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Government Residential Maintenance Incentives and Information Programmes

Affordable Housing for Generations: Component D
August 2022

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Acknowledgements

This research is funded through the Building Better Homes, Towns and Cities National Science Challenge: *Affordable Housing for Generations*. The views expressed in this paper are those of the author. Thanks to Kay Saville-Smith and Nina Saville-Smith for their feedback.

Every effort has been made to ensure the soundness and accuracy of the opinions and information expressed in this report. While we consider statements in the report are correct, no liability is accepted for any incorrect statement or information.

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Citation

Isaacs, N., (2022) Government Residential Maintenance Incentives and Information Programmes, Report for Building Better Homes, Towns and Cities, Affordable Housing for Generations – Component D, August 2022, Wellington: BBHTC.

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Executive Summary

This report explores whether New Zealand can learn from programmes or requirements in other countries with a goal of improving the maintenance of dwellings. It uses a web-based literature review undertaken from November 2020 to October 2021. The research goal has been broad rather than deep, where necessary identifying issues for future investigation. This Working Paper contributes to NSC11 Affordable Housing for Generations (AHFG) research programme, Component D: Affordable Housing and the Impact of Dwellings.

Although designers, builders, purchasers, product suppliers and politicians frequently focus on construction costs, the real cost of a dwelling over its life also includes its operating cost and cost of maintenance and refurbishment. Those latter costs are rarely taken into account when we consider housing affordability. It is true that the New Zealand Building Code (NZBC) is unique among international jurisdictions in including a durability requirement to ensure that consented dwellings have a limited maintenance requirement over a specified lifespan. That requirement is implemented through NZBC Clause B2-Durability. Whether that means that New Zealand has minimised maintenance and repair costs is debatable. What is clear is that dwelling maintenance continues to present challenges to many owner occupiers and property investors.

Maintenance is not an endpoint; it is rather a means to an end – and in the case of buildings that is to ensure it is able to be used for as long as is desired. Maintenance ensures the building, and its various parts are able to withstand change, decay or wear in order to continue in use for its expected lifetime – or in other words, the building is durable. Building owners, and in some cases occupants, are expected to undertake maintenance, yet unless they are provided with information as to maintenance requirements it can be overlooked or even ignored. Regular BRANZ House Condition Surveys have found that New Zealand dwellings are not well maintained, with households spending around one third of the requirement amount. Low maintenance is a national problem.

A web search for Government provided maintenance guidance and supporting documentation in Australia, Canada, Ireland, and the UK found three types of activities promoting dwelling maintenance: (1) general guidance; (2) detailed plans (or guidance on how to prepare such a plan); and (3) tool plan (what tools are required for certain tasks). A fourth type may be provided where aspects of the building are subject to legal requirements. Legal requirements may apply to multi-unit owner or tenant occupied dwellings, as well as protected heritage buildings.

The only NZBC requirement for maintenance in single dwelling units is if a cable car is present. If so, since 2008, a domestic cable car has been required to have a Compliance Schedule, regular inspections and an annual Building Warrant of Fitness.

This research has found no evidence that there has been any significant promotion of either of the legal requirements concerning maintenance: (1) Building Act 2004 section 4 clause 2(a)(ii) which requires when dealing with 1 or more household units *“that maintenance requirements of household units are reasonable,”* or (2) NZBC Clause B2-Durability, which in performance requirement B2.3.1 requires that *“Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building,”* or 50 years, 15 years or 5 years as specified in the clause.

1. Introduction

Whether built of timber, concrete, or any other material every building requires some maintenance. This includes our domestic dwellings. The common goal of maintenance is to ensure a building continues to provide desired services over time for any foreseeable event(s).

Maintenance is a means to an end. In the case of buildings, it is to ensure the building is able to be used for as long as is desired. Maintenance ensures the building, and its various parts can withstand change, decay, or wear in order to continue in use for its expected lifetime – or in other words, the building is durable.

This working paper has been completed for the *Affordable Housing for Generations* (AHFG) research programme which is part of National Science Challenge 11: Building Better Homes, Town and Cities.¹ AHFG is a multi-disciplinary and cross-organisational research project.² This working paper is part of Component D: Affordable Housing and the Impact of Dwellings which explores whether better building design, materials, and systems can reduce the operating costs of dwellings over their life cycle.³

This working paper recognises that although designers, builders, purchasers, product suppliers and politicians frequently focus on construction costs, the real cost of a dwelling over its life also includes its operating cost and cost of maintenance and refurbishment. Those latter costs are rarely taken into account when we consider housing affordability.

It questions whether the durability requirements of the New Zealand Building Code (NZBC) prompt on-going maintenance practices and compares governmental approaches to incentivising maintenance in New Zealand to programmes overseas. Internationally it considers government programmes in Australia, Canada, Ireland and the UK. Each country was subject to a web-based literature search concerning the promotion of dwelling maintenance, undertaken between November 2020 and October 2021. The research was material agnostic, focusing on the promotion of maintenance rather than any specific material.

Methodology

This research used a web-based Google search to identify publications which provide maintenance guidance or planning for owner occupied or landlord managed housing through central, state or local government. It includes regulatory requirements and attempts to prompt voluntary based maintenance. It includes information provision as well as other incentives including direct subsidies. The specific search terms used for each country are provided following the relevant summary table in Appendix A.

Unsurprisingly, it was found that ‘maintenance’ and the term ‘building maintenance’ can cover a wide range of topics, some of which are outside this research. This report excludes material relating to the maintenance of:

- Avionics, aircraft or military building maintenance whether specific or through the use of planning tools such as MRO (Maintenance, Repair and Overhaul);
- Street, road and highway maintenance;

¹ <https://www.buildingbetter.nz/>

² <https://homesforgenerations.goodhomes.co.nz/>

³ <https://homesforgenerations.goodhomes.co.nz/project-info/>

- Government policy papers on need for household and building maintenance;
- Education or training for building maintenance;
- Tools or systems for the identification of maintenance companies or individuals;
- Resources designed for the maintenance industry e.g. <https://www.housingmmonline.co.uk/>;
- Resources to support new construction or renovation e.g. <http://www.buildingguide.co.nz/>;
- Research publications on maintenance or related issues; and
- Activities relating solely or principally to the maintenance of non-residential buildings have also been excluded.

The research also excludes commercial product(s) or service(s) websites e.g. those associated with hardware or DIY shops, as the goal has been to understand Governmental responses to issues of house maintenance. These commercial websites could be the subject of further research.

In addition, in-house requirements for the maintenance of government owned dwellings such as state or public housing, information on local government support services and guidance for specific locations (whether public or private) have been excluded. Examples include:

- State of Queensland Department of Housing and Public Works' suite of Maintenance Management Framework documents.⁴
- Victoria Disability Services maintenance guide for shared supported accommodation owned by the Department of Human Services.⁵
- City of Unley, South Australia provides services to help with basic chores both inside and outside of the home for approved clients.⁶
- *Housing Authority Maintenance Policy Manual* – which contains policy statements and rules relating to the maintenance of the Government of Western Australia's Housing Authority public housing properties.
- Information as to what a tenant might expect from a UK Local Government supplier of housing (Council Housing)⁷ For Council Tenants, the UK Central Government has set out The Right to Repair Scheme which sets maximum timescales, dependent on the importance of the failed service, for repair within one, three or seven days which applies to Local Government housing.⁸
- Location specific guidance e.g. *Kingston & Arthur's Vale Historic Area Norfolk Island Heritage Maintenance Manual* (2019).⁹

In multi-jurisdiction countries not all state or territory website or sources of information have been investigated or are listed.

Report Structure

Section 2 of this report examines the situation in New Zealand with respect to legal requirements for building maintenance, and then discusses issues relevant to each of the investigated countries. Section 3 examines documentation from Australia, Canada, Ireland, & the UK. Finally, Section 4 provides some summary discussion and conclusions. Appendix A (page 21 onward) provides a table for each investigated country. Each table lists the actor targeted (ie., landlord, owner occupier,

⁴ www.hpw.qld.gov.au

⁵ <https://providers.dffh.vic.gov.au/house-maintenance-guide-pdf>

⁶ <https://www.unley.sa.gov.au/Community-services/Senior-services-support/Getting-help-at-home>

⁷ <https://www.gov.uk/council-housing/repairs-and-maintenance>

⁸ See as an example <https://www.west-dunbarton.gov.uk/housing/maintenance-repairs/right-to-repair-scheme/>

⁹ https://kingston.norfolkisland.gov.au/heritage-management/publications_and_projects

tenant), the relevant agency, the nature of the direction including whether it is a legal requirement, information or other guidance. Brief summaries of the relevant information and sources are provided as footnotes and in the Appendix tables. These are not included in the report reference list. Given the dynamic nature of web-based documentation, the material has also been downloaded or PDF made of the webpage for archival purposes.

2. New Zealand

New Zealand is unique in that since 1992 its national building code has included requirements as to the durability of building components. This embeds the assumption that if components are durable and can be maintained the dwelling itself will be durable and maintainable.

The Building Act 2004 section 4(2)(a) requires not only that maintenance requirements of household units are reasonable but also that the owner is aware of the maintenance requirements (Infobox 1). This was made clear in the Minister of Commerce's introductory speech to the first reading of the Building Bill (later to become the Building Act 2004) that in comparison to the previous Building Act 1992, it "increases the emphasis on durability and standards of maintenance, and provides for mandatory standard warranties."¹⁰

Infobox 1: Building Act 2004 – section 4(2)(a)

(2) In achieving the purpose of this Act, a person to whom this section applies must take into account the following principles that are relevant to the performance of functions or duties imposed, or the exercise of powers conferred, on that person by this Act:

- (a) when dealing with any matter relating to 1 or more household units,—
 - (i) the role that household units play in the lives of the people who use them, and the importance of—
 - (A) the building code as it relates to household units; and
 - (B) the need to ensure that household units comply with the building code;
 - (ii) the need to ensure that maintenance requirements of household units are reasonable;
 - (iii) the desirability of ensuring that owners of household units are aware of the maintenance requirements of their household units;

The Building Act 2004 is implemented through the NZBC. The full NZBC is set out in the First Schedule to the Building Regulation 1992, amended in 1997. NZBC requirements can differ (referred to as 'limits on application') depending on the housing type. The NZBC defines three different types of dwellings, in broad terms based on the number of groups of people living within each, as given in Infobox 2.

For the purpose of this report, the focus is on detached dwellings (2.0.2 in Infobox 2). Some requirements for multi-unit dwellings are managed through the Building Warrant of Fitness, and hence are common with multi-storey commercial buildings.

¹⁰ Hon Lianne Dalziel (Minister of Commerce). 4 Sep 2003. Building Bill — First Reading [Hansard Volume:611;Page:8425] https://www.parliament.nz/en/pb/hansard-debates/rhr/document/47HansS_20030904_00001106/dalziel-lianne-building-bill-first-reading

Infobox 2: NZBC Types of Housing

2.0 HOUSING

2.0.1 Applies to *buildings* or use where there is self care and service (internal management). There are three types:

2.0.2 Detached Dwellings

Applies to a *building* or use where a group of people live as a single household or family. Examples: a holiday cottage, boarding house accommodating fewer than 6 people, dwelling or hut.

2.0.3 Multi-unit Dwelling

Applies to a *building* or use which contains more than one separate household or family. Examples: an attached dwelling, flat or multi-unit apartment.

2.0.4 Group Dwelling

Applies to a *building* or use where groups of people live as one large extended family. Examples: within a commune or marae.

Durability requirements under the NZBC are set out in Clause B2-Durability (see Infobox 3).

Infobox 3: NZBC Clause B2-Durability

Provisions

OBJECTIVE

B2.1 The objective of this provision is to ensure that a *building* will throughout its life continue to satisfy the other objectives of this code.

FUNCTIONAL REQUIREMENT

B2.2 *Building* materials, components and construction methods shall be sufficiently durable to ensure that the *building*, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the *building*.

PERFORMANCE

B2.3.1 *Building elements* must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the *specified intended life* of the *building*, if stated, or:

(a) The life of the building, being not less than 50 years, if:

(i) Those *building elements* (including floors, walls, and fixings) provide structural stability to the building, or

(ii) Those *building elements* are difficult to access or replace, or

(iii) Failure of those *building elements* to comply with the *building code* would go undetected during both normal use and maintenance of the *building*.

(b) 15 years if:

(i) Those *building elements* (including the *building* envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or

(ii) Failure of those *building elements* to comply with the *building code* would go undetected during normal use of the *building*, but would be easily detected during normal maintenance.

(c) 5 years if:

(i) The *building elements* (including services, linings, renewable protective coatings, and *fixtures*) are easy to access and replace, and

(ii) Failure of those *building elements* to comply with the *building code* would be easily detected during normal use of the *building*.

The concept of maintenance is further developed in the B2 Compliance Document¹¹ Acceptable Solution B2/AS1 (Infobox 4). The Verification Method B2/VM1 comment notes the circumstances that need to be considered include, but are not limited to “ ... maintenance required to achieve the

¹¹ Ministry of Business, Innovation and Employment, Hīkina Whakatutuki. (2019) *Compliance Document for the New Zealand Building Code: Clause B2 Durability. 2nd Edition [Amendment 12]*, pp 3–4.

required durability (e.g. painting, cleaning, replacing high wear items such as washers),¹² but provides no guidance as to how this is to be implemented, or any discussion of enforcement.

Infobox 4: NZBC Definition of Maintenance (Acceptable Solution B2/AS1)

2.0 Maintenance

2.1 Normal maintenance

2.1.1 Normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given *building element*. The extent and nature of that maintenance will depend on the material, or system, its geographical location and position within the *building*, and can involve the replacement of components subject to accelerated wear.

2.1.2 It is the responsibility of the person specifying the *building element* to determine normal maintenance requirements. These may be based on the manufacturer's recommendations and may also include periodic inspections of elements not readily observable without a specific effort (e.g. access to roof or subfloor spaces).

2.1.3 Basic normal maintenance tasks shall include but not be limited to:

- a) Where applicable, following manufacturers' maintenance recommendations,
- b) Washing down surfaces, particularly exterior *building elements* subject to wind driven salt spray,
- c) Re-coating interior and exterior protective finishes,
- d) Replacing sealant, seals and gaskets in joints,
- e) Replacing valves, washers and similar high wear components in easily accessed service equipment and other *building elements*,
- f) Cleaning and replacing filters in *building services* systems,
- g) The regular servicing of boilers, cooling towers, lifts, escalators, emergency lighting and *fire* protection equipment, and
- h) The maintenance of signs for access, *escape routes*, emergency equipment and *hazardous* areas.

COMMENT:

Maintenance does not include such things as upgrading *building elements* to meet the demands of new technology or the increased environmental expectations of users.¹³

Thus, the Building Act 2004 through the NZBC Acceptable Solution B2/AS1 places the responsibility for the initial durability of *building elements* on the designer, but the on-going responsibility on the building owner. For the purposes of the NZBC, a *building element* is defined as "Any structural or non-structural component and assembly incorporated into or associated with a building. Included are fixtures, services, drains, permanent mechanical installations for access, glazing, partitions, ceilings and temporary supports."¹⁴

The building owner is required to follow the manufacturer's maintenance recommendations as well as undertake any other basic maintenance tasks. Evaluation of durability under the Verification Method (VM B2/VM1) 1.3.2 "shall take into account but not be limited to ... f) Required maintenance."¹⁵

Although MBIE actively promotes the requirements of various NZBC clauses, for example compliance with seismic requirements of Clause B1-Structure, no evidence has been found that it has undertaken any promotion of the ongoing requirements of Clause B2-Durability. Certainly, no public campaign to educate dwelling owners as to this aspect of the NZBC has been identified as being carried out by either the Building Industry Authority (BIA) – the initial agency responsible for the NZBC or its successor, currently MBIE.

¹² Verification Method B2/VM1 comment 2(a).

¹³ Ministry of Business, Innovation and Employment, (2019) p14.

¹⁴ NZBC, Clause A2-Interpretation.

¹⁵ Ministry of Business, Innovation and Employment, (2019) p11.

Consequently, although the Building Act 2004 Section 4(2)(a) establishes for household units a need for reasonable maintenance requirements (Infobox 1), the NZBC does not specify required or appropriate standards of maintenance, nor is there a mechanism for policing any requirement beyond the cost of failure for the owner. Moreover, the MBIE webpages which provide guidance as to 'Homeowner rights and obligations' and 'Protecting your investment', do not mention either Clause B2 or the NZBC has a requirement for ongoing maintenance.¹⁶ The information provided as to the issue of 'Will there be any maintenance?' only relates to the difference between 'low maintenance' and 'no maintenance'.¹⁷

The only part of the Building Act 2004 which places a requirement for maintenance on single households relates to cable cars. Section 100 of the Building Act 2004 **excludes** "a building used wholly as a single household unit" from a requirement for the listing and annual checking of specified systems within the building implemented through a Compliance Schedule. However, following the Building Amendment Act 2005¹⁸ after 30 March 2008 a cable car associated with a single household unit does require a Compliance Schedule.¹⁹ The building owner must ensure continued effective operation of the cable car, meet inspection requirements and sign an annual Building Warrant of Fitness.²⁰ The local council is responsible for overseeing the correct implementation – e.g. the Wellington City Council charges an annual fee of \$81.75, with an additional \$209 if an audit is undertaken (July 2021).²¹

Buildings subject to a Compliance Schedule require an annual Building Warrant of Fitness (BWof). The various documents are available for downloading,²² but the list is slightly harder to find,²³ so is given in Infobox 5. The specified items relate to emergency, health and safety, but not to general building maintenance. Multi-storey 'Multi-unit Dwellings' e.g. apartments or flats, are likely to have one or more of the Specified Systems listed in, and hence subject to Building Warrant of Fitness requirements.

¹⁶ <https://www.building.govt.nz/getting-started/your-rights-and-obligations/homeowner-rights-and-obligations/>

<https://www.building.govt.nz/projects-and-consents/sign-off-and-maintenance/protecting-your-investment/>

¹⁷ <https://www.building.govt.nz/getting-started/your-rights-and-obligations/homeowner-rights-and-obligations/buying-a-house/will-there-be-any-maintenance/>

¹⁸ <https://www.legislation.govt.nz/act/public/2005/0031/latest/whole.html>

¹⁹ <https://www.building.govt.nz/projects-and-consents/sign-off-and-maintenance/completing-your-project/compliance-schedules/#jumpto-compliance-schedule-content>

²⁰ <https://www.building.govt.nz/managing-buildings/managing-your-bwof/>

²¹ <https://wellington.govt.nz/property-rates-and-building/building-and-resource-consents/buildings-with-specified-systems/building-warrants-of-fitness>

²² https://www.building.govt.nz/managing-buildings/managing-your-bwof/forms-for-building-maintenance-management/#jumpto-form-12a_003a-certificate-of-compliance-with-inspection_002c-maintenance-and-reporting-procedures

²³ <https://www.building.govt.nz/managing-buildings/managing-your-bwof/specified-systems-and-compliance-schedules/>

Infobox 5: Specified Systems Requiring a Compliance Schedule and BWoF

Under the Building Act 2004, all buildings (other than single residential buildings, unless they have a cable car) require a compliance schedule and annual building warrant of fitness if they contain any of the following:

1. Automatic systems for fire suppression (for example, sprinkler systems).
2. Automatic or manual emergency warning systems for fire or other dangers (other than a warning system for fire that is entirely within a household unit and serves only that unit).
3. Electromagnetic or automatic doors or windows (for example, ones that close on fire alarm activation).
4. Emergency lighting systems.
5. Escape route pressurisation systems.
6. Riser mains for use by fire services.
7. Automatic backflow preventers connected to a potable water supply.
8. Lifts, escalators, travelators, or other systems for moving people or goods within buildings.
9. Mechanical ventilation or air conditioning systems.
10. Building maintenance units providing access to exterior and interior walls of buildings.
11. Laboratory fume cupboards.
12. Audio loops or other assistive listening systems.
13. Smoke control systems.
14. Emergency power systems for, or signs relating to, a system or feature specified in any of clauses 1-13.
15. Any or all of the following systems and features, so long as they form part of a building's means of escape from fire, and so long as those means also contain any or all of the systems or features specified in clauses 1 to 6, 9, and 13:
 - Systems for communicating spoken information intended to facilitate evacuation; and
 - Final exits (as defined by clause A2 of the building code); and
 - Fire separations (as so defined); and
 - Signs for communicating information intended to facilitate evacuation; and
 - Smoke separations (as so defined).

All buildings with a cable car, including single residential buildings, require a compliance schedule.

It is notable that MBIE does provide advice on some other parts of the NZBC. In particular, the Building Code Clause B1-Structure requires all building elements to have a low probability of failure when exposed to the physical conditions likely to be experienced within their lifetime.²⁴ Following the 2016 earthquakes, MBIE published two practice advisories providing guidance on improving the earthquake performance of non-structural and structural secondary elements. Non-structural elements are those elements within a building that are not considered to be part of either the primary or secondary structural systems. Examples include components such as mechanical and electrical plant, ducting, pipework, cable trays, suspended ceilings, light non-load bearing partitions, and cladding systems such as brick veneer.²⁵ Secondary structural elements are those elements of the building that are not part of either the primary lateral or primary gravity structural systems but nevertheless are required to transfer inertial and vertical loads. Examples include precast panels, curtain wall framing systems, heavy internal partitions, stairs, significant building services and large building ornaments.²⁶

²⁴ <https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/practice-advisory-20/>

²⁵ <https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/practice-advisory-19/>

²⁶ <https://www.building.govt.nz/building-code-compliance/b-stability/b1-structure/practice-advisory-20/>

These practice advisories, although providing ‘guidance’ under NZBC Clause B1-Structure, were stated as well as being ‘of interest’ to those specialists involved in the creation of the building, as well as ‘maintenance personnel’. Thus, in response to a catastrophic event, it was possible for MBIE to provide a form of maintenance advice, albeit not as a compliance document.

For completeness, although not strictly within the coverage of this research, the Residential Tenancies Act 1986 requires landlords to provide and maintain rental properties in a reasonable state of repair and cleanliness.²⁷ What is considered ‘reasonable’ depends on the age and character of the property, and how long it’s likely to remain habitable and available to be lived in.

As the Residential Tenancies Act 1986 section 45(1)(c) requires landlords “comply with all requirements in respect of buildings, health, and safety under any enactment so far as they apply to the premises,” they need to consider relevant aspects of the Building Act 2004 and the NZBC, Health Act 1956, Housing Improvement Regulations 1947, and local council bylaws under the Local Government Act 2002.

These requirements have been further changed by the Residential Tenancies (Healthy Homes Standards) Regulations 2019 which introduced minimum standards for heating, insulation, ventilation, moisture ingress and drainage, and draught stopping in rental properties. These standards are intended to make it easier for renters to keep their homes warm and dry, and themselves healthier.²⁸

There are no similar requirements for house owners.

In addition to tenancies legislation the Ministry of Housing and Urban Development is also responsible for the Unit Titles Act 2010 and that does refer to responsibilities and processes related to maintenance. Indeed, the only NZ residential buildings required to have a maintenance plan are those covered under the Unit Titles Act 2010.²⁹ These *communities of individual owners* (section 3, Unit Titles Act 2010) can be comprised of multiple detached or multi-unit dwellings, or a combination of both NZBC types (see Infobox 2).

Section 116 of the Unit Titles Act requires a body corporate to “establish and regularly maintain a long-term maintenance plan” to cover a period of at least 10 years, unless by special resolution it decides not to establish such a fund. As a special resolution requires 75% of the eligible voters who vote to vote in favour, this establishes a high barrier to not having a long-term maintenance fund and associated plan. Regulation 30 of the Unit Title Regulations 2011³⁰ sets out the issues to be covered in a long-term maintenance plan (Infobox 6).

²⁷ See Residential Tenancies Act 1986, section 45(1).

²⁸ <https://www.legislation.govt.nz/act/public/1986/0120/latest/DLM94278.html>

²⁹ <https://www.tenancy.govt.nz/maintenance-and-inspections/laws-and-bylaws/>

²⁹ <https://www.legislation.govt.nz/act/public/2010/0022/latest/whole.html>

³⁰ <https://www.legislation.govt.nz/regulation/public/2011/0122/latest/DLM3695758.html>

Infobox 6: Coverage of Long-term Maintenance Plan (Sec 30, Unit Titles Regulations 2011)

30 Long-term maintenance plans

- (1) A long-term maintenance plan must—
- (a) cover—
 - (i) the common property, building elements, and infrastructure of the unit title development; and
 - (ii) any additional items that the body corporate has decided by ordinary resolution to include in the plan; and
 - (b) identify those items that the body corporate may decide by ordinary resolution not to maintain for any period during the lifetime of the plan; and
 - (c) state the period covered by the plan; and
 - (d) state the estimated age and life expectancy of each item covered by the plan; and
 - (e) state the estimated cost of maintenance and replacement of each item covered by the plan; and
 - (f) state whether there is a long-term maintenance fund; and
 - (g) if there is a long-term maintenance fund, state the amount determined by the body corporate to be applied to maintain the fund each year; and
 - (h) state who has prepared the plan.
- (2) A body corporate must carry out a review of its plan at least once every 3 years.
- (3) Subject to subclause (2), a body corporate may carry out a review of its plan as frequently as it considers necessary.

Non-Governmental Technical Organisations Providing Maintenance Advice

Although not a Government agency, BRANZ has a long tradition of researching and publishing on maintenance issues. Many of its publications are referenced in the NZBC Acceptable Solutions and Verification Methods.

The BRANZ shop (www.branz.co.nz) has around 56 relevant, non-research report publications, with the majority concerned with the maintenance of specific items e.g. roof, timber windows etc. These include for the general public the *Good Repair Guide* series and *Maintaining your Home* guide, as well as reports for the building industry.

Table 1 provides a list of the BRANZ *Good Repair Guide* series. The 26 publications in the series explain the causes of most common problems in New Zealand houses and provide detailed descriptions of how to repair them. They cost NZ\$9 as an electronic PDF, or NZ\$21 for a paper copy.

BRANZ also publishes the whole-house guide *Maintaining Your Home* which was first published in 1995, with the current edition dated 2006 and is available at a cost of NZ\$30.

Other BRANZ publications (excluded from this report as they are intended for the designer not the owner), provide a range of useful information. They include

- *BK158 Designing for maintenance* (\$43 EPUB, NZ\$50 paper) (Jun 2015).
- *BU632 Planning for maintenance* (replaces BU479, Dec 2006) (NZ\$13.50 PDF or paper) – examples based on commercial buildings.
- A BRANZ commissioned research report examining the information available to consumers concerning house building.³¹ The Hindley and Brooks report provides a comprehensive listing of websites providing information on housebuilding including those dealing with the maintenance

³¹ Hindley, D. & Brooks, J. (2020). Mapping the consumer landscape. BRANZ Study Report SR451. Judgeford, New Zealand: BRANZ Ltd. <https://www.branz.co.nz/pubs/research-reports/sr451/>.

of rented homes, support through Kāinga Ora, product manufacturers, distributors and retailers. In Chapter 4, dealing with clear gaps in knowledge, the report concludes for maintenance:

“BRANZ has estimated that the annual cost of maintenance required to keep a house in good condition is typically around 0.5–2.0% of the value of the house, excluding the land. In other words, for a house with a value of \$300,000 (excluding land value), the owner should plan to spend around \$1,500–6,000 each year on maintenance and repairs. The House Condition Surveys have consistently found that owners are not spending this. In fact, the actual spend has often been around only a third of the amount required to repair the most serious defects.”³²

Table 1: BRANZ’s Good Repair Guide publications

Title	Code	Publication Date
Good Repair Guide: Rainwater storage systems	BK179	Apr 2016
Good Repair Guide: Aluminium windows	BK112	Feb 2014
Good Repair Guide: Clay and concrete roof tiles	BK180	Apr 2016
Good Repair Guide: Concrete floors	BK173	Mar2016
Good Repair Guide: Construction stains	BK175	Mar2016
Good Repair Guide: Damp subfloors	BK105	Sep 2013
Good Repair Guide: Dealing with mould	BK110	Dec 2013
Good Repair Guide: Driveways and paths	BK120	Apr 2015
Good Repair Guide: External gutters	BK109	Dec 2013
Good Repair Guide: External timber steps	BK121	Apr 2015
Good Repair Guide: Hinges	BK177	Mar 2016
Good Repair Guide: Horizontal timber weatherboards	BK104	Sep 2013
Good Repair Guide: Improving internal ventilation	BK111	Dec 2013
Good Repair Guide: Insulating timber windows	BK122	Jun 2015
Good Repair Guide: Interior painting	BK103	Sep 2013
Good Repair Guide: Leaking basement walls	BK171	Mar 2016
Good Repair Guide: Overlay flooring	BK172	Mar 2016
Good Repair Guide: Profiled metal roofing	BK108	Dec 2013
Good Repair Guide: Repainting textured finishes	BK106	Oct 2013
Good Repair Guide: Retrofitting wall insulation	BK176	Mar 2016
Good Repair Guide: Subfloor timber	BK118	Feb 2015
Good Repair Guide: Timber decking	BK117	Feb 2015
Good Repair Guide: Timber floorboards	BK116	Nov 2014
Good Repair Guide: Timber windows	BK107	Oct 2013
Good Repair Guide: Wall linings	BK178	Mar 2016
Good Repair Guide: Wet area sheet wall linings	BK174	Mar 2016

BRANZ also hosts a number of other relevant websites providing maintenance information and guidance, although not all are easily found or appear to be regularly updated. Those websites include:

- www.branzfind.co.nz (copyright 2015) provides a focused search engine, including a search for “Maintenance and repairs” which provides 122 relevant links including resources, testing and appraisals on BRANZ, government and other relevant websites. The most recent resources are dated late 2020. Note apart from a BRANZ tweet on 6 August 2015, no mention of branzfind.co.nz’s services have been found on either www.buildmagazine.co.nz or www.branz.co.nz.

³² Hindley and Brooks, (2020) pp 33–34.

- www.maintainingmyhome.org.nz (copyright 2013) is based on “Maintaining Your Home” guide publication.
- www.renovate.org.nz appears to be based on the Renovate book series.

BRANZ also participated in research led by CRESA and funded through contestable Public Good Science Fund to assist seniors to better address dwelling repairs and maintenance. That programme, *Ageing in Place: Empowering Older People to Repair & Maintain Safe & Comfortable Houses in their Communities*, generated the *Good Homes: Repairs and Maintenance Assessment and Solutions* guide which provides a checklist for of maintenance and repairs for inside and outside the house.³³

Table 5 in Appendix A provides a list and summary of the topics addressing maintenance in the identified New Zealand websites. Notably the majority (twelve of sixteen) of these websites were focused on the owner-occupier, with only one concerned with tenants. Three other sites considered all potential users including owners and renters. One website was concerned with the legal obligations of the landlord and tenant. Eleven of the sixteen websites are concerned with providing guidance, while the remaining five provide advice around legal obligations. Eleven of the sixteen websites are provided by central and local government, with non-profit industry groups providing the remainder.

3. International Activities

To compare the New Zealand approach, the approaches of four other countries were investigated: Australia, Canada, Ireland and UK. These countries do not have a durability requirement in their building code, although they have other requirements to provide maintenance and related information to building owners.

Australia

The reviewed Australian websites are listed in Table 6 in Appendix A. While Australia does not have durability requirements in their legislation governing design and build, the state of its dwellings has been subject to scrutiny over a number of years for instance in successive Australian Housing Surveys.³⁴ The 2007-8 and 2019-20 Surveys of Income and Housing also asked respondents about maintenance and repairs. This data is reported giving percentage of households with major structural problems and dwelling repairs within the past 12 months for a range of household types and income groups.³⁵

A broad search for Property maintenance schedule site:gov.au found numerous maintenance schedules for landscaping, heritage buildings, multi-unit buildings, schools and general maintenance, but none for private owner house maintenance.

³³ See <https://repairsandmaintenance.goodhomes.co.nz/tools/> for the tools developed from this programme.

³⁴

<https://www.abs.gov.au/websitedbs/D3310114.nsf/89a5f3d8684682b6ca256de4002c809b/d663cdd168d82520ca2572030015a927!OpenDocument>

³⁵ <https://www.abs.gov.au/statistics/people/housing/housing-mobility-and-conditions/2019-20#data-download>

The majority of Government, or government-related documentation (e.g. Tenants' Union guidance on the law) relates either to public or private rental accommodation (separately dealing with urgent and non-urgent repairs), or to multi-unit dwellings.

As noted by the Devonport City Council, Tasmania, with respect to safety and health there is no requirement for houses and outbuildings, but there is for all other building types:

“Buildings other than houses and outbuildings must be maintained to ensure their ‘Essential Safety and Health Features’ are to the required standard, in accordance with the Building Act 2016, so that they continue to operate to the standard to which they were originally required to perform.”³⁶

Australian documentation identified as dealing with maintenance includes:

- Minimum habitability standards for rental accommodation in NSW. From 23 March 2020 seven standards were added to their Residential Tenancies Act 2010 covering: (1) structural soundness; (2) adequate lighting; (3) adequate ventilation; (4) adequate utilities; (5) adequate plumbing and drainage; (6) adequate water (including hot) for drinking, washing, and cleaning; (7) bathroom facilities, including toilet, and washing facilities with privacy.³⁷
- Requirements for rental accommodation in Victoria.³⁸
- Guidance for new purchasers of a unit in a multi-unit residential building in ACT, Victoria.³⁹

There is a range of material providing guidance related to home maintenance, but these do not set out specific maintenance requirements. Examples include:

- Guidance for builders, electricians, plumbers, painters, tradespeople in performing their roles in Western Australia.⁴⁰
- Maintaining home safety, including swimming pools, DIY work, balconies and decks in Western Australia.⁴¹ The Government of Western Australia released an Age Friendly Home Maintenance Kit in June 2021.⁴²
- Maintaining your home in Queensland, including a 2-page PDF download.⁴³ The Queensland Government also operates Home Assist Secure assistance for eligible people who can't perform or pay for critical home maintenance. Eligibility is defined as aged 60 years and over, or people of any age with a disability.⁴⁴
- <https://www.yourhome.gov.au> is a “resource for people aiming to build, buy or renovate a sustainable home.” This extensive website deals with repairs and maintenance but is mainly concerned with issues to be dealt with before renovation. It briefly deals with general maintenance tips and things to consider.⁴⁵

³⁶ <https://www.devonport.tas.gov.au/building-development/building/building-act-regulations/what-are-my-building-maintenance-obligations/>

³⁷ <https://www.tenants.org.au/factsheet-06-repairs-and-maintenance>

³⁸ <https://www.consumer.vic.gov.au/housing/renting/repairs-alterations-safety-and-pets>

³⁹ <https://www.cfa.vic.gov.au/> , <https://www.commerce.wa.gov.au/building-and-energy/wa-alterations-and-additions-protocol>

⁴⁰ <https://www.commerce.wa.gov.au/building-and-energy/industry-information>

⁴¹ <https://www.commerce.wa.gov.au/consumer-protection/home-safety>

⁴² <https://www.wa.gov.au/government/publications/age-friendly-home-maintenance-kit>

⁴³ <https://www.qbcc.qld.gov.au/home-maintenance/maintaining-your-home>

⁴⁴ <https://www.qld.gov.au/housing/buying-owning-home/maintenance-modifications/maintenance-assistance>

⁴⁵ <https://www.yourhome.gov.au/you-begin/repairs-and-maintenance>

There is also guidance for specific types of owner-occupied dwellings, but not all relate to general house maintenance. Examples include:

- *Conserving heritage houses in the Mackay region* a pdf document providing guidance to house owners on how to maintain the ‘character and heritage significance’ in three defined character areas in the Mackay region, Queensland.
- *Heritage Information Series: Minimum standards of maintenance and repair* - for owners of houses listed on the NSW State Heritage Register. Issues covered relate to: weatherproofing; fire protection; security; and essential maintenance.
- Bushfire Survival Planning for the management of houses in country Victoria – tips on house and garden maintenance in the lead up to bush fire season.
- *WA Alterations and Additions Protocol for Energy Efficiency* - provides a Western Australia specific protocol for energy efficiency.

Like New Zealand, Australia funds building related research. Much of this was, until 2002, through CSIRO which undertook building research from 1945 until 2002. It provided a wide range of guidance through the Division of Building, Construction and Engineering (BCE). Although CSIRO Publishing continues to sell publications from BCE and its predecessor’s research, none deal with building maintenance.⁴⁶ CSIRO’s Building Technology Resources for Homeowners and Professionals series “provide trusted information on, and solutions to, a range of common building related issues which are relevant to homeowners, building and property development professionals, industry associations, councils and safety authorities.”⁴⁷ These are all dated September 2021, but it would appear they are reprints of the former CSIRO Notes on the Science of Buildings, and CSIRO Building Technology Files (BTFs). Table 2 provides a list of CSIRO resources related to building technologies.

Table 2: CSIRO Building Technology Resources for Homeowners and Professionals

Title of CSIRO Resources
Asbestos in Buildings
Batteries for Homes
Condensation in Buildings
Foundation Maintenance and Footing Performance
House Design for Cold Winter Climates
House Design for Temperate Climates
Indoor Air Quality
Managing Termites
Noise in Buildings
Solar Photovoltaics: Optimising Performance
Solar Photovoltaics: The Basics
Solar Reflective (Cool) Coatings
Thermal Insulation
Ventilation of Buildings

⁴⁶ <https://www.publish.csiro.au/search?q=maintenance&stype=b>

⁴⁷ <https://www.publish.csiro.au/books/series/82>

Canada

Statistics Canada reports annually on maintenance and repair expenditures in housing, distinguishing between owner-occupied expenditure and tenant/landlord occupied expenditure,⁴⁸ as well as a range of other housing and dwelling statistics. The Canadian Housing Survey (CHS) is sponsored by Canada Mortgage and Housing Corporation (CMHC) and will be conducted biennially until 2028. The CHS collects information on dwelling and neighbourhood satisfaction, first-time homebuyers and housing affordability, as well as many other important dwelling and household characteristics in every province and territory. The CHS also provides data on households living in social and affordable housing. Data from the survey measures whether Canadians have housing that meets their needs and that they can afford.

A finding from the 2018 Canadian Housing Survey was that more than 1.6 million Canadian households lived in core housing need in 2018, defined as “living in an unsuitable, inadequate or unaffordable dwelling, and not able to afford alternative housing in their community.” Seniors living alone and groups designated as visible minorities were among the most likely to be in core housing need prior to the COVID-19 pandemic.⁴⁹

Table 7 (Appendix A) provides the reviewed Canadian websites and publications focused on maintenance of residential dwellings. CMHC has a range of guides and publications around dwelling maintenance. In many cases these could be considered similar to those provided by BRANZ, although these are available without cost in electronic (PDF) format. Examples of CMHC resources and publications on modification, maintenance and repair include:

- Website with guidance on creating accessible and adaptable housing.⁵⁰
- *Home Care - A Guide to Repair and Maintenance* (2003).⁵¹
- *The Housing Observer* - Timely updates on Canada's housing conditions and trends.⁵²
- A range of guidance on seasonal maintenance, for instance after you've bought a home.⁵³

CMHC has published a series of guides on home renovation and building which are available for free download in both French and English (see Table 3 for examples).

Table 3: CMHC Selected Publications

Title	Summary
Renovating distinctive homes: 1½ storey post-war homes (1999) ⁵⁴	This special Renovating Distinctive Homes edition was specifically designed to tell you everything you need to know about renovating a 1 1/2 storey post-war home. You will learn all about the unique characteristics of these homes, how they were developed, designed and built. It describes the renovation process from concept to completion, with detailed drawings; Renovation Planning Worksheets; Vision Worksheet; House Inspection Checklists; and layout tools to assist you.

⁴⁸ <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3410009501>

⁴⁹ <https://www150.statcan.gc.ca/n1/daily-quotidien/201002/dq201002a-eng.htm>

⁵⁰ <https://www.cmhc-schl.gc.ca/en/professionals/industry-innovation-and-leadership/industry-expertise/accessible-adaptable-housing>

⁵¹ https://publications.gc.ca/collections/collection_2017/schl-cmhc/NH15-32-2003-eng.pdf

⁵² <https://www.cmhc-schl.gc.ca/en/blog>

⁵³ e.g. <https://www.cmhc-schl.gc.ca/en/blog/2019-housing-observer/five-tips-great-summer-maintenance>

⁵⁴ <https://publications.gc.ca/site/eng/9.572284/publication.html>

Renovating distinctive homes: one-storey houses of the '60s and '70s (2005) ⁵⁵	This book focuses exclusively on the one-storey house from the '60s and '70s. It combines space planning and design tips as well as technical information.
Canadian wood-frame house construction (2005, 1 st ed 1967) ⁵⁶	The national best-seller on building wood-frame houses in Canada. A field companion for builders and renovators alike, this richly illustrated, step-by-step guide covers everything from breaking ground to finishing touches. It is a superior learning tool and essential job-site reference. The guide conforms to 1995 National Building Code requirements; includes new illustrations and handy sizing tables; presents metric and imperial measurements; planning ahead and checking back notes; plus Healthy Housing tips. Convenient lay-flat binding. Revised 1998. Order #5031 E \$25.95
Healthy housing renovation planner (1998) ⁵⁷	This planner is a practical and interactive guide to planning a renovation project from beginning to end, whether hiring a contractor or doing the work yourself. Relevant for both major and minor projects, the reader can pick and choose information necessary to make decisions. This guide uses a systemic planning approach to renovation projects that contributes to occupant health, reduces energy consumption, conserves natural resources, minimizes environmental effects and balances cost and feasibility. Order # 2172E \$34.95
Glossary of housing terms: the A to Z of housing terms (2013, 1 st ed 1982) ⁵⁸	The A-Z of housing terms! Do you know a beam from a truss? A sash from a sill? This useful housing dictionary lists more than 1,200 up-to-date definitions and provides the French term for each. Revised 1997. Order # I 165E \$8.95
FlexHousing: The Professionals' Guide	Build your market share by building homes that can last a buyer a lifetime. Welcome to the innovative concept of FlexHousing-building homes that meet client demands for adaptability, accessibility, safety and security. Learn how to adapt traditional design and building practices to put space to new and profitable use, from the basement to the attic. Also includes a special chapter on marketing FlexHousing. Order # 2400E \$24.95
About Your House ⁵⁹	Series with a range of information intended to assist homeowners in taking appropriate measures to address existing problems in their house or to make informed decisions about changes or upgrades they may be planning. 61 issues to date, published irregularly.

Ireland

Table 8 (Appendix A) lists the various Irish websites identified in this research. No central or local government guidance for the maintenance of residential buildings was found.

Ireland has a range of Government produced guidance for the maintenance of heritage or traditional buildings, such as *Maintenance – A Guide to the Care of Older Buildings*,⁶⁰ the Built Heritage Investment Scheme 2021 (BHIS) is for the repair and conservation of structures that are protected

⁵⁵ <https://publications.gc.ca/site/eng/9.831004/publication.html>

⁵⁶ <https://publications.gc.ca/site/eng/9.700100/publication.html>

⁵⁷ <https://publications.gc.ca/site/eng/9.831725/publication.html>

⁵⁸ <https://publications.gc.ca/site/eng/9.700099/publication.html>

⁵⁹ <https://publications.gc.ca/site/eng/9.514828/publication.html>

⁶⁰ Hardcopy: <https://shop.igs.ie/products/maintenance-a-guide-to-the-care-of-older-buildings>
PDF: <https://www.kilkennycoco.ie/eng/services/planning/conservation/conservation-resources/>

under the Planning and Development Act,⁶¹ as well as funding support for specific items such as the thatching grant for normal places of residence.⁶²

Minimum standards for rental accommodation are defined, along with inspection and enforcement.⁶³ Under Covid-19 there has been a move away from in-situ house inspections to virtual inspections with funding for the development of a Virtual Reality Tour & House Inspection App for local authority houses,⁶⁴ and the undertaking of virtual inspections of private rented dwellings – up from 0 in 2019 to 1,388 out of 25,703 inspections in 2020.⁶⁵

Bringing Back Homes - Manual for the reuse of existing buildings was published in 2018⁶⁶ and in 2020 the Royal Institute of the Architects of Ireland (RIAI), with funding from the Department of Culture, Heritage and Gaeltacht and Creative Ireland, published a free online guide to conservation and renovation, *Old House New Home* to support the owners of older residences, including historic houses and protected structures.⁶⁷ However, while these provide guidance for the renovation of existing, underused buildings they are not maintenance guides and concern only older buildings.

United Kingdom

The reviewed United Kingdom websites and publications are given in Table 9 (Appendix A). No central or local government guidance for the maintenance of residential buildings was found. In the main the websites identified were local (as opposed to central) government websites, with some information being provided from commercial websites on the availability and use of Government material. Issues of commercial building maintenance are recognised as having health & safety, cost and insurance implications.⁶⁸ However, no UK website has been found providing guidance for non-rental⁶⁹ or non-Council⁷⁰ housing maintenance. The state of repair of heritage buildings has an NGO website (although apparently not updated since 2018),⁷¹ providing specific and general examples.⁷² The Building Research Establishment which was privatised in 1997 did previously provide dwelling maintenance information arising from its research. Since 1997 BRE has largely focused on issues of sustainability. BRE has a very large collection of archive material on many aspects of house maintenance, although many of the publications remain in pre-2000 versions, with the most recent Good Guidance document published in 2016. Table 4 gives the two collections currently available from the BRE Bookshop.

⁶¹ <http://www.housing.old.gov.ie/heritage/built-heritage/financial-assistance-architectural-heritage>

⁶² <https://www.gov.ie/en/service/32e72-thatching-grant/>

⁶³ <https://www.gov.ie/en/publication/37ccb-minimum-standards-in-rented-accommodation/>

⁶⁴ <https://www.ops.gov.ie/networks/funding/projects-funded-in-2020/#local>

⁶⁵ <https://www.gov.ie/en/publication/da3fe-private-housing-market-statistics/>

⁶⁶ <https://www.gov.ie/en/publication/68a5b-bringing-back-homes-manual-for-the-reuse-of-existing-buildings/>

⁶⁷ <https://www.riai.ie/whats-on/news/riai-publishes-old-house-new-home-a-free-online-guide>

⁶⁸ E.g. 'Why is building maintenance important?' see <https://bmmagazine.co.uk/business/why-is-building-maintenance-important/>

⁶⁹ <https://www.anthonygold.co.uk/latest/blog/does-the-covid-19-shutdown-mean-that-i-cannot-get-repairs-done/>

⁷⁰ <https://www.gov.uk/council-housing/repairs-and-maintenance>

<https://www.falkirk.gov.uk/services/homes-property/council-housing/repairs-maintenance/request-a-council-housing-repair.aspx>

⁷¹ <https://www.maintainourheritage.co.uk/>

⁷² <https://www.maintainourheritage.co.uk/historic-england-ignores-thousands-of-buildings-at-risk/>

Table 4: BRE Maintenance Related Publications

Reference	Details
<i>Non-traditional housing. A collection of BRE publications</i> (AP 149) April 2002 ⁷³	<p>Eighty-two previously published BRE reports and leaflets are brought together in one download.</p> <p>The housing types covered are: reinforced concrete (cast-in-situ concrete, prefabricated reinforced concrete (PRC) and large panel system (LPS), steel-framed and steel-clad, and timber-framed.</p> <p>The publications cover constructional details of systems for the guidance of owners, lenders, surveyors and engineers; evaluating systems; assessments of the structural condition of existing dwellings; and guidance on surveying, maintenance, rehabilitation and repair.</p>
<i>BRE Good Building Guides and Good Repair Guides: A library of information for all construction professionals</i> (AP 281) September 2016 ⁷⁴	<p>This updated (up to September 2016) compilation comprises over 100 Good Building Guides and nearly 50 Good Repair Guides giving a huge reference library of advice, practical guidance and expertise from BRE.</p> <p>Good Building Guides - give concise guidance on the principles and practicalities for achieving good quality building. They draw on BRE experience and research, and other sources, to provide clear technical advice and solutions.</p> <p>Good Repair Guides - are accessible guides to the defects most commonly encountered in buildings and offer sound advice on putting them right. They are highly illustrated to make the problems and solutions easy to identify and understand.</p>

4. Discussion and Conclusions

The issue of maintenance, or more correctly a lack of maintenance, of New Zealand houses has a long history. As noted by the NZ State Forest Service in 1944, focusing on issues such as borer control does not encourage the house owner or occupier to deal with the many other important maintenance issues:

*The Forest Service has further advocated the removal of emphasis in advertising such work from borer control to the more inclusive and important basis of house-maintenance. Unfortunately, the philosophy of wood use for New Zealand building has been one of specifying the very highest grades and quality and imagining thereby that the whole wooden structure may be forgotten and neglected virtually for a generation or more. Epitomized, it is a philosophy of abuse rather than use, and it is no exaggeration to say that **if builders, painters, and companies treating would co-operate to give a regular annual house-maintenance service the effective life of dwellings could be doubled by correcting from year to year any defect which might develop in the wood due to fungal and insect attack, paint failures, &c.**⁷⁵ (emphasis added).*

The NZBC embeds within the legislation an expectation of something which might be referred to as ‘normal’ maintenance. However, there is little evidence that what constitutes ‘normal’ maintenance and how to carry it out has been given any systematic attention.

Regular BRANZ House Condition Surveys have found that New Zealand dwellings are not well maintained, with households spending around one third of the amount required for maintenance. Low maintenance is a NZ national problem.

⁷³ <https://www.brebookshop.com/details.jsp?id=327968>

⁷⁴ <https://www.brebookshop.com/details.jsp?id=327779>

⁷⁵ State Forest Service (1944), AJHR p22. <https://paperspast.natlib.govt.nz/parliamentary/AJHR1944-I.2.1.4.5>

Maintenance ensures the building, and its various parts are able to withstand change, decay or wear in order to continue in use for its expected lifetime. Building owners, and in some cases occupants, are expected to undertake maintenance, yet unless they are provided with information as to the requirements it can be overlooked or even ignored. This review of New Zealand and selected international (Australia, Canada, Ireland and the UK) governmental activities promoting residential maintenance has identified three basic types of maintenance guidance:

1. **General Guidance:** a list of 'good ideas', or generic maintenance plan, which can be modified as required and carried out to ensure any building can be suitably maintained to achieve its potential and/or desired lifetime.
2. **Detailed Plan:** assistance in the development of a comprehensive list of activities and equipment required to ensure the long-term maintenance of the building. These documents specify the tasks to be undertaken, the equipment required, the purpose and a time period (e.g. *once a year, using the water blaster gently wash the building down to ensure that no salt is permitted to remain and potentially lead to corrosion of metal surfaces or fixture, or deterioration of the paint*). The tasks may have a short return cycle (e.g. *3-monthly clean of windows*) or long term (e.g. *10-yearly paint the building and every 30 years (every third painting) strip the paint back to a sound, clean surface, then undertake any necessary repairs, before priming and repainting*).

Both 'General Guidance' and 'Detailed Plan' maintenance documentation are often focused on a specific building type (e.g. heritage buildings) but can be used for other buildings.

3. **Tool Plan:** a list of tools which allow a suitable person to achieve certain tasks (e.g. *obtaining a ladder will allow the cleaning of gutters to ensure that the body of building is not unnecessarily impacted by the consequences of rain*). The tool may require a specialist person to use it (e.g. *a water blaster should be operated appropriately to ensure the building's watertight integrity is not damaged*).

There are also a fragmentary set of legal requirements for certain types or tenures, typically for multi-unit owner or tenant occupied, and for single household unit rented dwellings. Often, but not always, these are accompanied by supporting information and guidance e.g. NZ Residential Tenancies (Healthy Homes Standards) Regulations 2019. Internationally, common examples relate to multi-unit dwellings e.g. apartment buildings or those with Body Corporates which, in addition to regular maintenance, may be required to have, and fund a multi-year, long-term maintenance plan. The NZ Unit Title Regulations 2011 is one example.

Although historically Government and/or construction sector supported research organisations have provided house maintenance guidance, internationally this would appear to have been halted in the early 2000s, although it continues with BRANZ.

Across the identified NZ and international documentation, governments are potentially involved in house or apartment building maintenance in three ways:

1. **Rental accommodation:** providing legally mandated minimums and appropriate supporting materials.
2. **Heritage or other buildings.** Where these are subject to some form of Governmental assessment: providing either mandatory or voluntary guidance on maintenance and repair for the building to continue to retain its usefulness and status.
3. **Societal support:** providing independent, unbiased information for owners to undertake maintenance or repairs to prolong the useful life of their building.

The unique aspect of a single household unit which has NZBC maintenance-related documentation is a cable car (if present). It has documentation for both an acceptable standard of maintenance and a mechanism for policing. Buildings, other than single residential dwellings, have a requirement for a compliance schedule and an annual Building Warrant of Fitness for specified emergency, health and safety systems, but not general building or building element maintenance.

New Zealand legislative requirements which could reasonably be expected to have MBIE (as the responsible Government agency) provided or supported documentation to explain the terminology and appropriate ways to implement for those responsible (the building owner) include:

1. Building Act 2004 section 2(a)(ii) requires when dealing with 1 or more household units **“that maintenance requirements of household units are reasonable.”**
2. NZBC Clause B2 Durability, performance requirement B2.3.1 that **“Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building,”** or 50 years, 15 years or 5 years as specified in the clause. Acceptable Solution B2/AS1 briefly explains normal maintenance, but as an acceptable solution is not mandatory.

No documentation or supporting guidance has been identified for either of these two legislative requirements. MBIE has demonstrated following a catastrophic event (in the example provided, the 2016 earthquake) that maintenance advice can be provided, albeit not as compliance documents.

References

Note: Website addresses for electronic sources are provided as footnotes in the main body or in Appendix tables

Hindley, D. & Brooks, J. (2020). Mapping the consumer landscape. BRANZ Study Report SR451. Judgeford, New Zealand: BRANZ Ltd. <https://www.branz.co.nz/pubs/research-reports/sr451/>

Ministry of Business, Innovation and Employment, Hīkina Whakatutuki. (2019) *Compliance Document for the New Zealand Building Code: Clause B2 Durability. 2nd Edition [Amendment 12]*. <https://www.building.govt.nz/assets/Uploads/building-code-compliance/b-stability/b2-durability/asvm/b2-durability-2nd-edition-amendment-12.pdf>

Appendix A: Tables of Identified Resources by Country

The summary tables for each country are provided in this appendix as follows:

- Table 5: Selected New Zealand Resources.
- Table 6: Selected Australian Table 6: Selected Australian.
- Table 7: Selected Canadian.
- Table 8: Selected Irish.
- Table 9: Selected United Kingdom.

Search terms and sites are provided immediately following each country table. No quotation marks were used around the search terms (i.e. requirements for specific words or phrases) except as specified.

Each table includes the following information:

- A. Sector:** The type of organisation/person the reference material is aimed at. Including:
- Landlord: owner of a rented building/apartment, or person/organisation representing them.
 - Tenant: person/people living in a rented building/apartment.
 - Owner: owner-occupier individual/group living in a building/apartment owned by one or more of them.
 - Supplier: business or agency which supplies product(s) or service(s).
 - Combine: Specific grouping e.g. Landlord/Tenant.
 - ALL: Landlord, Tenant, Owner and Supplier.
- B. Agency:** Specific agency responsible for the reference material.
- C. Role:** The purpose of the documentation, including:
- *General Guide*: a broad statement of specific action(s) but lacking detail.
 - *Detail Plan*: Comprehensive list of activities and equipment able to be customised for the specific building(s).
 - *Tool Plan*: a list of required tools and expertise.
 - *Legal*: sets out a legal requirement for specific actions to be taken.
- D. Summary:** A brief summary of the coverage of the material. Where possible this is taken directly from the website or associated publication.
- E. Website:** the website address, where possible a direct connection to the document/web page of interest.

Table 5: Selected New Zealand Resources

Sector	Agency	Role	Summary	Website
Combine Landlord / Tenant	Tenancy Services	Legal	Legal obligations of landlord & tenant. Provides information on landlord and tenant responsibilities in terms of home and property maintenance. Further outlines the building, health and safety legislation that landlords are required to comply with including maintaining the plumbing, electrical wiring and structure of the house to a safe standard and ensuring all locks and fastenings are functional.	https://www.tenancy.govt.nz/maintenance-and-inspections/regular-maintenance/
All	Building Performance	Legal	General repair, maintenance, and replacement. Provides advice on which aspects of general building repairs and maintenance are exempt from or require consent.	https://www.building.govt.nz/projects-and-consents/planning-a-successful-build/scope-and-design/check-if-you-need-consents/building-work-that-doesnt-need-a-building-consent/technical-requirements-for-exempt-building-work/1-general-alterations-maintenance-and-removal/1-1-general-repair-maintenance-and-replacement/
Owner	Work and Income	Guide	Home repairs and maintenance. Provides information on financial supports available for beneficiaries and (eligible) low-income homeowners requiring essential home repairs and maintenance (e.g. roof, hot water cylinder, paths, fences, retaining walls) and assistance with essential services (e.g. sewerage, water, electricity).	https://www.workandincome.govt.nz/eligibility/urgent-costs/house-maintenance.html
Owner	Unit Title Services	Legal	Unit title maintenance. Provides clarification of the aspects of home maintenance and repairs the body corporate is responsible for (common property; assets owned by the body corporate; assets used in connection with the common property; parts of the building that serve more than one unit) and aspects owners are responsible for (maintenance of the interior unit; shared maintenance of common property; personal negligence or damage; work that disproportionately benefits their unit; work on building elements or infrastructure contained in their unit). Outlines the criteria under which owners are permitted to make improvements to their unit and requirements for the body corporate to provide a long-term maintenance plan and long-term maintenance fund.	https://www.unittitles.govt.nz/body-corporate-money-and-maintenance/unit-title-maintenance/
Owner	Auckland CC	Legal	Practice Note, Maintenance and repairs – weathertightness. Document number:AC2232 Provides clarity around what is defined as “normal maintenance” in relation to issues of weathertightness, and what exceeds normal repairs and maintenance work and therefore requires building consent, or a certificate of acceptance, to meet building code standards.	https://www.aucklandcouncil.govt.nz/building-and-consents/Documents/ac2232-maintenance-and-repairs-weathertightness.pdf
Owner	Auckland CC	Legal	Property Maintenance and Nuisance Bylaw 2015 The Property Maintenance and Nuisance Bylaw requires private property to be maintained well enough that it doesn't create a nuisance.	https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/bylaws/Pages/property-maintenance-and-nuisance-bylaw.aspx
Owner	Dunedin CC	Guide	The Heritage Buildings Economic Re-use Steering Group has put together a building maintenance checklist to guide heritage building owners in drafting their own maintenance regimes. (Note: this could be used by owners of any building as a checklist)	https://www.dunedin.govt.nz/services/dunedin-heritage/owning-heritage-buildings
Owner	MfE	Guide	Integrated whole building design guidelines. Publication date: October 2008. Publication reference number: ME 903 This report provides guidance on the integrated whole building design process. By using this process, the government aims to ensure that future government buildings are designed to be healthier and more environmentally sustainable.	https://www.mfe.govt.nz/publications/sustainability/integrated-whole-building-design-guidelines
Owner	Nelson Marlborough Health	Guide	Good Homes: Repairs and Maintenance Assessment and Solutions (CRESA/BRANZ publication) (Sourced from research report on www.goodhomes.co.nz). A guide for older people who find aspects of home maintenance difficult or are unsure where to start. Provides a checklist to help older people prioritise maintenance work. Good Homes: Repairs and Maintenance Assessment and Solutions.	https://www.nmdhb.govt.nz/public-health-service/health-and-wellbeing/healthy-homes/
Owner	EQC	Guide	Making your home safer for natural hazards. A series of guides for homeowners that provide simple home maintenance and safety solutions to make the home more responsive to, and minimise damage from, natural hazards.	https://www.eqc.govt.nz/be-prepared/homeowners
Tenant	EQC	Guide	Advice for tenants on steps they can take to make their homes safer and minimise the risk of damage from a natural disaster.	https://www.eqc.govt.nz/be-prepared/tenants/
Owner	Marlborough DC	Guide	Online fact sheet providing general information about building services and components. Provides links to relevant resources, including to the Consumer Build website, for further advice on house maintenance and other matters.	https://www.marlborough.govt.nz/services/building-services/what-you-need-to-know-building-faqs/faqs-leaking-homes-building-services-components
All	BRANZ	Guide	One-stop web search engine. Provides links to 122 resources addressing maintenance and repairs issues.	https://www.branzfind.co.nz
Owner	BRANZ	Guide	Online resource based on the BRANZ <i>Maintaining your home</i> book.	http://www.maintainingmyhome.org.nz
Owner	BRANZ	Guide	Online resource for industry professionals including how to advise homeowners on ongoing maintenance requirements.	https://www.renovate.org.nz
All	Concrete NZ	Guide	Provides a range of legacy publications suitable for the public (as well as product specialists) to assist in the maintenance and repair of concrete and concrete structures. Different resources are available for different user groups.	https://concretenz.org.nz/page/Publication_Legacy
Owner	Consumer	Guide	Guidance for wide range of home maintenance.	

- Search terms & sites: government site:govt.nz; later "house maintenance" site:govt.nz, excluding nzta.govt.nz, building.govt.nz and workandincome.govt.nz
- In addition to Google search, specific searches made in **IndexNZ** (NZ published articles) found only 5 articles for “house maintenance” – 2 from BRANZ, 1 from Consumer NZ and 2 others

Table 6: Selected Australian Resources

Sector	Agency	Role	Summary	Website
Landlord	Victoria Disability Services	Guide	<i>House Maintenance Guide</i> , Victorian Government Department of Human Services (2006) A guide for House Supervisors and Staff of Shared Supported Accommodation (SSA) when dealing with House Maintenance issues. The House maintenance guide applies to all SSA houses that are owned by the Secretary of the Department of Human Services and is also recommended for community service organisations to ensure a consistent approach to maintenance.	www.dhs.vic.gov.au/disability https://providers.dffh.vic.gov.au/house-maintenance-guide-pdf
Owner	Mackay Regional Council	Guide	<i>Conserving heritage houses in the Mackay region</i> . Provides information and advice for homeowners wishing to undertake repairs, maintenance or conservation work in character areas.	https://www.mackay.qld.gov.au/business/planning_and_development/heritage_planning
Owner	NSW Heritage Office	Legal	<i>Heritage Information Series: Minimum standards of maintenance and repair</i> , – NSW. Outlines minimum standards of maintenance and repair for owners of dwellings listed on the State Heritage Register, to ensure that heritage significance is maintained. The standards are implemented through Heritage Amendment Regulation 1999, and relate to: weatherproofing; fire protection; security; and essential maintenance.	https://www.heritage.nsw.gov.au/assets/Uploads/a-z-publications/m-o/Minimum-Standards-of-Maintenance-and-Repair.pdf
Landlord	Government of Western Australia	Legal/ Guide	Urgent and Non-urgent repairs in a rental home (Department of Mines, Industry Regulation and Safety). Outlines landlord responsibilities with regard to the provision of essential services and other urgent repairs.	https://www.commerce.wa.gov.au/consumer-protection/urgent-repairs-rental-home https://www.commerce.wa.gov.au/consumer-protection/non-urgent-repairs-rental-home
Owner	Government of Western Australia	Guide	<i>Age Friendly Home Maintenance Kit</i> (Department of Local Government and Communities). Provides advice and resources to help homeowners identify and address common maintenance issues.	https://www.wa.gov.au/government/publications/age-friendly-home-maintenance-kit
Landlord	Tenants' Union of NSW	Legal	NSW tenancy rules dealing with urgent and non-urgent repairs in a rental home. Outlines minimum habitability standards for rental accommodation, including standards added to the Residential Tenancies Act in 2020 pertaining to: structural soundness; adequate lighting; adequate ventilation; adequate utilities; adequate plumbing and drainage; adequate water (including hot) for drinking, washing, and cleaning; bathroom facilities, including toilet, and washing facilities with privacy. These standards are to assist understanding of the landlord's obligation to provide premises "fit for habitation".	https://www.tenants.org.au/factsheet-06-repairs-and-maintenance
Combine Landlord / Tenant/ Owner	Victoria Country Fire Authority	Guide	Bushfire Survival Planning Template. Provides guidance for home and garden maintenance to deal with possible bushfires.	https://www.cfa.vic.gov.au/
Owner	ACT Government	Legal/ Guide	Multi-unit Residential Building Maintenance Guide. September 2018. Provides information for those living in a Unit Title about which services are maintained by owner corporations and which are the responsibility of the unit owner, as well as where to go for further advice or assistance.	https://www.planning.act.gov.au/build-buy-reno/build-buy-or-reno/buying-into-unit-living
Owner	State of Victoria	Legal/ Guide	Guidance for Owners corporations (formerly body corporate).	https://www.consumer.vic.gov.au/housing/owners-corporations/property-maintenance
Landlord	State of Victoria	Legal/ Guide	Sets minimum standards for all rentals including: urgent and non-urgent repairs, tenant alterations; safety; ventilation; heating; structural soundness etc. Outlines penalties and consequences for landlords who fail to provide, or bring a property up to, minimum standards and renters rights should the property not meet these standards.	https://www.consumer.vic.gov.au/housing/renting/repairs-alterations-safety-and-pets
Tenant	South Australia	Legal	Maintenance and repairs. Outlines repairs and maintenance issues that Housing SA will normally carry out and pay for and which repairs and maintenance issues are the tenant's responsibility. Provides information on how to report and request urgent and non-urgent repairs.	https://lawhandbook.sa.gov.au/ch23s04s06.php
Owner	Queensland Building and Construction Commission	Guide	Maintaining your home. Guidance for homeowners on how to approach home and property maintenance to; improve dwelling comfort and functionality; reduce the risk of major damage; save on costs; meet insurance requirements; and increase property value.	https://www.qbcc.qld.gov.au/home-maintenance/maintaining-your-home

- Search terms & sites: "house maintenance," "dwelling maintenance," limited to site:gov.au but excluding: abr.business.gov.au, tac.vic.gov.au' – there are many local government bylaws

Table 7: Selected Canadian Resources

Sector	Agency	Role	Summary	Website
Owner	Government British Columbia	Legal	Gov.bc.ca is the Government of British Columbia's main website for information and services. Strata Repairs and Maintenance (equivalent to NZ Body Corporate)	https://www2.gov.bc.ca/gov/content/housing-tenancy/strata-housing/operating-a-strata/repairs-and-maintenance
Owner	CMHC	Guide	Home Care - A Guide to Repair and Maintenance for owner (last updated 2003)	https://publications.gc.ca/collections/collection_2017/schl-cmhc/NH15-32-2003-eng.pdf
Owner	CMHC	Guide	June 19, 2019: Summer maintenance ideas for your home March 15, 2019: Spring maintenance ideas for your home January 24, 2019: Winter maintenance ideas for safe and warm homes	https://www.cmhc-schl.gc.ca/en/blog
Owner		Guide	Renovating distinctive homes: 1½ storey post-war homes	https://publications.gc.ca/site/eng/9.830702/publication.html
Owner		Guide	Renovating distinctive homes : one-storey houses of the '60s and '70s (last updated 2001)	https://publications.gc.ca/site/eng/9.831004/publication.html
Owner		Guide	Canadian wood-frame house construction (last updated 2013)	https://publications.gc.ca/site/eng/9.700100/publication.html
Owner		Guide	Glossary of housing terms : the A to Z of housing terms	https://publications.gc.ca/site/eng/9.700099/publication.html
Owner		Guide	Healthy housing renovation planner (last updated 2013)	https://publications.gc.ca/site/eng/9.831725/publication.html
Owner		Guide	2007 Housing quality matters for First Nations: Basic home maintenance: home occupants' guide (last updated 2004).	https://publications.gc.ca/site/eng/9.846730/publication.html
Owner	Canada, Indian and Northern Affairs	Guide	1984 Building design for minimal maintenance. 1982: House repairs and maintenance.	https://publications.gc.ca/site/eng/9.841489/publication.html https://publications.gc.ca/site/eng/9.841489/publication.html

- house maintenance site:gc.ca or site:gov.ca

Table 8: Selected Irish Resources

Sector	Agency	Role	Summary	Website
Combine Landlord / Tenant/ Owner	Architectural Heritage Advisory Unit	Guide	<i>Maintenance – A Guide to the Care of Older Buildings</i> (2007) Covers all heritage buildings, including residential. Provides text and checklist. Describes maintenance and repair responsibilities for owners and occupiers of protected structures under the Planning and Development Act 2000.	Hardcopy (purchase): https://shop.igs.ie/products/maintenance-a-guide-to-the-care-of-older-buildings PDF (download): https://www.kilkennycoco.ie/eng/services/planning/conservation/conservation-resources/
Owner	RIAI	Guide	<i>Old House New Home</i> . A free online guide on how to understand, reimagine and conserve an older home or protected structure.	https://www.riai.ie/whats-on/news/riai-publishes-old-house-new-home-a-free-online-guide
Owner	Department of Housing, Local Government and Heritage	Legal	Thatching Grant. The Department of Housing, Local Government and Heritage will cover a proportion of the thatching (maintenance) cost.	https://www.gov.ie/en/service/32e72-thatching-grant/
Owner		Legal	Financial Assistance for Architectural Heritage. Applies to public & private, residential & non-residential for conservation and restoration.	http://www.housing.old.gov.ie/heritage/built-heritage/financial-assistance-architectural-heritage
Owner		Guide	<i>Bringing Back Homes: Manual for the reuse of existing buildings</i> . Provides guidance for the Local Authority/voluntary housing sector on how to identify and convert underused building stock to provide quality, sustainable housing for those in need. Includes information on relevant regulations and incentives.	https://www.gov.ie/en/publication/68a5b-bringing-back-homes-manual-for-the-reuse-of-existing-buildings/
Landlord		Legal	Minimum standards in rented accommodation, including maintenance.	https://www.gov.ie/en/publication/37ccb-minimum-standards-in-rented-accommodation

- house maintenance site:gov.ie or site:ie

Table 9: Selected United Kingdom Resources

Sector	Agency	Role	Summary	Website
Tenant	UK Government	Legal	Council housing - Repairs and maintenance. Identifies the aspects of repairs and maintenance that councils are responsible for, the aspects tenants are responsible for and what improvements tenants are allowed to undertake with regards to their property.	https://www.gov.uk/council-housing/repairs-and-maintenance
Tenant	UK Government	Legal	Covid-19 repairs. Information for renters about their rights to access repairs and maintenance under Covid-19 restrictions.	https://www.anthonygold.co.uk/latest/blog/does-the-covid-19-shutdown-mean-that-i-cannot-get-repairs-done/
Owner	Business Matters (magazine)	Guide	Provides rationale for the maintenance and upkeep of buildings: meeting legal obligations; health of employees; reducing long-term costs; insurance.	https://www.bmmagazine.co.uk/business/why-is-building-maintenance-important/
Owner	Maintain our Heritage UK	Guide	Website focused on promoting the maintenance of heritage buildings/sites (last updated in 2019).	https://www.maintainourheritage.co.uk/historic-england-ignores-thousands-of-buildings-at-risk/

- house maintenance site:gov.uk and site:uk

