.	Improved building compliance reduces need for enforcement.
Government – SAT				
Additional appeals			Extra cost – probably marginal increase in work.	
Government – Court				
Additional prosecutions			Extra cost – probably marginal increase in work.	
Government – Insurance Commission				
			Extra cost as insurer of last resort where PI insurance not available.	
Government – Reputation				
	Some volume home builder complaints. Local Government concerns that building approval income is inadequate to cover costs of obligations.	Local Government has community trust.	Public loss of confidence if the private system fails in a major way leading to negative impact on the building industry. Consumer complaints if build quality not adequately monitored. Builder complaints if private certification does not contain costs. Local Government complaints if role and costs not adequately addressed.	Improved build quality.

Table B: Building permit application fees for residential construction – Assuming \$300,000 value of building work

Location	Fee
Western Australia	\$960 - uncertified application
Victoria	
Murrindi Shire	\$1,689
Private certifier	Up to \$2,000
Alpine Shire Council	\$1,172
New South Wales	
City of Botany Bay	\$1,067
Penrith City Council	\$1,545
City of Sydney	\$1,199
Queensland	
Redland City	'typical house' \$1,293
Private Certifier Redland City	'typical house' \$2,100
Lockyer Valley Regional Council	\$1,859
Australian Capital Territory	
ACT Government	\$2,257
AVERAGE FEE (rounded)	\$1,620

Table C: Indicative costs to rectify/remediate most likely damages at critical stages of construction – single dwellings

Proposed inspection stage	Scenario	Frequency (B&E audits – unsatisfactory elements)	Indicative cost to rectify or remediate			Savings (\$)*
			No. of single dwellings	At construction (\$)	At completion (5+yrs) (\$)	
Footing Inspection	<i>Assumption: affected area 10m²</i> Incorrect/insufficient sand pad and poor compaction of soil (10m ²)	34%	1	1,360	5,875	4,115
			13,800**	8,257,920	27,565,500	19,307,580
Fire rated walls	No assessment of costs due to high rate of compliance.	10%	N/A	N/A	N/A	
Roof framing inspection	Omission of the tie-down straps on a timber framed roof that has a sheet metal roof, located in a wind zone that requires a roof tie – down system. (Assumption: 50% of total floor area of 228m ² for the purpose of estimating costs).	Timber roof framing 35% Roof tie down 35%	1	250	6,250	5,600
			13,800	3,139,500	30,187,500	27,048,000
Completion/ final	Constructed in a BAL-12.5 and not meet all bushfire construction requirements rectification work to one bed room (9.6m ²)	46%#	1	1,100	1,500	0
	The plasterboard lined ceilings have been installed with an inadequate amount and size of adhesive daubs (9.6m ²)	35%	1	315	3,700	2,985
Waterproofing	One bathroom (6m ²)	42%	1	10,400	15,000	4,000
			13,800	62,625,780	86,940,000	24,314,220

*Cost at 5+ years – (cost at construction + \$400 – [inspection and reinspection fees]). Costs GST not included.

**Single dwelling commencements in WA in 2018 (approximately). Source: ABS, BIS Oxford Economics.

#Based upon General Inspection 3 - bushfire building compliance site inspection AS 3959. Construction compliance rate over all BALS.

REFER TO APPENDIX 3 FOR A FULL BREAKDOWN OF HOW COSTS WERE DETERMINED

APPENDIX 2 – Cost benefit summary improvements to current system

Table A: Cost benefit: improvements to the current building approvals process for single residential dwellings⁹⁰

	Status quo		Improvement to current system	
	Cost	Benefit	Cost	Benefit
Consumers				
			Costs will increase as new and additional costs are passed on via fees. Estimate \$1600 - \$2000 per build. ⁹¹	Increased confidence in quality of build. Reduced insurance claims or repair costs for damage resulting from non-compliant work. Estimated up to \$5600 for affected buildings. ⁹²
Industry – Building surveyors				
Improved documentation for <ul style="list-style-type: none"> plans performance solutions 	Building and Energy audits show current documentation contributes to buildings being non-compliant with NCC		Approx. \$455 ⁹³ each for documentation of plans and performance solutions. Approx. \$6.279 million pa. ⁹⁴	Removes need to cross reference with standards as all information will be contained in plans. Improved compliance with NCC and reduced rectification costs for builders. Reduced likelihood of claims on PII for certifiers.
Formal variation process	Differing processes and costs across LGs. Fees range from \$100 - \$315.		Cost increase will be for additional documentation of the	Increased consistency in processes and increased assurance that variations comply with NCC.

⁹⁰ Recommendations made by the Building Confidence Report that involve minimal cost have not been included – codes of conduct for building surveyors, enhanced supervisory powers and mandatory reporting obligations for private certifiers.

⁹¹ This estimated cost per build has been calculated by adding all of the costs that have been estimated for the proposed elements of improvements to the current building approvals process.

⁹² This estimated savings has only been calculated from mandatory inspections. There are also likely to be savings from other measures such as improved documentation but these have not been able to be estimated.

⁹³ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

⁹⁴ Annual cost based on 13,800 building commencements in 2018.

CRIS Reforms to the building approval process

	Status quo		Improvement to current system	
	Cost	Benefit	Cost	Benefit
			proposed variation – approx. \$455 ⁹⁵ . Approx. \$634,800 per annum for the industry. ⁹⁶	
Inspections				Reduced insurance premiums in longer term as risk is reduced.
Professional indemnity insurance	Increasing cost. WA certifiers are charged the same premiums as interstate certifiers although they cannot issue building permits. Nationally premiums are increasing and there is a trend to place exclusions on coverage due to the insurance sector's response to building cladding liabilities.		Increasing cost. ⁹⁷ Potential loss of cover if insurers place exclusions in policies.	Risks are limited under this option by retaining LGA to issue building permits.
Industry – Builders				
Building approval fees		Fee regulated. <i>Certified application (residential)</i> 0.19% of value of build.	Average fee \$1620. ⁹⁹ Approx \$660 increase on uncertified application.	Choice over which certifier(s) are used. Will reduce some variability for builders.

⁹⁵ Based on 2 hours each for an architect/engineer (\$85/hour) and building surveyor (\$125/hour) and 1 hour for an administrative officer (\$35/hour).

⁹⁶ Based on a survey of seven metropolitan LGAs done by Building and Energy in December 2018, it is assumed that approximately 8% of builds require material variations to plans and specifications. Based on this 8% of variations required, total per annum cost calculated by reference to 13,800 commencements in 2018.

⁹⁷ Insurance broker source estimates premiums have risen from approximately below 1% of fee income prior to 2018 to 2% of fee income in 2018. For businesses with \$5million cover the average premium for fee income of \$500K - \$1M pa has risen from \$7,137 to \$8,925; for fee income of \$1M - \$3M pa from \$15,905 to \$22,649.

⁹⁹ Refer to Table B.

CRIS Reforms to the building approval process

	Status quo		Improvement to current system	
	Cost	Benefit	Cost	Benefit
		<p>\$570 based on value of \$300,000.⁹⁸</p> <p><i>Uncertified application (residential)</i></p> <p>0.32% of value of build.</p> <p>\$960 based on value of \$300,000.</p>	<p>Lodgement fee with LG¹⁰⁰ \$120 per build and \$1,656,000 pa for industry.</p>	
Inspections			<p>Approx. \$11 million pa or 800 per build.¹⁰¹</p> <p>Time to notify and arrange inspections.</p> <p>Lost time and costs if problems need rectification.</p> <p>Rectification costs¹⁰²:</p> <ul style="list-style-type: none"> \$250-1,360 per affected build <p>\$3.1-8.3M for industry.</p> <p>Reinspection costs to be paid by builder - \$200¹⁰³ per inspection.</p> <p>Reinspections estimated at 30% of builds initially.¹⁰⁴ This</p>	<p>Increased certainty and problems dealt with early and at less cost than later rectification.</p> <p>Potentially lowered insurance costs.</p> <p>Indicative savings¹⁰⁶ are:</p> <ul style="list-style-type: none"> \$0-5,600 per build for affected buildings. \$14-27M for industry.

⁹⁸ Median cost of single residential dwelling. Sources: Master Builders Association “Building costs”: <https://www.mbawa.com/building-costs/>
Housing Industry Association “How much does it cost to building a house?” <https://www.realestate.com.au/advice/how-much-does-it-cost-to-build-a-house/>.

¹⁰⁰ Lodgement fee estimated at \$120 for 13,800 builds during 2018.

¹⁰¹ Four inspections per build, for every build. If reinspections required the builder to be liable. Costs calculated on likely WA local government costs and benchmarked against Queensland local government costs and include indirect costs.

¹⁰² See Table C for indicative costs of rectifying problems at inspection.

¹⁰³ Cost based on 4 inspections per build for every build. Costs calculated on likely WA local government costs and benchmarked against Queensland local government costs and include indirect costs.

¹⁰⁴ Based on Building and Energy Division audit data. Variation is 3-75% of unsatisfactory work dependent on what is being inspected. Averaged unsatisfactory rating is 30%.

¹⁰⁶ See Table C. Indicative savings calculated by deducting inspection cost, rectification cost at time of build and reinspection cost from rectification cost at 5+ years.

CRIS Reforms to the building approval process

	Status quo		Improvement to current system	
	Cost	Benefit	Cost	Benefit
			equates to \$828,000 per annum for the industry. ¹⁰⁵	
Government – Department of Mines, Industry Regulation and Safety				
CPD system			New cost - \$1,600,000 pa. ¹⁰⁷	
Building surveyor audits			Additional cost - \$451,200. ¹⁰⁸	
Government – Local government				
		Regulated roles and income.	Possible increase in expertise with enhanced role (i.e. inspections). Facilitate training and upskilling of building surveyors.	Improved building compliance reduces need for enforcement.
Government – Insurance Commission				
			Extra cost as insurer of last resort where PI insurance not available.	
Government – Reputation				
	Some volume home builder complaints. Local Government concerns that building approval income is inadequate to cover costs of obligations.	Local Government has community trust.	Volume home building sector loss of confidence if the private system is not introduced.	Improved build quality. Local government sector support and goodwill.

¹⁰⁵ Based on 13,800 building commencements in 2018. Source: John Fiocco, October 2018, Final Report to the Minister for Commerce – Security of Payment Reform in the WA Building Industry.

¹⁰⁷ Based on Consumer Protection mandatory CPD for real estate and settlement agents of \$8 million over 5 years.

¹⁰⁸ Based on an additional 2.5 FTE building surveyors including on costs.

Table B: Building permit application fees for residential construction – Assuming \$300,000 value of building work

Location	Fee
Western Australia	\$960 - uncertified application
Victoria	
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Penrith City Council	\$1,545
City of Sydney	\$1,199
Queensland	
Redland City	'typical house' \$1,293
Private Certifier Redland City	'typical house' \$2,100
Lockyer Valley Regional Council	\$1,859
Australian Capital Territory	
ACT Government	\$2,257
AVERAGE FEE (rounded)	\$1,620

Table C: Indicative costs to rectify/remediate most likely damages at critical stages of construction – single dwellings

Proposed inspection stage	Scenario	Frequency (B&E audits – unsatisfactory elements)	Indicative cost to rectify or remediate			Savings (\$)*
			No. of single dwellings	At construction (\$)	At completion (5+ yrs) (\$)	
Footing Inspection	<i>Assumption: affected area 10m²</i> Incorrect/insufficient sand pad and poor compaction of soil (10m ²)	34%	1	1,360	5,875	4,115
			13,800**	8,257,920	27,565,500	19,307,580
Fire rated walls	No assessment of costs due to high rate of compliance.	10%	N/A	N/A	N/A	
Roof framing inspection	Omission of the tie-down straps on a timber framed roof that has a sheet metal roof, located in a wind zone that requires a roof tie – down system. (Assumption: 50% of total floor area of 228m ² for the purpose of estimating costs).	Timber roof framing 35% Roof tie down 35%	1	250	6,250	5,600
			13,800	3,139,500	30,187,500	27,048,000
Completion/ final	Constructed in a BAL-12.5 and not meet all bushfire construction requirements rectification work to one bed room (9.6m ²)	46%#	1	1,100	1,500	0
	The plasterboard lined ceilings have been installed with an inadequate amount and size of adhesive daubs (9.6m ²)	35%	1	315	3,700	2,985
Waterproofing	One bathroom (6m ²)	42%	1	10,400	15,000	4,000
			13,800	62,625,780	86,940,000	24,314,220

*Cost at 5+ years – (cost at construction + \$400 – [inspection and reinspection fees]). Costs GST not included.

**Single dwelling commencements in WA in 2018 (approximately). Source: ABS, BIS Oxford Economics.

#Based upon General Inspection 3 - bushfire building compliance site inspection AS 3959. Construction compliance rate over all BALS.

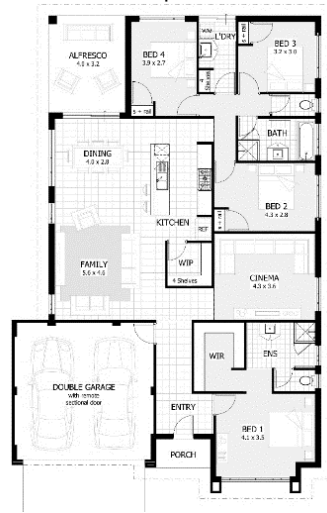
REFER TO APPENDIX 3 FOR A FULL BREAKDOWN OF HOW COSTS WERE DETERMINED

APPENDIX 3 – Indicative cost assessment inspection stages

Estimated costs to rectify/remediate problems at critical stages of construction – Single dwellings

Key assumptions:

1. All other factors or elements in regards to the scenario are fixed (e.g. accessibility to the site, particular area is only affected by the scenario for the purpose of estimating costs, etc.)
2. Double brick house of approximately floor area of 228m². Construction materials and methods:
 - (I) Soil – sand;
 - (II) Timber framed roof that has a sheet metal roof, located in a wind zone;
 - (III) Bushfire construction requirements BAL 12.5; and
 - (IV) Plasterboard lined ceilings.
3. Intangible costs have not been included in the estimates, such as relocating occupants, loss of service for the occupants, physical and mental stress and health matters, rent, mortgage payments and legal and other expenses.
4. All costs exclude GST. The floor plan is referred to in the costings to indicate the extent of damage or remediation required.
5. The remediation costs for the lack of adhesive daubs to the plasterboard lined ceilings are based upon this defect being identified prior to the completion of the internal painting.



Foundation footing and slab mandatory inspection stage costings

Scenario 1: Incorrect/insufficient sand pad and poor compaction of soil

Minor damages

At construction – Footing stage prior to concrete being poured

Localised damage to foundation material (does not achieve suitable compaction) to perimeter footing(s) area. Likely resulting in slight movement to substructure

Rectification/remedial repair method

- Remove reinforcement, plastic, services to slab and footing areas
- Determine/remedy cause of compaction failure
- Stabilise foundation material by compaction
- Test compaction of soil under footing and slab
- Excavate/repair footing trenches, re-introduce services
- Reinstate pest control barrier, relay plastic and reinforcement mesh

Minor damages

At completion – Five years

Localised damage to perimeter foundations/footing(s) resulting in slight movement to substructure, walls, floor and roof, in terms of cracking

Rectification/remedial repair method

- Stabilise soil below and adjacent footing via ground injection to cavity wall perimeter
- Stabilise slab via injection to 1 metre in from cavity wall perimeter
- Repair cracking – in walls both internal and external
- Realign roof cladding/ridging (tiles, cement fibre or steel)
- Remove and replace existing floor covering to allow for slab injection
- Minor ceiling repairs at cornice to wall interface to repair any cracking

Assumption 1: Damage to bedroom 3 (10m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove reo and plastic	1	Hrs	64.25	64.25
Investigate cause of compaction failure	2	Hrs	64.25	128.50
Spread and compact new sand (includes pick up)	3	Hrs	64.25	192.75
Reinstate plastic and reo	1	Hrs	64.25	64.25

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping (allow for 1 metre each side) store on site	5	Hrs	56.19	280.95
Stabilisation of footing (includes materials)	6.2	L/m	150	930.00
Slab injection 1 metre from slab edge to fill void (includes materials)	5.2	M²	175	910.00
Internal walls - Stitch crack repair (includes materials)	1	Item	500	500.00
Internal walls - Repaint wall to match (includes materials)	26	M²	20.77	540.02

CRIS Reforms to the building approval process

Material - sand/tape/tie wire	1	Item	40	40.00
Machinery - compactor	1	Item	90.91	90.91
Miscellaneous - Pest control	1	Item	280	280.00
Consultants - test compaction	1	Item	500	500.00
Subtotal net			\$1,360.66	

Internal ceiling repair/paint (includes materials)	10	M ²	13.5	135.00
External walls - Crack repair/pointing (includes materials)	1	Item	500	500.00
Miscellaneous - Roof cladding and ridging	1	Item	350	350.00
Consultants - Soil stabilisation scope of repair (report)	1	Item	750	750.00
Miscellaneous - Pest control	1	Item	280	280.00
Costs to repair other damages due to damaged footing - Remove and replace carpet	1	Item	400	400.00
Costs to repair other damages due to damaged footing - Paving	1	Item	300	300.00
Subtotal net			\$5,875.97	

Assumption 2: Damage to bedroom 2, 3, 4 and kitchen (92m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove reo and plastic	3	Hrs	64.25	192.75
Investigate cause of compaction failure	2	Hrs	64.25	128.50
Spread and compact new sand (includes pick up)	6	Hrs	64.25	385.50

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping store on site	8	Hrs	56.19	449.52
Stabilisation of footing (includes materials)	30	L/m	150	4500.00
Slab injection 1 metre from slab edge to fill void (includes materials)	28	M ²	175	4900.00
Internal walls - Stitch crack repair (includes materials)	5	Item	500	2500.00

CRIS Reforms to the building approval process

Reinstate plastic and reo	3	Hrs	64.25	192.75	Internal walls - Repaint wall to match (includes materials)	221	M ²	20.77	4590.17
Material - sand/tape/tie wire	1	Item	50	50.00	Internal ceiling repair/paint (includes materials)	130	M ²	13.5	1755.00
Machinery - compactor	1	Item	225.45	225.45	External walls - Crack repair/pointing (includes materials)	3	Item	500	1500.00
Miscellaneous - Pest control	92	M ²	15	1380.00	Miscellaneous - Roof cladding and ridging	3	Item	350	1050.00
Consultants - test compaction	1	Item	500	500.00	Consultants – Underpinning scope of repair	1	Item	1000	1000.00
					Miscellaneous - Pest control	30	M	15	450.00
					Costs to repair other damages due to damaged footing - Remove and replace carpet to bedroom only	1	Item	750	750.00
					Possible cost of remove/replace floor tiling to Kit/Dine/Fam/Ent (approx 74m ²)	1	PS	12000	12000.00
					Costs to repair other damages due to damaged footing - Paving	1	Item	500	500.00
Subtotal net			\$3,054.95		Subtotal net			\$35,944.69	

Scenario 1: Incorrect/insufficient sand pad and poor compaction of soil

Major damages

At construction – Footing stage prior to concrete being poured

Substantial damage to foundation material (does not achieve suitable compaction) to perimeter footing(s) area. Likely resulting in slight movement to substructure

Rectification/remedial repair method

- Remove reinforcement, plastic, services to slab and footing areas
- Determine/remedy cause of compaction failure
- Stabilise foundation material by compaction
- Test compaction of soil under footing and slab
- Excavate/repair footing trenches, re-introduce services
- Reinstate pest control barrier, relay plastic and reinforcement mesh

Major damages

At completion – Five years

Substantial damage to footings and substructure (partly or wholly) resulting in movement of footings(s) which in turn would affect the walls and roof, in terms of cracking alignment, to a greater degree, etc.

Rectification/remedial repair method

- Underpin footings
- Stabilise soil below and adjacent footing via ground injection to cavity wall perimeter
- Stabilise slab via injection to 1 metre in from cavity wall perimeter
- Repair cracking – in walls both internal and external
- Realign roof cladding/ridging (tiles, cement fibre or steel)
- Remove and replace existing floor covering to allow for slab injection
- Minor ceiling repairs at cornice to wall interface to repair any cracking

Assumption 1: Damage to bedroom 3 (10m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter	1	Hrs	64.25	64.25
Remove reo and plastic	2	Hrs	64.25	128.50
Investigate cause of compaction failure	6	Hrs	64.25	385.50
Remove/relocate deleterious material or services causing compaction failure	4	Hrs	64.25	257.00
Form up and stabilise edges of footing	4	Hrs	64.25	257.00

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping (allow for 1 metre each side) store on site	5	Hrs	56.19	280.95
Underpinning of footing (includes materials)	7	L/m	1500	10500.00
Slab injection to fill void (includes materials)	6	M ²	155	930.00
Internal walls - Stitch crack repair (includes materials)	1	Item	500	500.00
Internal walls - Repaint wall to match (includes materials)	26	M ²	20.77	540.02

CRIS Reforms to the building approval process

Spread and compact new sand	1	Hrs	64.25	64.25
Reinstate plastic and reo	1	Item	40	40.00
Material - sand	1	Item	90.91	90.91
Machinery - compactor	1	Item	50	50.00
Plant - Formwork	1	Item	280	280.00
Miscellaneous - Pest control	1	Item	500	500.00
Consultants - test compaction				
Subtotal net			\$2,117.41	

Internal ceiling repair/paint (includes materials)	10	M ²	13.5	135.00
External walls - Crack repair/pointing (includes materials)	1	Item	500	500.00
Miscellaneous - Roof cladding and ridging	1	Item	350	350.00
Miscellaneous - Pest control	1	Item	280	280.00
Consultants - Underpinning scope	1	Item	750	750.00
Remove and replace existing carpet	1	Item	350	350.00
Costs to repair other damages due to damaged footing - Paving	1	Item	300	300.00
Subtotal net			\$15,415.97	

Assumption 2: Damage to bedroom 2, 3, 4 and kitchen (92m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove reo and plastic	3	Hrs	64.25	192.75
Investigate cause of compaction failure	3	Hrs	64.25	192.75
Remove/relocate deleterious material or services causing compaction failure	12	Hrs	64.25	771.00

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping store on site	8	Hrs	56.19	449.52
Underpinning of footing (includes materials)	20.5	L/m	1500	30750.00
Slab injection to fill void (includes materials)	20.5	M ²	155	3177.50
Internal walls - Stitch crack repair (includes materials)	5	Item	500	2500.00

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Spread and compact new sand	6	Hrs	64.25	385.50
Form up and stabilise edges of footing	8	Hrs	64.25	514.00
Reinstate plastic and reo	4	Hrs	64.25	257.00
Material - sand/tape/tie wire pvc pipe/fittings (service/s relocation)	1	Item	100	100.00
Plumber/Electrician reinstate pre-lay	1	Item	750	750.00
Machinery - excavator/mini loader	4	Hrs	98	392.00
Machinery - compactor	1	Item	225.45	225.45
Plant - Formwork	4	Item	50	200.00
Miscellaneous - Pest control	92	M ²	15	1380.00
Consultants - test compaction	1	Item	500	500.00
Subtotal net			\$5,860.45	

Internal walls - Repaint wall to match (includes materials)	221	M ²	20.77	4590.17
Internal ceiling repair/paint (includes materials)	130	M ²	13.5	1755.00
External walls - Crack repair/pointing (includes materials)	5	Item	500	2500.00
Miscellaneous - Roof cladding and ridging	3	Item	350	1050.00
Miscellaneous - Pest control perimeter	30	M	15	450.00
Consultants - Underpinning scope	1.5	Item	1000	1500.00
Remove and replace existing carpet	1	Item	1150	1150.00
Costs to repair other damages due to damaged footing - Paving	1	Item	500	500.00
Subtotal net			\$50,372.19	

Scenario 2: Footing incorrect size and not able to support the structure

<p>Damages at construction – Footing stage prior to concrete being poured</p> <p>Footings construction not in accordance with design (size or reinforcement incorrect) and will likely not adequately support the external walls and other elements of the dwelling, resulting in minor cracking to the substructure.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Remove reinforcement, plastic, services to slab and footing areas • Adjust footing width/depth, reinstate services • Correct deficiencies with reinforcement mesh • Reinstate pest control barrier, relay plastic and reinforcement mesh

<p>Damages at completion – Five years</p> <p>Footings not performing adequately due to incorrect construction (not in accordance with design) and not supporting the external walls and other elements of the dwelling resulting in movement and cracking of the footings and other elements affecting linings, cladding, coverings, drainage - even the opening/securing of doors and windows.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Increase size of footing • Stabilise soil below and adjacent footing via ground injection to cavity wall perimeter • Repair cracking – in walls both internal and external • Realign roof cladding/ridging (tiles, cement fibre or steel) • Remove and replace existing floor covering to allow for slab injection • Minor ceiling repairs at cornice to wall interface to repair any cracking

Assumption 1: Damage to bedroom 3 (10m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove reo and plastic	1	Hrs	64.25	64.25
Adjust width/depth of footing excavation	2	Hrs	64.25	128.50
Replace plastic and install new reinforcement	1	Hrs	64.25	64.25
Material - Reinforcement (TME)	8	L/m	6.72	53.76

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping (allow for 1 metre each side) store on site	5	Hrs	56.19	280.95
Excavate alongside existing footing and install new footing	6.2	L/m	175	1085.00
Slab injection 1 metre from slab edge to fill void (includes materials)	5.2	L/m	150	780.00
Internal walls - Stitch crack repair (includes materials)	1	Item	500	500.00
Internal walls - Repaint wall to match (includes materials)	26	M²	20.77	540.02

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Machinery - compactor	1	Item	90.91	90.91
Miscellaneous - Pest control	1	Item	280	280.00
Consultants - test compaction	1	Item	500	500.00
Plumber - reinstate LDY prelay	4	Hrs	78.72	314.88
Subtotal net			\$1,496.55	

Internal ceiling repair/paint (includes materials)	10	M ²	13.5	135.00
External walls - Crack repair/pointing (includes materials)	1	Item	500	500.00
Miscellaneous - Roof cladding and ridging	1	Item	350	350.00
Consultants - Footing scope of repair (report)	1	Item	750	750.00
Miscellaneous - Pest control	1	Item	280	280.00
Costs to repair other damages due to damaged footing - Paving	1	Item	300	300.00
Subtotal net			\$5,500.97	

Assumption 2: Damage to bedroom 2, 3, 4 and kitchen (92m²)

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove reo and plastic	3	Hrs	64.25	192.75
Adjust width/depth of footing excavation	8	Hrs	64.25	514.00
Replace plastic and install new reinforcement	3	Hrs	64.25	192.75
Material - Reinforcement	18	L/m	6.72	120.96

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping (allow for 1 metre each side) store on site	8	Hrs	56.19	449.52
Excavate alongside existing footing and install new footing	30	L/m	175	5250.00
Slab injection 1 metre from slab edge to fill void (includes materials)	30	L/m	150	4500.00
Internal walls - Stitch crack repair (includes materials)	5	Item	500	2500.00
Internal walls - Repaint wall to match (includes materials)	156	M ²	20.77	3240.12

CRIS Reforms to the building approval process

Machinery - compactor	1	Item	225.45	225.45
Plumber - reinstate laundry prelay	4	Hrs	78.72	314.88
Miscellaneous - Pest control	92	M ²	15	1380.00
Consultants - test compaction	1	Item	500	500.00
Subtotal net			\$3,440.79	

Internal ceiling repair/paint (includes materials)	63	M ²	13.5	850.50
External walls - Crack repair/pointing (includes materials)	5	Item	500	2500.00
Miscellaneous - Roof cladding and ridging	3	Item	350	1050.00
Consultants - Footing scope of repair (report)	1.5	Item	750	1125.00
Miscellaneous - Pest control	1	Item	280	280.00
Remove and replace existing floor covering to allow for slab injection	43	M ²	100	4300.00
Costs to repair other damages due to damaged footing - Paving	1	Item	500	500.00
Subtotal net				\$26,545.14

Scenario 3: Site is low lying with insufficient build-up of foundation

<p>Damages at construction – Footing stage prior to concrete being poured</p> <p>Includes discolouration of the surface of building materials. Saturation of materials leading to weakening of the materials and bonding of masonry.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Remove formwork, reinforcement, plastic, services to slab and footing areas • Supply and install compacting sand and build up incrementally to appropriate levels to entire building pad - as per engineers advice • Stabilise foundation material by compaction • Test compaction of soil under footing and slab • Resurvey site and establish correct datum's • Excavate footing trenches, re-introduce services • Reinstate pest control barrier, relay plastic and reinforcement mesh and formwork

<p>Damages at completion – Five years</p> <p>Includes discolouration of the surface of building materials. Saturation of materials: damage to masonry, to framing materials and cladding, to door and window joinery, internal cladding and floor coverings. Adverse health effects to occupants.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Engage hydraulic consultant to provide advice on drainage system to prevent water damage to building elements • Provide soil stabilisation to foundation material under footing so the footing is not disturbed when sub soil drainage is installed alongside the home in the footing embankment slope ratio zone • Installation of drainage system • Remove and replace/repair all damaged building elements both internal and external • Internal treatment of mould to affected areas prior to painting

Assumption 1: Damage to bedroom 3 (10m²) but need to raise entire pad

Method	Quantity	Unit	Rate	Cost
Remove reo and plastic	8	Hrs	64.25	514.00
Set correct height datum	2	Hrs	280.82	561.64
Machine fill and compact	80	M ³	99.01	7920.80
Footings - excavate and form up sides as appropriate	67	L/m	25.28	1693.76

Method	Quantity	Unit	Rate	Cost
Remove paving and landscaping (allow for 1 metre each side) store on site	32	Hrs	56.19	1798.08
Stabilisation of footing (includes materials)	70	L/m	150	10500.00
Install new sub soil drainage system	70	L/m	250	17500.00
Clean salt affected external masonry (minimum cost)	1	Item	500	500.00

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Replace plastic and install reinforcement	210	M ²	3.5	735.00	Install damp proofing (silicon injection) to first two courses of external masonry to prevent wicking	70	L/m	75	5250.00
Miscellaneous - Pest control	1	Item	600	600.00	Allow to repoint failed mortar joints to first two courses	1	Item	2100	2100.00
					Remove and replace damaged plaster to internal walls (say 10 m ²)	1	Item	500	500.00
					Remove and replace carpet (PC new \$85/m ² includes underlay)	10	M ²	95	950.00
					Damp proofing to first course of internal brickwork	70	L/m	75	5250.00
					Repaint internal walls	26	M ²	20.77	540.02
					Repaint ceiling	10	M ²	13.5	135.00
					Consultants - Drainage report/scope of works	1	Item	1500	1500.00
					Miscellaneous - Pest control (new perimeter spray)	1	Item	600	600.00
					Miscellaneous - Treatment of mould	1	Item	1000	1000.00
					Replace paving and landscaping (includes sundry materials)	7	M ²	38	266.00
Subtotal net				\$11,511.20	Subtotal net				\$48,389.10

Scenario 4: Incorrect siting and setbacks

<p>Damages at construction – Footing stage prior to concrete being poured</p> <p>Non-compliant with planning/building approval/authority. Encroachments could cause damage to neighbouring land or properties.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Remove formwork, reinforcement, plastic, services to slab and footing areas • Resurvey site and establish correct boundaries • Fill in all trenches and footings as necessary • Stabilise foundation material by compaction • Test compaction of soil to building envelope • Excavate new footing trenches, re-introduce services • Reinstate pest control barrier, relay plastic and reinforcement mesh

<p>Damages at completion – Five years</p> <p>Non-compliant with planning/building approval/authority. Encroachments could cause damage to neighbouring land or properties.</p>
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Resurvey site and establish incorrect siting and setbacks • Seek planning/building approval for any setbacks contained within boundaries • Modify existing building to comply with any retrospective approvals

Assumption 1: Rear set back encroachment

Method	Quantity	Unit	Rate	Cost
Labour - Concreter				
Remove formwork, reo and plastic	6	Hrs	64.25	385.50
Fill trenches as necessary and compact affected areas	4	Hrs	64.25	257.00
Adjust width/depth of footing excavation	9	Hrs	64.25	578.25

Method	Quantity	Unit	Rate	Cost
Survey of boundaries and provide detailed report. Establish all breaches, detail encroachments	1	Item	3000	3000.00
Drafting to detail existing siting for planning and building consideration	1	Item	1250	1250.00
Retrospective approval to planning/building	1	Item	500	500.00
Modify Alfresco, bed 4, laundry and bed 3 roof to finish at external wall				

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Replace plastic and install new reinforcement	6	Hrs	64.25	385.50
Install drainage (plumbing, etc.)	6	Hrs	76.81	460.86
Machinery - compactor	1	Item	90.91	90.91
Miscellaneous - Pest control	254	M ²	15	3810.00
Miscellaneous - Plumbing and concreter sundries	1	Item	150	150.00
Consultants - test compaction	1	Item	500	500.00
Resurvey site and establish correct boundaries/set out points	4	Hrs	280	1120.00
Subtotal net			\$7,738.02	

Remove roof sheeting and framing to external wall line, including eaves and guttering	12.5	M	250	3125.00
Build up separating masonry wall	8	M ²	232	1856.00
Construct fire separating wall to alfresco	1	Item	1250	1250.00
Modify roof framing to include box gutter	12.5	M ²	125	1562.50
Reinstate roof sheeting	40	M ²	13	520.00
Modify and reinstate stormwater system	1	item	1000	1000.00
Masonry cleaning (minimum charge)	1	Item	150	150.00
Paint alfresco fire wall external lining & touch-up adjacent surfaces	1	item	300	300.00
Miscellaneous - Bin/scaffold/cleaning	1	Item	1500	1500.00
Subtotal net				\$16,013.50

Roof construction for resistance to wind uplift

Scenario: Omission of the tie-down straps on a timber framed roof that has a sheet metal roof, located in a wind zone that requires a roof tie-down system.

The following scenario explains some of the problems and additional costs arising when the roof tie-down system has been omitted, contrary to the approved documentation. (Installation of the tie-down system during construction versus retro-fitting after completion).

Unless an alternative has been approved, roof straps (tie-downs) are imbedded in the horizontal mortar joints between 900 - 2400mm from the top course of masonry, dependent on engineering design. The roof straps are strip metal sheets approximately 30mm wide x.06mm thick, fixed to the roof frame at nominated spacing's, around the perimeter walls.

Once the perimeter walls have progressed past the nominated height of the roof straps and the nominal 50mm wide cavity has reached wall plate height, attaching a tie down strap is not without difficulties. The attachment of a roof strap will require the roof sheets and possibly flashings to be removed; possibly causing a point for a leak in the future.

Additionally problems are increased when the roof has been fitted with anti-con, cavity insulation and mortar droppings that breach the cavity with masonry wire ties, and electrical or other services.

Fitting tie-downs straps when the house has been plastered & painted, requires the internal walls to be drilled at designated spaces around the perimeter of the dwelling to create a point of attachment. The holes will then need to be patched and painted on completion.

The inspector is not aware of concealing a retro-fitted tie down-strap to internal face brickwork.

Stage: Roof framing

No damage at time of construction.

It is unlikely that any part of the roof frame will be dislodged due to wind uplift until roof sheets are installed.

Tie-down straps are left hanging out of the top course of masonry ready for connection to the roof frame.

Tie-down straps are fixed in place prior to the roof frame prior to the installation of the roof sheets.

Rectification/remedial repair method

- Estimated allowance to fit off each tie-down strap at the time of construction \$10.00

Stage: Roof framing

Damages after five+ years

A part of the roof blows off due to the omission of the roof tie-down straps.

A large part of the roof blows off (50% of total roof area) when subjected to a wind speed in excess of roof structure.

Rectification/remedial repair method

- Remove occupiers possessions and store
- Remove damaged roof frame

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	<ul style="list-style-type: none"> • Reconstruct the roof frame • Install new roof sheeting gutters & flashings • Install new ceilings • Remove and replace damaged ceilings and cornices • Dry building out • Repair water damage to interior of dwelling painting and patching • Electrician to reinstate wiring and light fittings • Retro fit a suitable roof tie down system • Clean dwelling • Move owners possession back into dwelling <p>Retro fitting tie-down straps after completion.</p> <ol style="list-style-type: none"> 1. Remove roof sheet. 2. Feed tie-down strap or rod down into the cavity. (The strap or rod is assessed by an engineer as suitable for the particular location). 3. The tie-down strap or rod is hooked ready to engage with the holding rod (cavity pin). 4. A suitably gauged metal rod is drilled through the internal perimeter wall and into the external masonry leaf. The cavity pin is not drilled through the external masonry leaf and is held in position with a suitable adhesive. 5. The tie-down strap or rod is fed down the cavity and hooked on to the pin that is anchored and crosses the cavity.
<p>Assessment</p> <p>Labour days of work: Allow 5 minutes for bricklayer to install each tie-down strap.</p> <p>Allow 5 minutes per tie-down strap for carpenter to attach to roof frame, prior to roof cladding being installed. Trade – Bricklayer. (Builder to supply tie-down straps ready for the bricklayer to install and the carpenter to fit off straps to roof frame).</p> <p>10 X 25 =\$250.00</p>	<p>Assessment</p> <p>25 tie-down straps x \$250.00 = \$6,250.00</p> <p>Note: A costing to carry out remedial work if a portion of the roof was lost due to the omission of the roof tie-down system cannot be given. The variables associated with the damage will need to be taken on a case by case basis if a firm quotation is to be provided.</p>

Bushfire construction compliance

The building has been constructed in a bushfire prone area and had a determined bushfire attack level of BAL-12.5. The documentation reflected the requirements for BAL12.5 but these requirements have not been followed.

Scenario 1: (bed 3 only)

Is based upon the findings from the General Inspection Report 3 into bushfire compliance. It is therefore a real world a reflection of items that would most likely fail to comply with the requirements of BAL-12.5.

BAL-12.5 is the lowest bushfire risk where specific construction requirements are triggered. The construction requirements for BAL-12.5 found in AS 3859-2009 are primarily designed to resist ember attack. This is achieved through sealing gaps and using screening to prevent the embers entering the building envelope.

Without a mandatory inspection to identify and require rectification works to be undertaken the non-compliance with the construction requirements of BAL-12.5 would not necessarily be identified or cause any noticeable loss of performance of building until that building is subject to attack from a bushfire. When the building is subject to the ember attack from a bushfire the risk of loss of the whole building would be increased.

The appropriate time to assess a building for bushfire construction compliance is at completion just prior to handover.

Scenario 1 is based upon the building being constructed by a professional builder who could typically request trades to return to site and carry out rectification work at their own expense where they have been provided with the requirements to build to BAL-12.5 and not meet those requirements.

A comparison in costings have been made for the non-compliance with the BAL-12.5 Bushfire requirements prior to completion and at 5 years after practical completion (PC).

Scenario 2: (remainder of the building)

This scenario uses the same methodologies as Scenario 1 but applies them to the whole building 228 m2

Bushfire construction compliance mandatory inspection stage costings

The costs for all scenarios have been based upon the Cordell Building cost guide Western Australia February 2019 and unless noted otherwise GST is not included

Scenario 1: Constructed in a BAL-12.5 and not meet all bushfire construction requirements rectification work to bed 3 (9.6sqm) only

BAL-12.5 construction deficiencies located via building inspection Just prior to handover

Bed 3 only holes greater than 3mm in the exterior walls, gaps at roof wall and ridge connection greater than 3mm.

Rectification/remedial repair method based upon the builder being in control of the site and the documentation showed that the building was required to be constructed to BAL-12.5 as the builders trades did not construct to the required details they returned to carry out this work at their own cost.

- Time to remove roof sheeting and ridge capping above bed 3 install fire blanket
- Relay roof sheeting
- Fill 4 holes at the window frame connection

BAL-12.5 construction deficiencies located and rectified

Damage five years in future

Bed 3 only holes greater than 3mm in the exterior walls, gaps at roof wall and ridge connection greater than 3mm.

Rectification/remedial repair method based upon the same rectification works being carried out 5 years after practical completion. In this scenario it is not likely to be able to have the trades rectify this work at their cost.

- Time to remove roof sheeting and ridge capping above bed 3 install fire blanket
- Relay roof sheeting
- Fill 4 holes at the window frame connection

Method	Quantity	Unit	Rate	Cost
Labour - Roofer				
Remove/lift roof sheeting and capping	3	Hrs	72.90	218.70
Install blanket to seal gaps at hip and perimeter	2	Hrs	72.90	145.80
Reinstall roof sheeting and hip capping	3	Hrs	72.90	218.70
Material-Blanket to seal gaps	11m	roll	265.38	265.38

Method	Quantity	Unit	Rate	Cost
Labour - Roofer				
Remove/lift roof sheeting and capping	3	Hrs	72.90	218.70
Install blanket to seal gaps at hip and perimeter	2	Hrs	72.90	145.80
Reinstall roof sheeting and hip capping	3	Hrs	72.90	218.70
Material-Blanket to seal gaps	11m	roll	265.38	265.38

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Labour - Bricklayer				
Labour to attend and rectify	1	item	243.75	243.75
Material - sand/cement	allow	item	18.00	18.00
Subtotal net of GST			\$1,110.33	

Labour - Bricklayer				
Labour to attend and rectify. Minimum charge 1 hour on site	1	item	243.75	243.75
Material - sand/cement (bag sang bag cement)	allow	Item	18.00	18.00
Labour-builder supervision and organisation (foreperson)	4	Hrs	97.67	390.68
Subtotal net of GST			\$1,501.01	

Scenario 2: Constructed in a BAL-12.5 and not meet all bushfire construction requirements rectification work to whole dwelling (228sqm)

Rectified prior to handover
<p>Rectification/remedial repair method</p> <ul style="list-style-type: none"> • Time to remove roof sheeting and ridge capping to all dwelling install suitable blanket to seal gaps and reinstall roof sheets and capping • Remove flumes that are not screened and replace with screened flumes • Install minor framing to enable the end of the boxed eave to be sealed • Install approximately 5.4 meters of appropriate seal across the head of the garage door • Fill 10 holes at the window frame connection

Rectified 5 years post practical completion
<p>Rectification/remedial repair method based upon the same rectification works being carried out 5 years after practical completion</p> <ul style="list-style-type: none"> • Time to remove roof sheeting and ridge capping to all dwelling install suitable blanket to seal gaps and reinstall roof sheets and capping • Remove flumes that are not screened and replace with screened flumes • Install minor framing to enable the end of the boxed eave to be sealed • Install approximately 5.4 meters of appropriate seal across the head of the garage door • Fill 10 holes at the window frame connection

Method	Quantity	Unit	Rate	Cost
Labour - Roofer				
Remove/lift roof sheeting and capping	9	Hrs	72.90	656.10
Install blanket to seal gaps at hip and perimeter	6	Hrs	72.90	437.40
Reinstall roof sheeting and hip capping	9	Hrs	72.90	656.10
Time to remove 4 roof flumes and reinstall 4 flumes with appropriate screens	4	Hrs	72.90	291.60
Material-Blanket to seal gaps	5	roll	265.38	1,326.90
Material-4 BAL-12.5 roof flumes	4	Item	110.00	440.00
Labour - Carpenter				

Method	Quantity	Unit	Rate	Cost
Labour - Roofer				
Remove/lift roof sheeting and capping	9	Hrs	72.90	656.10
Install blanket to seal gaps at hip and perimeter	6	Hrs	72.90	437.40
Reinstall roof sheeting and hip capping	9	Hrs	72.90	656.10
Time to remove 4 roof flumes and reinstall 4 flumes with appropriate screens	4	Hrs	72.90	291.60
Material-Blanket to seal gaps	5	roll	265.38	1,326.90
Material-4 BAL-12.5 roof flumes	4	Item	110.00	440.00
Labour - Carpenter				

CRIS Reforms to the building approval process

Minor framing to end of eave where finishes above lower roof to enable gaps to be sealed	min charge	Item	237.84	237.84
Materials-timber framing/sundries		item	30.00	30.00
Labour – Garage door installer				
Install seal across the head of the garage door	1	Hrs	79.28	79.28
Material to seal the gaps across the head of the garage door	2	3 lm length	77.91	155.82
Labour - Bricklayer				
Labour to attend and rectify	1	Item	243.75	243.75
Material - sand/cement	allow	item	18.00	18.00
Subtotal net of GST			\$4,572.79	

Minor framing to end of eave where finishes above lower roof to enable gaps to be sealed	min charge	Item	237.84	237.84
Materials-timber framing/sundries		item	30.00	30.00
Labour – Garage door installer				
Install seal across the head of the garage door opening carpenter can do when onsite to complete minor framing	1	Hrs	79.28	79.28
	2	3 lm length	77.91	155.82
Labour - Bricklayer				
Labour to attend and rectify. Minimum charge 1 hour on site	1	Item	243.75	243.75
Material - sand/cement	allow	Item	18.00	18.00
Labour-builder supervision and organisation (foreperson)	8	Hrs	97.67	781.63
Subtotal net of GST			\$5,354.15	

Plasterboard ceiling compliance

Scenario 1:

The plasterboard lined ceilings have been installed with an inadequate amount of adhesive daubs.

This scenario compares the cost of the deficiency in fixing being found prior to the handover of the dwelling as compared to the ceiling to bed 3 collapsing 5 years after practical completion

Scenario 2:

The plasterboard lined ceilings have been installed with an inadequate amount of adhesive daubs.

This scenario compares the cost of the deficiency in fixing being found prior to the handover of the dwelling as compared to the bedroom 2, 3, 4 and kitchen (43m²) ceiling to collapsing 5 years after practical completion.

Defects

The construction did not meet the requirements of BAL12.5 evidenced by the holes greater than 3mm in the exterior walls and the amount of light seen from within the roof space that indicates the gaps have not been sealed at the roof perimeter or hip capping.

Areas that require rectification work to meet the requirements for AS 3959 BAL-12.5.

1. The sheet roof is not sarked and the gaps greater than 3 mm (such as under the corrugations or ribs of sheet roofing and between roof components) sealed at the fascia or wall line at valleys, hips and ridges.
2. The 4 roof flumes that serve the bathrooms and toilets have not been fitted with ember guards made from a mesh or perforated sheet with a maximum aperture of 2 mm.
3. Where a higher boxed eave level finishes over a lower roof the end of the eave has not been sealed to a maximum gaps of 3 mm
4. The metal Vehicle access door has been installed with no seal across the door head (50 mm wide x 5400 mm)
5. Gaps 3 mm or greater were found in the exterior building envelope in 10 places.

Scenario 1: (bed 3 only) (9.6sqm) Perimeter walls 3.2m +3.4 plus hip 4.0m

<p>Assessment and cost to rectify the incomplete work prior to builder handing over the site. Incomplete work has been identified via a pre-handover inspection</p> <p>Assessment and cost to rectify the incomplete work.</p> <p>Item 1.</p> <p>Labour days of work: Time to remove roof sheeting and ridge capping above bed 3 install fire blanket to perimeter and hip to seal gaps to less than 3 mm relay roof sheeting Trade: Roof plumber Material: 11 meters of BAL12.5-40 blanket Machinery: Ladders/edge protection Miscellaneous Consultants: Builders supervisor no cost as job still in progress</p> <p>Item 2: Not applicable to Bed 3.</p> <p>Item 3: Not applicable to Bed 3.</p> <p>Item 4: Not applicable to Bed 3.</p> <p>Item 5.</p> <p>Labour days of work: to fill 4 holes at the widow frame wall connection that are greater than 3 mm. Trade: Bricklayer Material: Small amount of mortar Machinery: Small hand tools Miscellaneous Consultants Builders supervisor no cost as job still in progress</p>	<p>Assessment and cost to rectify the incomplete work 5 years after the site has been handed over. Building has not been subject to a bushfire event</p> <p>Assessment and cost to rectify the incomplete work 5 years after PC.</p> <p>Item 1.</p> <p>Labour days of work: Time to remove roof sheeting and ridge capping above bed 3 install fire blanket to perimeter and hip to seal gaps to less than 3 mm relay roof sheeting Trade: Roof plumber Material: 11 meters of BAL12.5-40 blanket Machinery: Ladders/edge protection Miscellaneous: mobilisation/ overheads as new project Consultants: Builders supervisor</p> <p>Item 2: Not applicable to Bed 3.</p> <p>Item 3: Not applicable to Bed 3.</p> <p>Item 4: Not applicable to Bed 3.</p> <p>Item 5.</p> <p>Labour days of work: to fill 4 holes at the widow frame wall connection that are greater than 3 mm. Trade: Bricklayer Material: Small amount of mortar Machinery: Small hand tools Miscellaneous Consultants: Builders supervisor</p>
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Scenario 1: Plasterboard lined ceiling inspection

The Gypsum plasterboard lined ceilings have been installed with an inadequate amount of adhesive daubs.

<p>At construction</p> <p>Damages</p> <p>Localised sagging and popping of screw heads of the plasterboard lining.</p> <p>Rectification/remedial repair</p> <ul style="list-style-type: none"> • Obtain access to the roof space above the area which may require removing roof sheets • Remove insulation on top of the sheets • Prop ceiling to push ceiling lining hard up against the supporting framework • Install scrim to the rear of the ceiling lining at correct centres to make up for a lack of adhesive 	<p>At completion (5+ years)</p> <p>Damages</p> <p>Sagging and screw popping has progressed to collapse</p> <p>Rectification/remedial repair</p> <ul style="list-style-type: none"> • Remove collapsed ceiling and debris • Remove furniture and occupants possessions • Protect floor surfaces • Clean and prepare ceiling joists of old adhesive and screws • Install new ceiling • Replace insulation • Prepare and repaint ceiling • Clean remove protective coverings • Reinstall furniture to room
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Assumption 1: damage to bedroom 3 (9.6sqm)

<p>Assessment and cost to rectify the damage</p> <p>Labour days of work: Carry out rectification on the basis that all the daubs of adhesive cannot be relied upon.</p> <p>Trade: Ceiling Fixer</p> <p>Material: Scrim and plaster</p> <p>Machinery: Hand tools, scaffolding</p> <p>Miscellaneous</p> <p>Consultants</p>	<p>Assessment and cost to rectify the damage</p> <p>Ceiling area 9.6 m2 plus 12.4 meters of 90 mm cove cornice.</p> <p>Labour days of work: Make the building safe by isolating electrical to damaged areas. After installation of new ceiling install new light fittings.</p> <p>Trade: Electrician</p> <p>Material: Replacement light fittings and cabling</p> <p>Machinery: Hand tools,</p> <p>Miscellaneous</p>
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	<p>Consultants</p> <p>Labour days of work: Remove collapsed ceiling and insulation. Remove occupant's possessions. Lay protection mats covering the floor. After ceiling and painting reinstall occupants possessions</p> <p>Trade: Labourer</p> <p>Material: Bins for rubbish removal</p> <p>Machinery: Hand tools,</p> <p>Miscellaneous storage off site occupants possessions</p> <p>Consultants</p> <p>Labour days of work</p> <p>Trade: Ceiling Fixer</p> <p>Material; New plasterboard sheets cornices and adhesives</p> <p>Machinery: Hand tools</p> <p>Miscellaneous</p> <p>Consultants</p> <p>Labour days of work: carry out patching and repainting to ceiling. Will require the whole ceiling to be repainted.</p> <p>Trade: Painter</p> <p>Material: Patching and paint</p> <p>Machinery: Hand tools,</p> <p>Miscellaneous, Consultants</p>
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Assumption 2: damage to bedrooms 2, 3, 4 & kitchen (43sqm)

<p>Assessment and cost to rectify the damage</p> <p>Labour days of work: Carry out rectification on the basis that all the daubs of adhesive cannot be relied upon.</p> <p>Trade: Ceiling Fixer Material: Scrim and plaster Machinery: Hand tools, scaffolding Miscellaneous Consultants</p>	<p>Assessment and cost to rectify the damage</p> <p>Ceiling area 43 m2 plus 60 lm meters of 90 mm cove cornice.</p> <p>Due to the large area of the dwelling affected by the collapse it is appropriate for the occupants to be housed in temporary accommodation.</p> <p>Allow for some additional damage to fixture fittings for example taps kitchen Labour days of work: Make the building safe by isolating electrical to damaged areas. After installation of new ceiling install new light fittings.</p> <p>Trade: Electrician Material: Replacement light fittings and cabling Machinery: Hand tools, Miscellaneous Consultants</p> <p>Labour days of work: Remove collapsed ceiling and insulation. Remove occupant's possessions. Lay protection mats covering the floor. After ceiling and painting reinstall occupant's possessions.</p> <p>Trade: Labourer Material: Bins for rubbish removal Machinery: Hand tools, Miscellaneous storage off site occupants possessions Consultants</p> <p>Remove collapsed ceiling and insulation. Remove occupants possessions affected by ceiling collapse for cleaning, repair or replacement</p> <p>Trade: Ceiling Fixer Material:</p>
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	<p>Machinery: Hand tools, scaffolding Miscellaneous Consultants</p> <p>Labour days of work: carry out patching and repainting to ceiling. Will require the whole ceiling to be repainted.</p> <p>Trade: Painter Material: Patching and paint Machinery: Hand tools, Miscellaneous Consultants</p>
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Scenario 1: The plasterboard lined ceilings have been installed with an inadequate amount of adhesive daubs. Damage to bed 3 (9.6sqm)

At time of inspection prior to completion of the building localised sagging between fixing locations and popping of screw heads of the plasterboard lining was observed

Rectification/remedial repair method. As the ceiling fixed has not carried the works to the required standard

- Obtain access to the roof space above the area which may require removing roof sheets
- Remove insulation on top of the sheets
- Prop ceiling to push ceiling lining hard up against the supporting framework
- Install additional fixings through the face of the sheet and or scrim to the rear of the ceiling lining at correct centres to meet the applicable standards

Inadequate fixing has not been identified at the time of the buildings completion. The sheets have continued sag and progressed to collapse.

Rectification/remedial repair method

- Make the building safe by isolating electrical to damaged areas. After installation of new ceiling install new light fittings.
- Remove collapsed ceiling and insulation. Remove occupant's possessions. Lay protection mats covering the floor.
- New plasterboard sheets cornices and adhesives
- Carry out patching and repainting to ceiling. Will require the whole ceiling to be repainted.
- Professional clean at the end of the project

Method	Quantity	Unit	Rate	Cost
Labour – ceiling fixer				
All works necessary to bring ceiling into compliance	3	Hrs	73.54	220.62
Material	1	Item	95.00	95.00

Method	Quantity	Unit	Rate	Cost
Labour - Electrician				
Isolate area of building collapse safety, return at completion install light reconnect power to room	2	Min charge	250.44	500.88
Labour - Labourer				
Remove collapsed ceiling to bin; sort, clean and store owners possessions, Install & later remove protective coverings.	14	Hr	69.17	968.38
Materials-Rubbish Bin Hire	1	Item	300.00	300
Labour - Plasterer				

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					Install new ceiling sheets and cornices, flushing etc 2 men 1 day	16	Hrs	73.54	1,176.64
					Materials Glues, screws and flushing compounds		Allow	98.00	98.00
					Materials-Plaster sheet 10 mm	9.6	M2	9.20	88.32
					Materials-Cornice 100 mm	12.4	Lm	8.95	110.98
					Labour - Painter				
					Repaint ceilings and walls and other minor damage as a result of the rectification works	6	Hr	69.69	418.14
					Material- Paint patching	9.6	M2	2.79	26.78
					Replace insulation (glass wool R2.5)	9.6	M2	14.33	137.57
					Professional clean of dwelling	1	item	250.00	250.00
Subtotal net of GST				\$315.62	Subtotal net of GST				\$3,688.12

Scenario 2: (remainder of the building) assessed approximately 228m²

Rectified prior to handover	Rectified five years after PC
<p>Item 1.</p> <p>Labour days of work:</p> <p>Time to remove roof sheeting and ridge capping to whole of building. Estimate the building perimeter and hip and ridge capping to be 100 lm. Install fire blanket to perimeter and hip and ridge capping to seal gaps to less than 3 mm relay roof sheeting and capping.</p> <p>Trade :Roof plumber Material:100 lm meters of BAL12.5-40 blanket Machinery: Ladders/edge protection Miscellaneous Consultants: Builders supervisor no cost as job still in progress</p>	<p>Item 1.</p> <p>Labour days of work:</p> <p>Time to remove roof sheeting and ridge capping to whole of building. Estimate the building perimeter and hip and ridge capping to be 100 lm. Install fire blanket to perimeter and hip and ridge capping to seal gaps to less than 3 mm relay roof sheeting and capping.</p> <p>Trade :Roof plumber Material:100 lm meters of BAL12.5-40 blanket Machinery: Ladders/edge protection Miscellaneous Consultants: Builders supervisor</p>
<p>Item 2.</p> <p>Labour days of work:</p> <p>Time to remove 4 roof flumes and reinstall 4 flumes with appropriate screens</p> <p>Trade: roof plumber</p> <p>Material: 4 purpose made 150 mm roof flumes fitted with ember guards with a maximum aperture of 2 mm.</p> <p>Machinery: Ladder scaffold for edge protection</p> <p>Miscellaneous</p> <p>Consultants: Builders supervisor no cost as job still in progress</p>	<p>Item 2.</p> <p>Labour days of work:</p> <p>Time to remove 4 roof flumes and reinstall 4 flumes with appropriate screens</p> <p>Trade: roof plumber</p> <p>Material: 4 purpose made 150 mm roof flumes fitted with ember guards with a maximum aperture of 2 mm.</p> <p>Machinery: Ladder scaffold for edge protection</p> <p>Miscellaneous</p> <p>Consultants: Builders supervisor</p>
<p>Item 3.</p> <p>Labour days of work: Remove roof sheets and carry out works to construct minor framing and cement sheet lining. Install BAL12.5-40 blanket to seal all gaps between the framing</p>	<p>Item 3.</p> <p>Labour days of work: Remove roof sheets and carry out works to construct minor framing and cement sheet lining. Install BAL12.5-40 blanket to seal all gaps between the framing</p>

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<p>and underside of the roof sheeting and fill any other parts to ensure no gaps 3 mm or greater remain Trade: Carpenter Material: BAL 12.5-40 blanket and sundry minor framing and lining Machinery: Ladder scaffold for edge protection Miscellaneous Consultants: Builders supervisor no cost as job still in progress</p> <p>Item 4.</p> <p>Labour days of work: To install approximately 5.4 meters of draft seal across the head of the garage opening</p> <p>Trade: Garage door installer or carpenter Material: 5.4 meters of draft seals. Machinery: Ladder Miscellaneous Consultants: Builders supervisor no cost as job still in progress</p> <p>Item 5.</p> <p>Labour days of work: To fill 10 holes greater than 3 mm in the building exterior at the widow frame wall connection.</p> <p>Trade: Bricklayer Material: Small amount of mortar Machinery: Small hand tools Miscellaneous Consultants Builders supervisor no cost as job still in progress.</p>	<p>and underside of the roof sheeting and fill any other parts to ensure no gaps 3 mm or greater remain Trade: Carpenter Material: BAL 12.5-40 blanket and sundry minor framing and lining Machinery: Ladder scaffold for edge protection Miscellaneous Consultants: Builders supervisor</p> <p>Item 4.</p> <p>Labour days of work: To install approximately 5.4 meters of draft seal across the head of the garage opening</p> <p>Trade: Garage door installer or carpenter Material: 5.4 meters of draft seals. Machinery: Ladder Miscellaneous Consultants: Builders supervisor</p> <p>Item 5.</p> <p>Labour days of work: To fill 10 holes greater than 3 mm in the building exterior at the widow frame wall connection.</p> <p>Trade: Bricklayer Material: Small amount of mortar Machinery: Small hand tools Miscellaneous Consultants: Builders supervisor</p>
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Scenario 2: The plasterboard lined ceilings have been installed with an inadequate amount of adhesive daubs. Damage to bedrooms 2, 3, 4 and Kitchen (43sqm)

Damage to bedrooms 2, 3, 4 & Kitchen (43sqm)

Method	Quantity	Unit	Rate	Cost
Labour – ceiling fixer				
All works necessary to bring ceiling into compliance	8	Hrs	73.54	588.32
Material-Screws, scrim, sundry	1	Item	280.00	280.00

Ceiling collapse to bedrooms 2, 3, 4 & kitchen (43sqm)

Method	Quantity	Unit	Rate	Cost
Labour - Electrician				
Isolate area of building collapse safety, return at completion install light reconnect power to room	2	Min charge	250.44	500.88
Labour - Labourer				
Remove collapsed ceiling to bin; sort, clean and store owners possessions, Install & later remove protective coverings	18	Hr	69.17	1,245.06
Materials-Bin Hire plasterboard, insulation etc	2	Item	300.00	600.00
Labour - Plasterer				
Install new sheet and cornice, flush and sand including allowance for return trip and drying time	24	Hrs	73.54	1,764.96
Materials Glues, screws and flushing compounds	0	Allow	156.00	156.00
Materials-Plaster sheet 10mm	43	M2	9.20	395.60
Materials-Cornice 100mm	60	Lm	8.95	537.00

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					Labour - Painter				
					Repaint ceilings and walls and other minor damage as a result of the rectification works	6	Hr	69.69	418.14
					Material- Paint patching	43	M2	2.79	119.97
					Replace insulation (glass wool R2.5)	43	M2	14.33	616.19
					Professional clean of dwelling	1	item	350.00	350.00
Subtotal net of GST				\$868.32	Subtotal net of GST				\$6,202.92

Costing for most likely damages

Scenario: Incorrect/insufficient installation of a water-proof membrane to wet areas

The failure of the water-proofing system once the dwelling has reached completion can compromise the amenity of a building and cause significant lost time to both the builder and the owner. (Negotiating with the owner to find tiles that match existing or at best suitable, cause disputes that are costly for all concerned).

Stripping back wall and floor tiles in isolated sections to find a leak, is not sufficient because the removal of a few tiles will cause the water-proof membrane to tear.

Attempting to overlap water-proofing, rather than re-coat the entire shower recess to ensure a continuous membrane directs moisture to the floor waste creates a risk that may give into another leak.

It is in the interest of all parties to ensure a water-proof membrane has been installed in accordance with the relevant codes and standards and manufacturers recommendations.

Water-proofing should be inspected, documented and photographed should evidence of the installation be required in the future.

At construction	At completion (5+ years)
<p>Minor damages</p> <p>No damage evident at time of construction. Water-proofing to be installed at time of construction.</p> <p>Cordell Commercial & Housing Building Cost Guide – Feb 2019. Labour tiler – internal fibre glass / polyurethane, applied to floors and walls, for general wet areas). Floors and walls – internal fibreglass / polyurethane; general wet areas. M2 floors and walls / hob / internal angles – internal fibreglass / polyurethane; 2 x walls to 2m high – shower 1x1m each Labour - \$295.00 Material \$124.75</p> <p>Total - \$420.43</p> <p>Water-proofing is concealed by floor and wall tiles.</p>	<p>Damages</p> <p>Moisture egress from shower recess, resulting in the premature deterioration of adjoining walls, skirtings, floor coverings and robe recesses. Health risk due to damp and mouldy conditions.</p>

<p>Rectification/remedial repair</p> <ul style="list-style-type: none"> • Remove wall and floor tiles. • Patch wall (render or sheet). • Patch floor screed. • Provide bond breakers and bandage to junctions where applicable. • Ensure tap fittings are sealed. • Provide puddle flange where applicable. • Recoat wall & floors with waterproofing compound. • Re-install floor and wall tiles. • Re-grout wall and floor tiles to match existing. • Clean site – waste control on site. <p>Cordell Commercial & Housing Building Cost Guide – Feb 2019.</p> <p>Renovate bathroom complete – medium.</p> <p>(Medium = 6m2. Includes labour, materials and fixings to renovate bathroom to nominated size and specification level. Bathrooms include demolition and disposal of old bathroom, protection of adjacent areas, make good wall surface, waterproofing, bath, shower + shower screen, toilet suite, vanity+ basin, tapware, mirror, accessories, power-points, exhaust fan, tiling to floor and walls (average = skirting, quality = to 1.2m, prestige = to 2.4m), painting of walls and ceiling, installation of fixtures and final clean. Assumes same position for plumbing.</p>	<p>Rectification/remedial repair</p> <ul style="list-style-type: none"> • Arrange suitable times for access with occupant. • Attempt to locate the source of the moisture. • Find tiles that match existing. • Provide cover to protect existing furniture, walls and floors. • Remove wall and floor tiles. • Patch wall (render or sheet). • Patch floor screed. • Provide bond breakers and bandage to junctions where applicable. • Ensure tap fittings are sealed. • Provide puddle flange where applicable. • Recoat wall & floors with waterproofing compound. (Manufacturers recommendations). • Re-install floor and wall tiles. • Re-grout wall and floor tiles to match existing. • Carry out remedial work to walls, skirtings, floorcoverings (carpet or timber). • Re-imburement for damage to belongings caused by the effects of moisture. • Re-paint as required to match existing. • Provide waste disposal and clean site. • Reimburse owner for costs associated with leak detection.
<p>Services and fit-out average each – Labour \$4392.46, Materials - \$5178.06, Plant - \$213.17, other \$621.66.</p> <p>Total \$10,405.35</p>	<p>The cost to remedy a leaking shower recess in a medium size bathroom after five years occupancy, can possibly be priced similarly to a renovation \$10,000.00 with a margin for any damage to adjoining walls and flooring. Estimate \$5000.00</p> <p>Total \$15,000.00 No allowance for damage to furniture and effects.</p>

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