

Housing Warrant of Fitness (WOF) Assessment Manual

Version 3.0



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II. Background

Housing is one of the key material determinants of health and shelter is a fundamental human need. New Zealand has substandard housing, which has resulted from poor regulation of minimum housing standards and lack of maintenance. In 2008 The Business Council for Sustainable Development identified that at least one million of the 1.6 million existing homes in New Zealand were poorly performing, meaning they are cold, damp and difficult to heat.¹

Several national surveys and research studies have shown that private rental housing is in poorer condition than either social housing, or houses that are owner occupied. These results are consistent, regardless of the measurement tool used. Following the recommendations of the Children's Commission's Expert Working Group on Solutions to Child Poverty, the position of the large proportion of children in poor households who are renting in the private sector, has again highlighted the importance and utility of a Housing WOF in policy and government circles.

New Zealand also has the second highest rate of asthma in the world.¹ The impact of our housing on health has been well researched and documented by Healthy Housing He Kainga Oranga and the University of Otago. The social cost of injury in the home is estimated to be approximately \$13 billion a year.² In addition, New Zealand has a high incidence of fuel poverty.

During 2013, representatives from Auckland, Wellington, Christchurch and Dunedin Councils initiated a meeting of interested parties to discuss the growing need for a Warrant of Fitness (WOF) for rental properties.

The methodology for a housing WOF was created through collaboration between the University of Otago and the New Zealand Green Building Council (NZGBC), in consultation with the following organisations:

- Auckland Council
- Wellington City Council
- Christchurch City Council
- Dunedin City Council
- Tauranga City Council
- Beacon Pathway
- Building Research Association of New Zealand (BRANZ)
- Energy Efficiency & Conservation Authority (EECA)
- Centre for Research Evaluation and Social Assessment (CRESA)
- Accident and Compensation Corporation (ACC)
- Community Energy Network (CEN)

Version 2.1 of the assessment manual was released after field trial in 2014. This Version 3.0 of the assessment manual updates Version 2.1, following launch in the Wellington City Council territorial authority in August 2017, with a minor update in June 2018.

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¹ <http://asthmafoundation.org.nz/your-health/living-with-asthma/asthma-in-new-zealand/>

² <http://www.otago.ac.nz/news/news/otago045641.html>

III. Assessment Process

This methodology document provides a manual for the criteria and assessment detail for each point described in the criteria list (Appendix A). A checklist is set out for a room-by-room inspection and is included in Appendix B. It's anticipated that the printed checklist could easily be converted to an electronic form, allowing the inspection to be carried out using a tablet or similar mobile device.

For the purpose of the field trial which was conducted in late 2013 and early 2014 by Auckland, Wellington, Christchurch, Dunedin and Tauranga Councils, a paper based checklist was developed to cover all the points described in criteria list. The full implementation of a WOF process, including governance and enforcing remedial action, will depend on the local authority and the role of the service provider during the proposed field trials of late 2013 and early 2014.

General suggested guidelines for the inspection include:

- Use Rental Housing Warrant of Fitness Assessment Checklist (hardcopy or electronic format, such as an iPad).
- A pass requires passing **all** applicable criteria.
- Minor fixes such as replacing light bulbs and smoke alarms, can be carried out onsite in order for an inspector to deem the house as passing, if safe and appropriate to do so at the discretion of the assessor.

III.I. Reporting Safety Issues

If the assessor identifies any issues that may present a direct and significant risk to the health and safety of the occupants of the house, the tenant and landlord should be verbally notified at the time of the assessment.

IV. Eligibility and Requirements

The WOF assessment can be applied to any individual residential unit. A residential unit is defined as having a minimum of:

- A bathroom with a toilet and shower or bath
- A kitchen or kitchen area
- A sleeping area

This version of the WOF is not designed for dormitories or accommodation in which any of the above elements are shared.

In order to conduct a WOF assessment, both power and water services must be connected and operational. If these are not connected, the dwelling is deemed as not currently inhabitable. It is also not possible to assess a number of the criteria without power and water turned on.

Assessment Criteria

1 Cooking Facilities

1.1 Criteria

There must be at least one safe working element, hob or means of cooking as well as an oven.

1.2 Assessment

- Visual inspection and verification that cooking facilities are in working condition.
- No obviously visible unsafe wires, broken glass or gas connections.

1.3 Further Information

A form of safe cooking facility is a requirement of the New Zealand Building Code (NZBC) and is considered a minimum for a dwelling.

Housing Improvement Regulations (1947) require facilities to boil and bake.

For further information see:

- NZBC Clause G3 Food Preparation and Prevention of Contamination.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g3-food-preparation-and-prevention-of-contamination/asvm/g3-food-preparation-prevention-contamination-1st-edition-amendment2.pdf>

2 Food Preparation & Storage

2.1 Criteria

There must be adequate facilities to store, wash, and prepare food as per Acceptable Solution G3/AS1 of the NZBC. This includes:

- A sink capable of fully containing a solid cylinder of 300 mm diameter and 125 mm depth.
- Clear food preparation area of at least 600 mm x 500 mm.
- Food storage capacity of at least:
 - 0.5 m³ for a 1 bedroom house.
 - 1.0 m³ for a 2 to 4 bedroom house.
 - 1.0 m³ + 0.2 m³ per additional bedroom over 4 bedrooms.

2.2 Assessment

- Visually inspect sink, bench top and dedicated food storage areas to check for general state of repair.
- Confirm dimensions with a tape measure if required.

2.3 Further Information

For further information see:

- NZBC Clause G3 Food Preparation and Prevention of Contamination.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g3-food-preparation-and-prevention-of-contamination/asvm/g3-food-preparation-prevention-contamination-1st-edition-amendment2.pdf>.

3 Potable Water

3.1 Criteria

There must be a reliable and adequate source of hot and cold water, plumbed in to the house.

3.2 Assessment

The first preference for assessing potable water should be at the kitchen tap.

- Confirm that adequate water flows from both cold and hot taps.
- Water should be visibly clean.
- Fittings should be effective and not leaking.
- Any non-potable water (such as untreated rainwater) must be clearly labelled.

3.3 Further Information

- A slow dripping tap should be noted but should not fail an inspection.
- For adequate flow, the rate should be at least 4 litres per minute (sufficient to fill a 1 litre jug in 15 seconds), but no more than 9 litres per minute for a kitchen or bathroom.

For further information see:

- NZBC Clause G12 Water Supplies.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/asvm/g12-water-supplies-3rd-edition-amendment10.pdf>.

4 Hot Water Temperature

4.1 Criteria

Hot-water at the tap should be supplied at a temperature of 55 °C ±5 °C.

4.2 Assessment

Select the most easily locatable hot water tap which is closest to each hot water supply.

- Measure temperature of water using either an electronic or analogue probe-style thermometer placed in the flow of the hot water supply.
- Allow temperature to stabilise before confirming temperature.
- Supplied temperature must not exceed 60°C.
- Ensure that at least one measurement is taken for each separate hot water system in the house.

4.3 Further Information

- The Assessor should place more emphasis on the upper limit (60°C), than the lower limit (50°C). While temperature above 60°C should be recorded as a fail, a measured temperature of slightly below 50°C may be passed if the Assessor deems the system to;
 - be otherwise safe and of reasonable standard to effectively supply hot water to the house, and/or
 - show daily fluctuations in temperature because of heating regime and usage profile, (for example a storage system heated on a night-rate and measured after heavy morning use).
- Supply temperatures at the tap higher than 55°C are a burn hazard, particularly for young and elderly people.
- Temperatures lower than 60°C in a storage cylinder, increase the risk of legionella bacteria.³

It is not recommended that assessors touch or adjust thermostats.

For more information see:

- NZBC Clause G12 Water Supplies.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g12-water-supplies/asvm/g12-water-supplies-3rd-edition-amendment10.pdf>.

5 Functional Toilet

5.1 Criteria

There must be a functional toilet, which does not have a cracked or broken seat, cistern or bowl.

5.2 Assessment

- Visual inspection for damage.
- Confirm toilet flushes effectively.

5.3 Further Information

Sanitary fittings are required under the building code.

For more information see:

- NZBC Clause G1 Personal Hygiene.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g1-personal-hygiene/asvm/G1-personal-hygiene-2nd-edition-amendment-6.pdf>.
- NZBC Clause G13 Foul Water.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g13-foul-water/asvm/g13-foul-water-2nd-edition-amendment6.pdf>.

³ The greatest risk of Legionella bacteria thriving occurs between 37°C and 42°C. The risk is significantly reduced by maintaining 50°C for at least 2 hours, or 60°C for just 2 minutes. Legionellae is nearly completely destroyed instantly at 70°C. (Source: World Health Organisation, 2007, Legionella and the prevention of legionellosis, http://www.who.int/water_sanitation_health/emerging/legionella.pdf)

6 Provision of a Bath or Shower

6.1 Criteria

There must be a suitably located bath or shower in good working order.

6.2 Assessment

- Confirm that at least one bath or shower is present.
- Test taps, mixers, spouts or showerheads to confirm that they're in good working condition.
- Confirm that water flows from both cold and hot taps.
- Water should be visibly clean.
- Fittings should be effective and not leaking.
- Confirm that water is delivered at a suitable rate of flow (estimate only required) and that within shower units, temperature can be adequately controlled.

6.3 Further Information

- Slow dripping fittings should be noted but should not fail an inspection.
- For adequate flow, the rate should be at least 6 litres per minute for a shower.

For more information see:

- NZBC Clause G1 Personal Hygiene.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g1-personal-hygiene/asvm/G1-personal-hygiene-2nd-edition-amendment-6.pdf>.

7 Secure Storage

7.1 Criteria

The house must contain secure or high level cupboards or shelves for storing hazardous or toxic substances out of children's reach.

7.2 Assessment

Visually confirm the presence of storage which is either:

- Secure and lockable, or
- Above 1.2 m above floor height.

7.3 Further Information

The assessment guidelines for this feature are derived from the Homestar credit *MAN-2 Security*.

8 Fixed Space Heating

8.1 Criteria

The house must contain an adequate form of safe and effective space heating.

8.2 Assessment

- Confirm that at least one form of adequate heating is present and is in working condition.
- The appliance is to be located within the main living area (living, dining, lounge) or where heat can be delivered to the main living area of the dwelling.
- Where the total floor area of the conditioned space (excluding garage) of the dwelling;
 - is equal to or greater than 50 m², the heater must be fixed,
 - is less than 50 m², a plug-in type heater can be deemed as adequate, providing all other criteria are met for this point.
- Unflued gas heaters do not comply.
- Open fires do not comply.
- Certified passive houses are exempt

8.3 Further Information

- Most houses in New Zealand will require an effective means of space heating in order to achieve and maintain healthy living conditions.
- A form of fixed heating should be present to ensure that:
 - Heating is a permanent feature of the house and is not likely to be removed.
 - The risk of fire or injury is minimised due to the secured nature of the heater.
- In some instances, such as small units or apartments, a small, portable heater may be more practical and effective than an inappropriately sized or placed fixed heater.
- Unflued gas heaters emit high levels of moisture and toxic gases. These gases will accumulate in the area if it is not adequately ventilated.
- A minimum heating output (Wattage) is not required for the purposes of the WOF, as this can often be hard to assess. For information purposes, the minimum outputs shown in Table 2 are the requirements in Clause G5 of the NZBC.
- Log burners are deemed to be compliant if they're operational and providing they can be legally used under normal circumstances in the specific region/council area.

8.3.1 Definitions

Adequate: For the purpose of space heating, adequate is defined as safe, fixed (where the dwelling area is 50 m² or larger) and of the minimum capacity shown in Table 2.

For further information see:

- NZBC G5 Interior Environment.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/g-services-and-facilities/g5-interior-environment/asvm/g5-interior-environment-1st-edition-amendment-2.pdf>.

Table 2: Acceptable Heating Output for Spaces of up to 10 m² Floor Area (source: [NZBC Clause G5 Interior Environment](#))

Locality	Average R-Value	Heating wattage (W) for a space which has			
		Four external walls	Three external walls	Two external walls	One external wall
North Island	1.5	720	650	580	510
	0.7	1,250	1,100	950	800
South Island	1.5	1,040	940	840	740
	0.7	1,650	1,410	1,170	930

North Island localities more than 500m above sea level shall meet South Island requirements

Table 3: Multiplying factors for determining acceptable Wattage in spaces exceeding 10 m² Floor Area (source: [NZBC Clause G5 Interior Environment](#))

Floor area (m ²)	10	20	40	80	160
Multiplying factor	1.0	1.4	2.0	2.8	4.0

Interpolation for different floor areas is permitted.

9 Effective Ventilation

9.1 Criteria

The bathroom(s), kitchen, bedrooms and livings areas must have some form of ventilation to the outside.

9.2 Assessment

Check that either an opening window or mechanical vent is present and operational in each of the following:

- Kitchen,
- Bathrooms and ensuites,
- All bedrooms
- Living areas.

If there is no mechanical ventilation such as an extracting hood above the stove in the kitchen, then an opening window should be no more than **2 metres** away from the cooking facilities.

If the window or fastened, not accessible or in anyway not able to be opened by the tenant, it should be deemed as not compliant. Similarly, any fan or mechanical vent must be operational in order to comply.

If there is provision for a dryer within the habitable building envelope, there must be venting to the outside for that dryer. Dryers in garages or other locations outside the habitable building envelope are excluded.

9.3 Further Information

Adequate ventilation is a requirement of the building code and is important for maintaining healthy internal conditions.

While the provision of a fan or opening window does not guarantee the operation of these devices for ventilation, the scope of the WOF is to check that the house is able to be ventilated. The WOF is not a test of tenant behaviour.

For more information see:

- NZBC E3 Internal Moisture.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/e-moisture/e3-internal-moisture/asvm/e3-internal-moisture-2nd-edition-amendment6.pdf>.

10 Mould

10.1 Criteria

The house must be reasonably free of visible mould, having no more in total area of mould than an A4 sheet of paper.

10.2 Assessment

Visually inspect and sum up the estimated total area of mould throughout the whole house. Surfaces include:

- Internal walls, ceilings and floors and floor coverings,
- Internal surfaces of window frames and glazing,
- Internal tiled surfaces,
- Internal surfaces of doors and door frames,
- Curtains, blinds and window furnishings.

Any mould on furniture and clothing may be noted, but is not included in the total area.

Wardrobes and cupboards should not be inspected unless asked to do so and explicit permission has been given by the tenant and/or landlord.

10.3 Further Information

The presence of mould is a sign of inadequate ventilation and excess moisture. Mould is known to contribute to poor health, particularly respiratory illness for occupants.

Research by the University of Otago suggests that bedrooms are the most likely place for mould to occur⁴.

For more information and research into the health implications of mould, see:

- <https://www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/fap/fap-factsheets/mould/>.
- [A national study of the health effects of insulating homes: the baseline data \(Report 1\)](#)
- [A national study of the health effects of insulating homes: the baseline data \(Report 2\)](#)

⁴ Howden-Chapman et al, 2002, *A national study of the health effects of insulating homes: the baseline data (Report 1)*, <http://www.healthyhousing.org.nz/wp-content/uploads/2010/01/Insulation-and-Mould-Study-%C3%A2%E2%82%AC%E2%80%9C-Baseline-Report-1.pdf>

11 Electrical Safety

11.1 Criteria

All power outlets and light switches must be safe and in good working order, and wiring must be safe.

11.2 Assessment

Visually inspect that none of the following are present:

- Cracked and broken, or missing faceplates.
- Scorched or burnt faceplates.
- Exposed wire.
- Sockets or switches too close to a defined wet zone (see Figure 1 and Figure 2), for example;
 - not within 0.3 metres of the floor of a bathroom or laundry,
 - not within 0.4 meters above or 0.15 lateral distance from the rim of a sink.
- Sockets in a bathroom, laundry or wet area without a residual current device (RCD).
- Unexplained humming, hissing or other noises from electrical fittings.

Where there is a mix of cabling, or older types of cables appear to be in use, the property owner should be advised to seek further professional advice of a qualified electrician.

11.3 Further Information

Socket outlets and switches are not permitted within zone 0 or zone 1, as defined by the New Zealand Electrical Code of Practice⁵. Examples of zone definitions for sinks are shown in Figure 1 and Figure 2. For more detail on clearances around showers and baths, refer to the New Zealand Electrical Code of Practice.

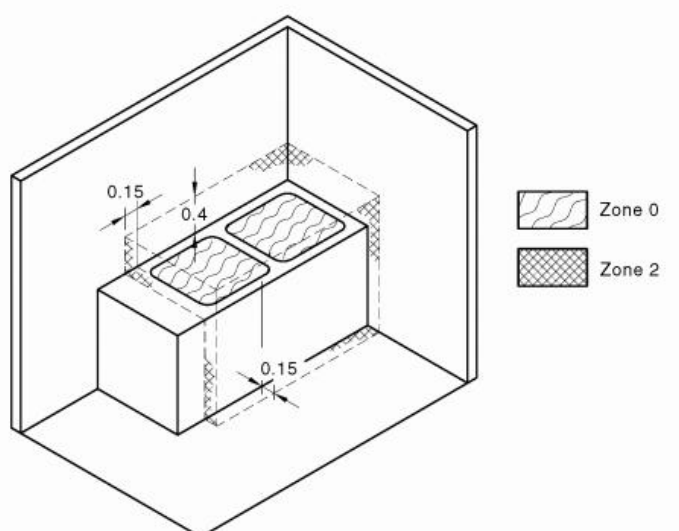


Figure 1: Zone dimensions for fixed water containers not exceeding 45 litres.

Source: the New Zealand Electrical Code of Practice⁶

⁵ [New Zealand Electrical Code of Practice for Homeowner/Occupiers' Electrical Wiring Work in Domestic Installations](#)

⁶ [New Zealand Electrical Code of Practice for Homeowner/Occupiers' Electrical Wiring Work in Domestic Installations](#)

Inspection for electrical safety at the WOF level should not require a qualified electrician.

If the assessor has any concerns about the immediate safety of electrical fittings, outlets and wiring, then professional, qualified advice should be sought immediately.

Examination of the type of electrical cables is best undertaken when assessing the roof space. Inspectors may not undo switches, sockets, etc. in order to ascertain the type of cables that are in use.

Older cables which have been used in the past for domestic purposes included Tough Rubber Sheath (TRS) and Vulcanised Indian Rubber (VIR), both of which have been out of use since the 1960s and are no longer likely to be safe.

The fire risk from 1940s and 1950s wiring is 70% higher than modern wiring and in 2005, contributed to approximately 30 house fires⁷.

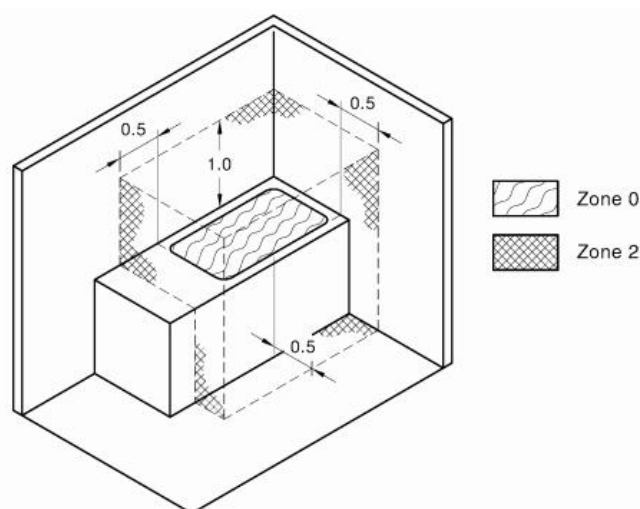


Figure 2: Zone dimensions for fixed water containers not exceeding 45 litres. Source: the New Zealand Electrical Code of Practice

For further information see:

- <http://www.fire.org.nz/Christchurch-Recovery/business-support/Documents/106.pdf>
- <http://www.renovate.org.nz/1940-60s/services/electricity-and-gas/>
- <http://www.esc.org.uk/public/home-electrics/periodic-inspection-explained/>
- [New Zealand Electrical Code of Practice for Homeowner/Occupier's Electrical Wiring Work in Domestic Installations.](#)

⁷ Patel, V., 2005, *Electrical Wiring Systems and Fire Risk in Residential Dwellings*, <http://www.med.govt.nz/energysafety/documents/about/publications/surveys/industry-surveys/Electrical%20Wiring%20Systems%20and%20Fire%20Risk%20in%20Residential%20Dwellings%20-Published%2020%20April%202005.pdf>

12 Indoor Lighting

12.1 Criteria

There must be at least one working light in each room and staircase, and staircases must have a working light switch at both the top and bottom of the stairs.

12.2 Assessment

- Visually inspect and confirm that a fixed electrical light is present and operational in each room.
- Plug-in lighting, such as standard lamps, desk lamps and bedside lamps that are not permanently wired, should not be included.
- For stairs, confirm that a safe and operational light switch is present at both the top and bottom of each staircase.
- If sensor or automatic lighting is present and functioning, this may satisfy the need for dual switching.
- Spare bulbs may be carried by the inspector to confirm that lighting circuits are functioning providing it is safe to do so and at their discretion.
- Where it cannot be verified that a room has at least one working light, the house will need to be reassessed once remedial action is taken.

12.3 Further Information

For more information see:

- NZBC Clause D1 Access Routes.
- <http://www.dbh.govt.nz/UserFiles/File/Publications/Building/Compliance-documents/D1-access-routes-2nd-edition-amendment-5.pdf>.

13 Working Smoke Alarms

13.1 Criteria

There must be operational smoke alarms in the house, situated in accordance with NZBC clause F7

13.2 Assessment

- NZBC clause F7 requires smoke alarms to be present,
 - on each level of a multi-storey dwelling, **AND** within each sleeping space, **OR**
 - within 3 m of every sleeping space and audible to the occupants, **AND** at the escape route from any bedroom.
- Visually inspect that smoke alarms are present.
- Alarms should not be in a *Dead air* space (see further information).
- Test each alarm using the alarms' built-in test function.
- Spare batteries may be carried by the inspector to install and confirm that smoke alarms are functioning, providing it is safe to do so and at their discretion.
- For wired alarm systems, check with the owner how to test the system and either conduct a test or verify that the system has been tested within the last 6 months.

13.3 Further Information

A house or apartment containing a sprinkler system may not have smoke detectors to the required level. In this case, evidence should be provided that the system has been checked within the last 12 months.

It is appropriate for an inspector to carry spare 9 volt batteries and compliant smoke alarms to replace any that might be required in the home.

Dead air space should be considered as 100 mm from a wall when placed on a ceiling, and within 300 mm of a ceiling, when placed on a wall (see Figure 3), or otherwise described by the specific installation instructions for the device. It's important to avoid this area to ensure the earliest possible activation of the alarm in the case of smoke being present.

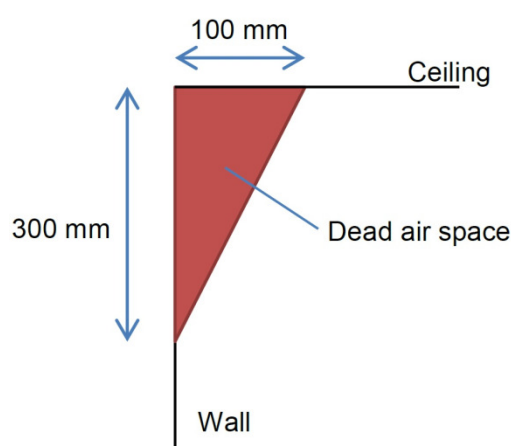


Figure 3: Smoke alarms should not be placed within 'dead air' space near the junction of a ceiling and wall.

For more information see:

- NZBC Clause F7 Warning Systems.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/f-safety-of-users/f7-warning-systems/asvm/f7-warning-systems-4th-edition.pdf>.

14 Effective Window Latches

14.1 Criteria

Each opening window must have an effective latch or means of closure.

14.2 Assessment

- Visually inspect that window latches are present and that they effectively close and lock opening windows.
- Confirm that latches effectively allow for weathertightness of the window when closed.

14.3 Further Information

The ability to open windows is a requirement for ventilation. Latches are required in order to be able to lock and secure the house from an intruder as well as contribute to the weathertightness of the house.

15 Window Security Stays

15.1 Criteria

Security stays must be present on any window where it is possible for a person to fall out of that window and where the possible fall height is more than 2 m to the ground.

15.2 Assessment

Visually inspect the windows and check that security stays are present and operational on all windows with a possible fall height of 2 m or more to the external ground and where the sill is less than 1.5 m above the internal floor.

Ensure that the stays;

- restrict the opening space to no more than 100 mm,
- are not detachable (unless required for fire egress).

Exempt windows include the following:

- High level or clerestory⁸ windows (where the lower edge is more than 1.5 m above the floor).
- Bottom pivot windows.
- Windows that cannot be open more than 100 mm along the opening edge.

15.3 Further Information

Security stays allow for improved passive ventilation of the house while keeping the house secure from an intruder and prevent falls, particularly by children through windows.

For more information see:

- NZBV Clause F4 Safety from Falling.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/f-safety-of-users/f4-safety-from-falling/asvm/f4-safety-from-falling-3rd-edition-amendment2.pdf>.

16 Curtains or Blinds

16.1 Criteria

Windows in bedrooms and living areas are required to either be doubled glazed or have effective curtains or blinds installed.

16.2 Assessment

Visually inspect any windows in the lounge (including open plan lounge/dining areas) and bedrooms where the sill is below 2 metres above floor level (i.e. high level and clerestory windows are excluded).

If the windows are not double or secondary glazed (with an R value of at least 0.26), then curtains or blinds must be present with the following features:

- Either a single layer of heavy weight, non-translucent material or lighter weight material with a thermal backing.

⁸ Clerestory windows are those above eye level.

- Cover at least 100% of the glazed area of the window.
- Able to be easily opened and closed.

Curtains or blinds are **not** required in the following locations:

- Bathrooms
- Kitchens
- Entrance areas
- High level (clerestory) windows
- Skylights

Venetian or slat blinds can be deemed to comply if they are in good working condition.

16.3 Further Information

For the purpose of a warrant, curtains on a working track or blinds (such as Roman-style blinds) should be at least 100% of the size of the glazed area. However, for improved performance, the following is recommended:

- The minimum length is at least 200 mm below the bottom of the window frame.
- Curtains should be at least 2 times as wide as the window so as to not fit completely flat and taut across the window.

Venetian and slat blinds are deemed compliant for the purposes of a warrant because they will help contribute to privacy and can also reduce overheating. It should be recognised however that their thermal performance for heat retention is negligible.

Translucent material such as netting does not comply.

Material pinned or secured in a manner other than a work track and which doesn't allow for the curtain to be easily opened and closed, does not comply.

17 Glass Visibility Strips

17.1 .Criteria

Glass doors with clear glazing must have visibility strips or safety glass.

17.2 Assessment

Visually inspect that visibility strips are present wherever there are clear glazed, full sized doors without any structural or decorative components through the centre of the glazing.

If the doors are made of safety glass, visibility strips are not required.

17.3 Further Information

Visibility strips should be present to reduce the risk of injury to occupants in cases where glass doors might otherwise be hard to see, or to distinguish between an open and a closed door.

18 Ceiling Insulation

18.1 Criteria

Ceiling insulation is required to WOF standard for all houses where access to the roof space is feasible.

- Insulation must be at least 120 mm thick or labelled with the relevant R-value (see Table 3).
- There should be no patches of damp insulation.
- The total area of gaps or missing segments must be less than approximately 1 m² for all accessible areas (excluding area required as clearance around lights and flues).
- Chimneys and flues must have a least 75 mm of clearance.
- Unducted extractor fans must have at least 200 mm of clearance.
- Any CA (closed abutted) recessed lighting must not be covered with insulation.
- Any recessed lighting with no clear labelling or rating must have at least 100 mm clearance of insulation on all sides.
- Downlight transformers must not be covered.

Loose fill insulation may be acceptable if all the above criteria, including clearances, are met **AND** an effective means of maintaining clearances is in place.

18.2 Assessment

Visually inspect the roof space from the access hole.

Where accessible parts of the roof are not visible from the access hatch, the inspector should enter the roof space, providing it is safe to do so, and ensure a thorough inspection.

If ceilings are too high or otherwise unsafe to inspect, they should be deemed as not accessible.

Where there is no access, or access is obstructed and a roof cavity does exist, the home owner must provide evidence of the insulation. If no such evidence can be provided, the house will be deemed to fail until such time that access can be created or unobstructed and insulation can be verified. This may mean that an access hatch and then insulation is required to be installed.

Skillion or flat roofs are exempt as inspecting or retrofitting insulation will not always be practically feasible.

18.3 Further Information

Where there is no access to the roof space, such as a flat, skillion or cathedral style roof, insulation does not have to be assessed.

Insulation was only required in New Zealand homes from 1978. The current building code standard (Acceptable solution H1/AS1) for ceiling insulation is given in Table 3.

Table 3: Minimum roof R-values for schedule method, Acceptable solution H1/AS1 NZBC

Climate Zone	Required R-Value	
	Non-Solid Construction	Solid Construction
Zone 1	2.9	3.5
Zone 2	2.9	3.5
Zone 3	3.3	3.5

For further information see:

- NZBC Clause H1 Energy Efficiency.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/h1-energy-efficiency/asvm/h1-energy-efficiency-4th-edition-amendment3.pdf>.

19 Underfloor Insulation

19.1 Criteria

Underfloor insulation is required to WOF standard for all houses where there is access to the sub-floor.

(Not applicable for concrete floors)

- Insulation may be any of the following:
 - Bulk insulation, at least 75 mm thick.
 - Rigid polystyrene, appropriately secured between joists.
 - Foil, in good condition.
 - Other form of insulation clearly labelled, or as deemed appropriate and of reasonable quality by the inspector.
- There should be no patches of damp insulation,
- The total area of gaps or missing segments must be less than approximately 1 m² for all accessible areas (excluding area required as clearance around lights and flues).
- Any lighting affixed to the underside of the floor (e.g. for a garage or storage space) with no clear labelling or rating, must have at least 200 mm clearance of insulation on all sides.
- Chimneys and flues must have a least 50 mm of clearance.

Houses where it is impractical to assess or install insulation (for example where clearance is less than 450 mm between the underside of joists and the ground) can be deemed to pass.

19.2 Assessment

Visually inspect under the floor from the access hatch.

Where accessible parts of the under floor are not visible from the access hatch, the inspector should enter the subfloor space, providing it is safe to do so, to ensure a thorough inspection.

19.3 Further Information

- Only suspended floors with reasonable access (more than approximately 450 mm clearance) are deemed as assessable.
- Only the ground floor for the house is required to have insulation.
- Insulation was only required in New Zealand homes from 1978. The general requirement under the current building code (Acceptable solution H1/AS1) for under floor insulation is R 1.3.

For further information see:

- NZBC Clause H1 Energy Efficiency.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/h1-energy-efficiency/asvm/h1-energy-efficiency-4th-edition-amendment3.pdf>.

20 Ground Vapour Barrier

20.1 Criteria

A ground vapour barrier is required for all houses where there is an accessible and fully enclosed sub-floor.

(Not applicable for concrete floors)

- A polythene sheet (or similar) must be installed on the ground and secured at the perimeter and around piles.
- A vapour barrier is only required in cases where there is a continuous perimeter foundation, i.e. floors elevated on poles or where the floor is exposed are exempt.
- Where untreated piles are in use, and installing a vapour barrier would require fixing to these piles, the house should not fail.

20.2 Assessment

Visually inspect under the floor from the access hatch.

Where accessible parts of the under floor are not visible from the access hatch, the inspector should enter the subfloor space to ensure a thorough inspection.

20.3 Further Information

- Only suspended floors with reasonable access (more than approximately 400 mm clearance) are assessable.
- There may be risks associated with fixing ground vapour barriers to untreated piles. If installing a vapour barrier would require fixing to untreated piles, it can be recommended that the owner seek further advice.

For more information see:

- <http://www.smarterhomes.org.nz/design/moisture/>
- <http://www.dbh.govt.nz/UserFiles/File/Publications/WHRS/pdf/external-moisture-an-introduction.pdf>

21 Weathertightness

21.1 Criteria

The house must be weathertight with no obvious leaks or moisture stains on the walls, ceilings or floors.

21.2 Assessment

Visually inspect the interior of the house for evidence of leaks or prolonged moisture on all floor, wall and ceiling linings.

Visually inspect the exterior of the house for obvious holes, broken or missing sections in any of the following elements:

- Roofing material,
- Soffit,
- External wall cladding,

- Windows,
- Doors,
- Floors.

21.3 Further Information

Minor cracks where no pieces of material are missing and where moisture or draughts are not likely to penetrate the element, can be excluded from failure. Such cracks in elements should be noted and advice given regarding repair.

The condition of the foundation perimeter wall is excluded. An intact perimeter wall should allow for ventilation while protecting against the elements and animals. However, it may not be feasible for all perimeter walls to be closed in (e.g. houses or parts that are elevated on piles).

22 Reasonable State of Repair

22.1 Criteria

The house, installed services, and finishes must be in a reasonable state of repair

22.2 Assessment

Visually inspect the overall condition of the house to check that there are no major and obvious faults, cracks, holes, unevenness or serious damage to any of the following building elements:

- Roofing material,
- Cladding,
- Glazing,
- Entrances,
- Electrical and water services,
- Pathways immediately adjacent to the building,
- Internal walls,
- Floors,
- Foundation wall,
- Piles,
- Floor coverings.

Also confirm there are no obvious slip hazards, including moss or slippery surfaces on decks and pathways immediately adjacent to the house.

22.3 Further Information

The inspector should use their discretion to determine if any obvious defect is serious enough to deem the house to fail. A defect should be deemed serious if it is a risk to the health and safety of the occupants, or will directly impact the weathertightness or security of the dwelling.

Cracked or damaged paint and other aesthetic issues are not considered. While damaged paint may indirectly contribute to decreasing weathertightness over a period of time, assessment should be restricted to solid structures.

Any risk of possible exposure to lead paint should be verbally communicated to the tenant and landlord.

23 Stormwater and Waste Water Discharge

23.1 Criteria

There must be a reasonably watertight stormwater collection system and sound connection to a waste water system.

23.2 Assessment

Visually inspect the check the following:

- Spouting and downpipes are connected securely and effectively to an appropriate stormwater system,
- Waste water pipes (where possible),
- Check the ground under and immediately around the house for evidence of excessive ponding.

23.3 Further Information

House are required to have effective guttering for the whole roof.

Guttering should be designed to overflow to the outside and should have a cross sectional area of at least 2,500 mm².

For more information see:

- NZBC Clause E1 Surface Water.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/e-moisture/e1-surface-water/asvm/e1-surface-water-1st-edition-amendment10.pdf>.
- NZBC Clause E2 External Moisture.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/e-moisture/e2-external-moisture/asvm/e2-external-moisture-3rd-edition-amendment7.pdf>.

24 No Ponding Under House

24.1 Criteria

The ground under the house should be free of ponding and surface water (Not applicable for concrete floors)

24.2 Assessment

Visually inspect under the floor from the access hatch.

Where accessible parts of the under floor are not visible from the access hatch, the inspector should enter the subfloor space to ensure a thorough inspection.

24.3 Further Information

- Only suspended floors with reasonable access (more than approximately 400 mm clearance) are assessable.

- Only the ground floor for the house is required to have insulation.

25 Entrance Way Lighting

25.1 Criteria

There must be adequate, operational lighting at or near entrance ways.

25.2 Assessment

Visually inspect that lighting is present and operational at the main front and back doors of the house.

25.3 Further Information

For more information see:

- http://www.acc.co.nz/PRD_EXT_CSMP/groups/external_ip/documents/publications_promotion/wpc093961.pdf
- http://www.smarterhomes.org.nz/design/safety-security/#toc_3
- <http://www.consumerbuild.org.nz/publish/materials/materials-design-safety.php>

26 Structurally Sound

26.1 Criteria

The house must appear to be structurally sound, with no obvious indications of current or imminent movement or collapse.

26.2 Assessment

Visually inspect the house to verify there are no obvious indications of movement, instability or collapse. Examples of building elements to check include:

- Walls are straight, not bowed or sagging.
- Roof is straight and not sagging or collapsed.
- Floor is level and solid.
- No obvious damage, major degradation or missing joists.

26.3 Further Information

It is not the purpose of the WOF assessment to do a full structural analysis of a house as this would require a structural engineer. Only obvious and potentially dangerous faults should be noted and deemed to fail.

27 Handrails and Balustrades

27.1 Criteria

Indoor stairs and outdoor stairs which access the house, with 4 or more risers, require handrails. All balconies and decks of 1,000 mm above ground level must have balustrades.

27.2 Assessment

- Confirm that handrails and balustrades are secure.
- Measure heights and clearance to confirm the minimum barrier heights as per Table 4:
 - For balconies and decks and edges of internal floors or mezzanine floors; is **1,000 mm** (see Figure 4, Figure 5 and Figure 7).
 - For stairs, ramps and their landings; is **900 mm** (see Figure 6).
 - For barriers in common areas of multi-unit dwellings (other than stairs and barriers within 530 mm of the front of fixed seating); is **1,100 mm**.
- Measure and confirm that the horizontal spacing of rails is no more than 100 mm.

For older properties where existing handrails or balustrades do not comply with the current building code, gaps may be up to 120 mm, providing the structure is deemed to be safe, sturdy and not able to be easily climbed by a child.

27.3 Further Information

Acceptable Solution F4/AS1 of the building code stipulates that for a house where there are likely to be frequented by children under the age of 6:

- Openings in the barrier should not allow a sphere of 100 mm diameter to pass through it. See Figure 4 & Figure 5 for more information.
- The triangular opening between the riser, tread and barrier should not allow a sphere of 150 mm diameter to pass through it. See Figure 6 for more information.

Table 4: Minimum barrier heights, Figures 3 – 4.

Source: Department of Building and Housing Compliance Document for New Zealand Building Code Clause F4 Safety from Falling - Third Edition

Building Type	Location	Barrier height (H)
Detached dwellings and within household units of multi-unit dwellings	Stairs and ramps and their landings	900 mm
	Balconies and decks, and edges of internal floors or mezzanine floors	1,000 mm
	Stairs of ramps	900 mm
All other buildings, and common areas or multi-unit dwellings	Barriers within 530 mm of the front of fixed seating	800 mm
	All other locations	1,100 mm

For more information see:

- NZBC Clause D1 Access Routes.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/d-access/d1-access-routes/asvm/d1-access-routes-2nd-edition-amendment6.pdf>.
- NZBV Clause F4 Safety from Falling.
<https://www.building.govt.nz/assets/Uploads/building-code-compliance/f-safety-of-users/f4-safety-from-falling/asvm/f4-safety-from-falling-3rd-edition-amendment2.pdf>.

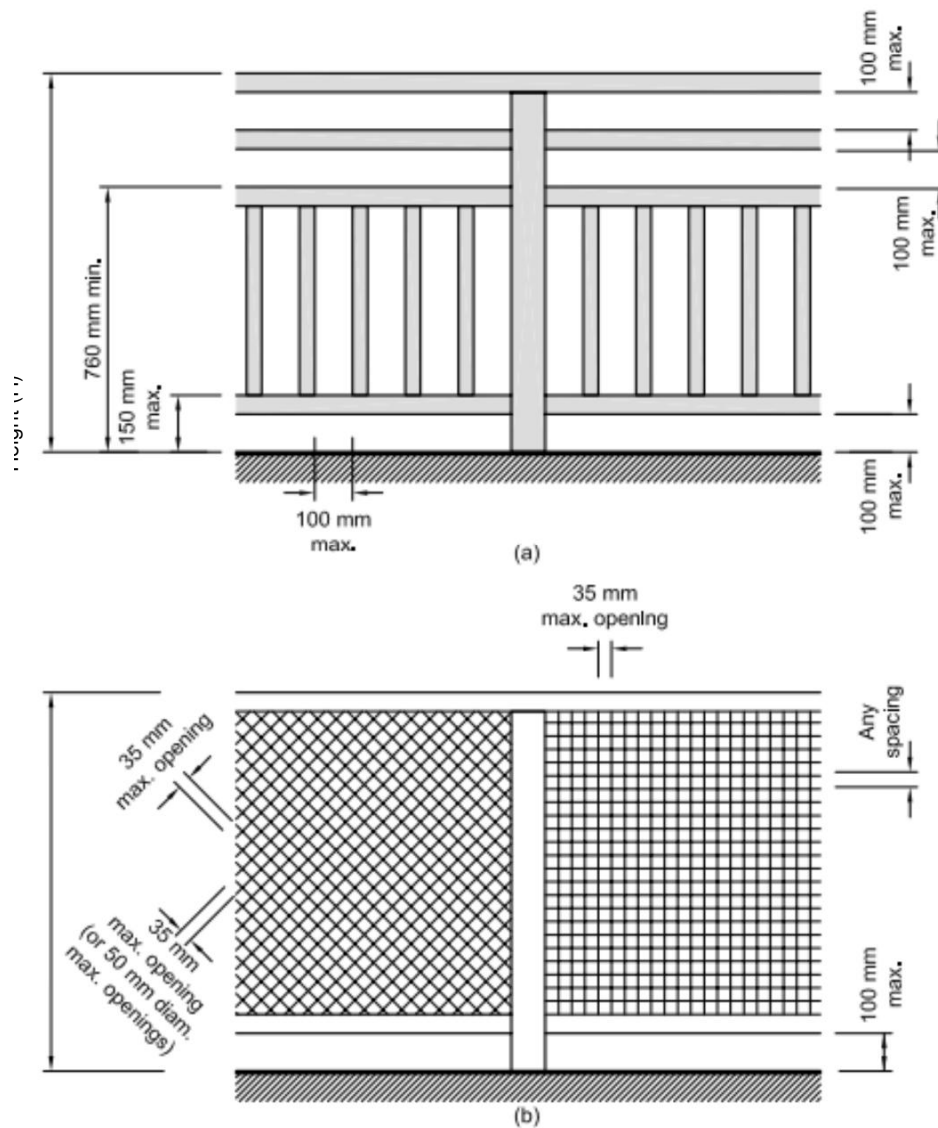


Figure 4: Required dimensions for mesh and composite barriers.

Source: Department of Building and Housing Compliance Document for New Zealand Building Code Clause F4 Safety from Falling - Third Edition

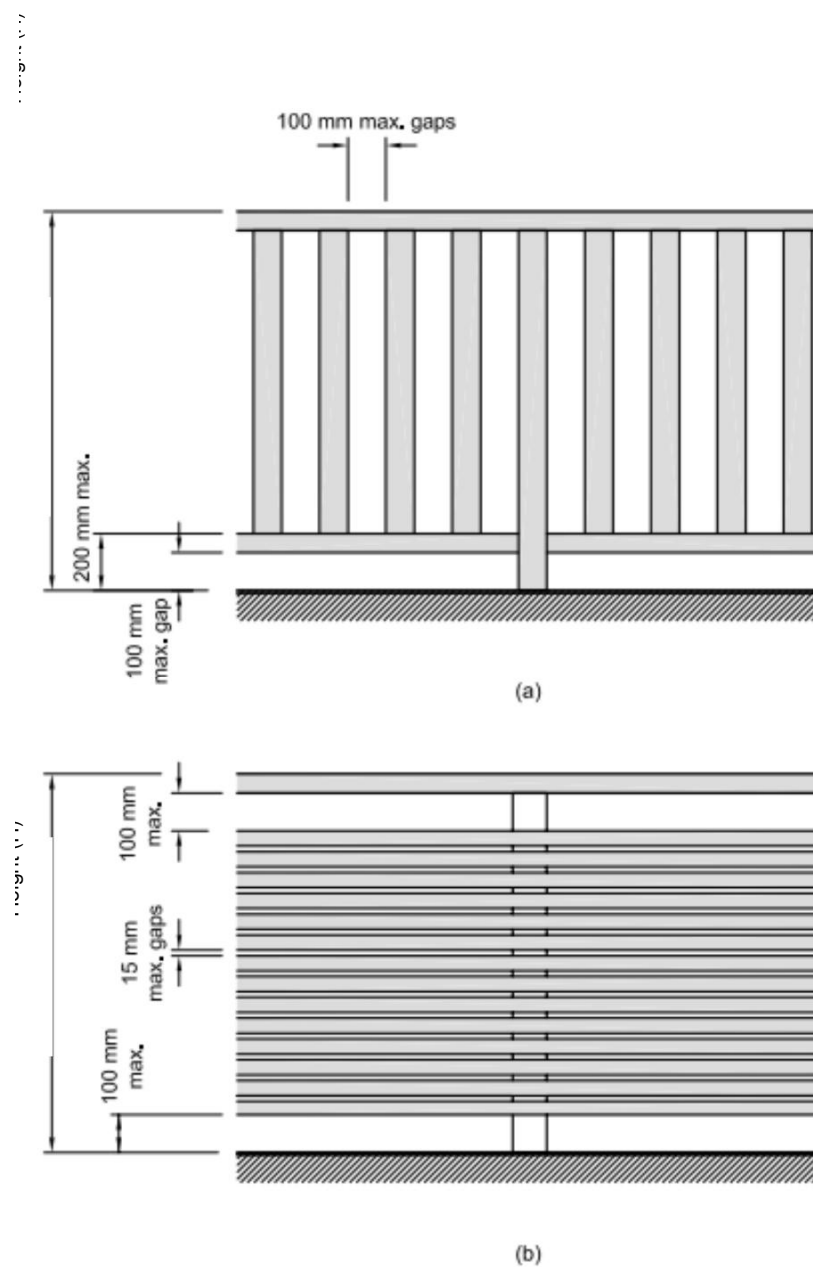


Figure 5: Required dimensions for parallel member barriers.

Source: Department of Building and Housing Compliance Document for New Zealand Building Code Clause F4 Safety from Falling - Third Edition

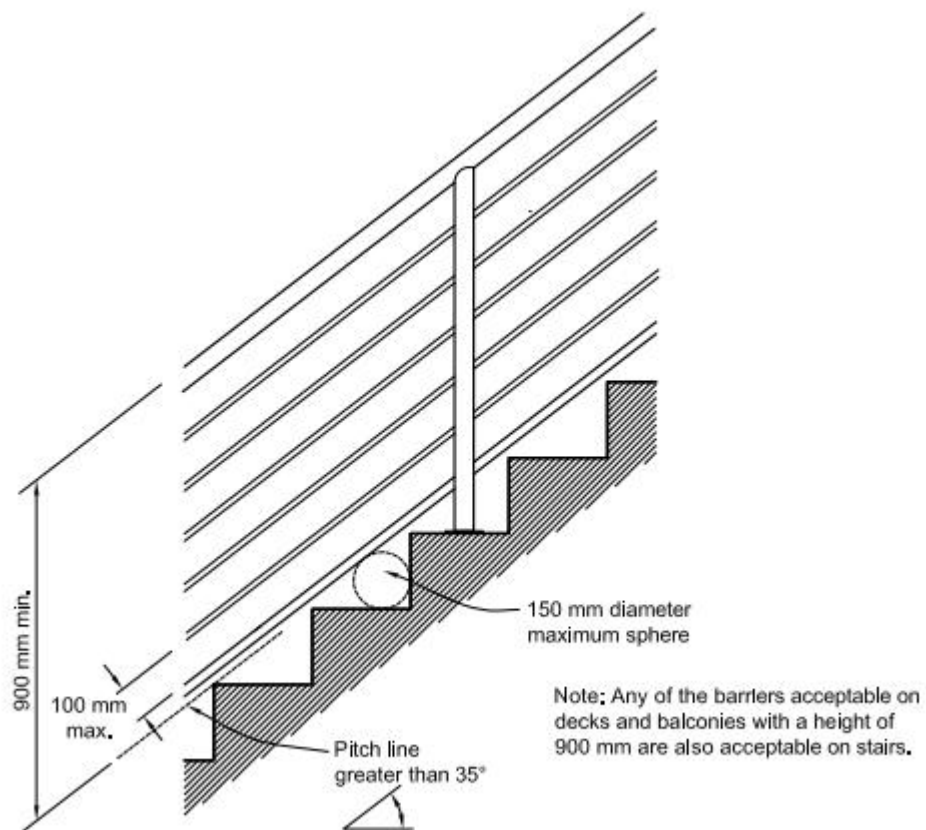


Figure 6: Required dimensions for stair barriers.

Source: Department of Building and Housing Compliance Document for New Zealand Building Code Clause F4 Safety from Falling - Third Edition

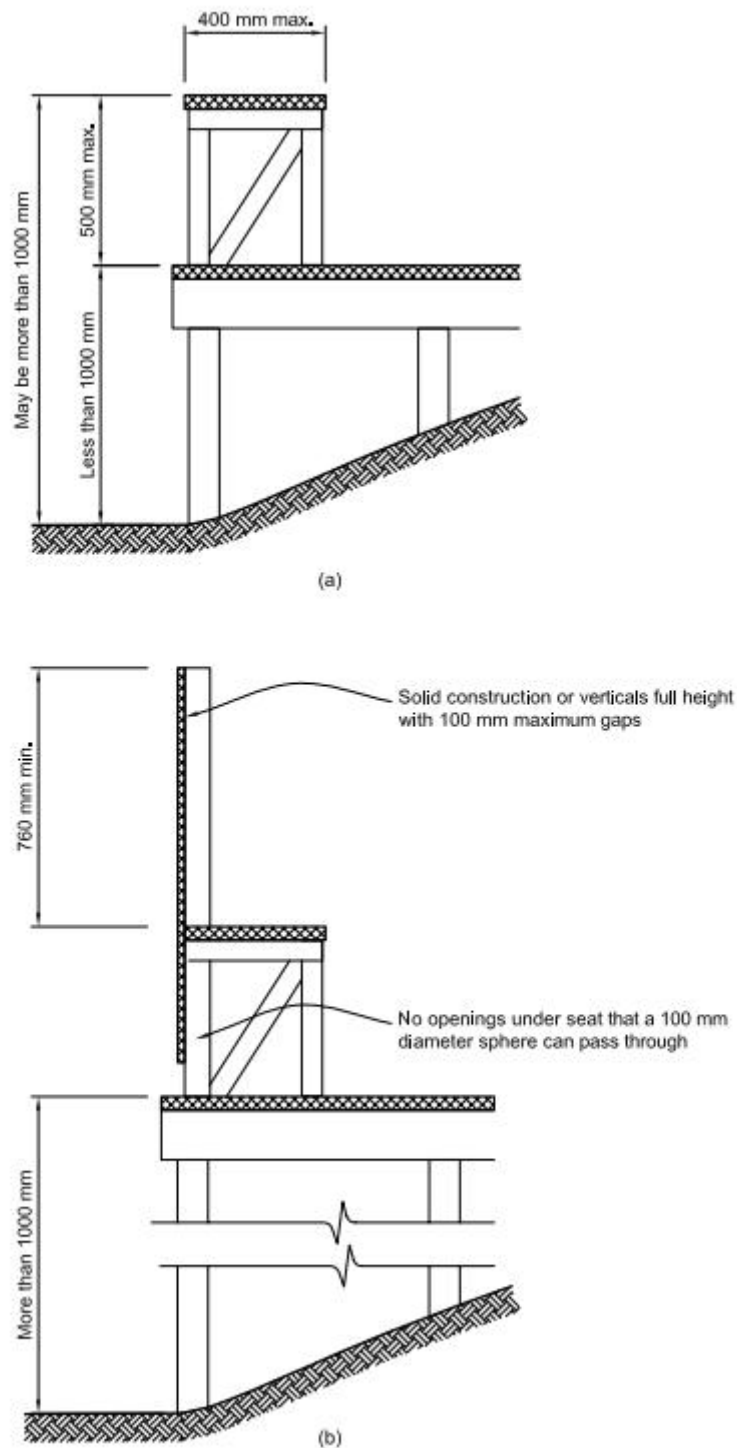


Figure 7: Required dimensions for a fixed seat on a deck.

Source: Department of Building and Housing Compliance Document for New Zealand Building Code Clause F4 Safety from Falling - Third Edition

28 Address Clearly Labelled and Identifiable

28.1 Criteria

The house number and main entrance must be clearly labelled and identifiable.

28.2 Assessment

Visually inspect to confirm that the house number is clearly labelled and that the main entrance is clearly identifiable.

28.3 Further Information

Clear identification is important for visitation as well as to ensure that emergency services are able to locate the address.

29 Securely Locking Doors

29.1 Criteria

The house must be able to be secured by means of lockable doors or entranceways.

29.2 Assessment

Confirm that locks are present and properly functioning for the main entrances to the house.

Also confirm that windows and other openings are able to be secured.

Appendix A: Assessment Criteria

1. Is there a functional, safe stove-top and oven? (Yes/no)
2. Is there adequate space for food preparation and storage? (Yes/no)
3. Is there an adequate supply of hot and cold potable water? (Yes/no)
4. Is the hot-water at the tap 55°C ($\pm 5^\circ\text{C}$)? (Yes/no)
5. Is there a functional toilet, which does not have a cracked or broken seat, cistern or bowl? (Yes/no)
6. Is there a suitably located bath or shower in good working order? (Yes/no)
7. Are there secure or high level cupboards or shelves for storing hazardous or toxic substances out of children's reach? (Yes/no)
8. Is there an adequate form of safe and effective space heating? (Yes/no)
9. Do the bathroom, kitchen and all bedrooms have some form of ventilation to outside? (Yes/no)
10. Is the house reasonably free of visible mould, i.e. the total area of mould is less than an A4 sheet of paper? (Yes/no)
11. Are power outlets, light switches and wiring safe and in good working order? (Yes/no)
12. Is there adequate indoor lighting? (Yes/no)
13. Does the house have adequate working smoke alarms? (Yes/no)
14. Have the windows got effective latches? (Yes/no)
15. Do high level windows have security stays to prevent falls? (Yes/no)
16. Are there curtains/blinds/double glazing in the bedrooms and living area? (Yes/no)
17. Are glass doors made of safety glass or do they have visibility strips? (Yes/no)
18. If accessible does the house have ceiling insulation to WOF standards? (Yes/no)
19. If accessible does the house have underfloor insulation to WOF standards? (Yes/no)
20. Is a ground vapour barrier installed under the ground floor (if accessible)? (Yes/no)
21. Is the house weathertight with no evident leaks, or moisture stains on the walls or ceiling? (Yes/no)
22. Is the house in a reasonable state of repair? (Yes/no)
23. Is the storm and waste water drainage being adequately discharged? (Yes/no)
24. Is there any water ponding under the house? (Yes/no)
25. Is there adequate outdoor lighting near entrance ways? (Yes/no)
26. Does the house appear to be structurally sound? (Yes/no)
27. Are there handrails for all internal stairs and all outdoor steps that access the house (4 or more stairs/steps), and do balconies/decks have balustrades to the current Building Code? (Yes/no)
28. Is the address clearly labelled and identifiable? (Yes/no)
29. Are there securely locking doors? (Yes/no)

Appendix B: Housing Warrant of Fitness Assessment Checklist

P F	Kitchen
	Wall, ceiling and floor linings intact
	Surfaces clear of mould
	Function stove and oven
	Effective ventilation to the outside
	- Opening window with secure latch
	- Window security stays (where required)
	Adequate food preparation and storage
	Hot water at tap (55°C±5°C)
	Potable water supply
	Waste water drainage with sound connection
	Working artificial lighting
	Visibly safe power outlets and light switches
P F	Living Areas
	Wall, ceiling and floor linings intact
	Surfaces clear of mould
	Effective ventilation to the outside
	- Opening window with secure latch
	- Window security stays (where required)
	Working artificial lighting
	Heating, fixed, effective and safe
	Visibly safe power outlets and light switches
	Curtains/blinds/double glazing present
P F	Bathroom and Toilet
	Wall, ceiling and floor linings intact
	Surfaces clear of mould
	Operational toilet
	Sewage connection functional
	Functioning bath or shower
	Effective ventilation to the outside
	- Opening window with secure latch
	- Window security stays (where required)
	Waste water drain connected
	Hot water at tap (55°C±5°C) if second cylinder
	Visibly safe power outlets and light switches
	Working artificial lighting
P F	Laundry
	Wall, ceiling and floor linings intact
	Surfaces clear of mould
	Effective ventilation to the outside
	Working artificial lighting
	Waste water drain connected
	Visibly safe power outlets and light switches

1	2	3	4	5	Bedrooms
PF	PF	PF	PF	PF	
					Wall, ceiling and floor linings intact
					Surfaces clear of mould
					Effective ventilation to the outside
					- Opening window with secure latch
					- Window security stays (if required)
					Visibly safe power and light switches
					Smoke alarm within 3m
					Curtains/blinds/double glazing
P F	Entrance				
	Address clearly labelled and identifiable				
	Securely locking doors				
	Working light				
P F	Ceiling Insulation				
	Insulation to requirements (120mm)				
	No gaps, tucks, or folds				
	No dampness in insulation				
	Clearance for lights, ducts and roof				
P F	Underfloor Insulation				
	Insulation to requirements				
	Dry underfloor				
	Ground vapour barrier				
	No ponding				
P F	General				
	No cracks, holes in roof				
	No cracks, holes in external cladding				
	No cracks, holes or missing panes in windows				
	Spouting, storm/waste water functioning, no leaks				
	Structurally sound				
	Glass doors have safety glass or visibility strips				
	Handrails and balustrades to code				
	Non-potable water labelled				
	Paths, decks and surfaces non-slippery/moss-free				
	Secure storage (1.2m high or child-free lock)				
	Artificial lighting – other				
P F	Hallway/stairwell				
	Wall, ceiling and floor linings intact				
	Surfaces clear of mould				
	Visibly safe power outlets and light switches				
	Opening window with secure latch				
	Window security stays (if required)				
	Artificial lighting – hallway				
	Artificial lighting – stairs				