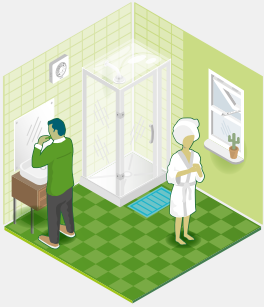
Tenancy Services

# Insulation requirements

Warmer



Drier

Safer

## Warmer, drier, safer homes

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MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

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PO Box 10-729
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# Contents

# About this guide

This Guidance provides advice about how to assess "reasonable" condition for insulation installed in residential rental properties to comply with the Residential Tenancies Act 1986 (RTA), and the Residential Tenancies (Smoke Alarms and Insulation) Regulations 2016 (the Regulations). The performance of any new insulation that is installed into a rented home must meet or exceed the requirements contained within the Regulations.

From 1 July 2016, all rented homes where tenants receive an Income Related Rent Subsidy, such as those provided by Community Housing Providers or Housing New Zealand, must meet the minimum insulation requirements.

From 1 July 2019 all other rented homes covered by the RTA must also meet the insulation requirements.

This guidance provides a simple visual test for landlords and tenants to check the condition of existing insulation materials which are likely to be found in roof spaces and under suspended floors. Where there is any doubt as to whether the insulation complies with the minimum performance requirements, the landlord or tenant may wish to ask a reputable insulation installer to make an assessment.

This legislation allows Landlords to retrofit insulation in accordance with NZS 4246:2016; however, Landlords may choose to employ a reputable installer where they have any doubts about achieving the required quality of installation, or where there is any doubt about whether exceptions apply.

More information on installing insulation can be found at: **https://www.energywise.govt.nz/at-home/insulation/installing-insulation/.**

**Landlords and tenants – you need to know your rights and responsibilities for keeping a warmer, drier and safer home.**

**Learn more at tenancy.govt.nz**

# Things to do

## Safety First!

Before inspecting the insulation – ceiling and underfloor – make sure that the area is safe.

> Read NZS 4246:2016 – free to access through the tenancy website.

> Make sure the space is safe before you enter it. If you are entering the subfloor, particularly if it has foil insulation, turn the power off at the mains to reduce the chances of electrocution – see the New Zealand Electrical Code of Practice, NZECP 55, for more information.

> Take safety precautions – wear safety equipment, including gloves, dust mask, overalls, protective eye and footwear.

> Be careful when using ladders – see this factsheet from ACC for advice on how to use them safely.

> Make sure that someone is nearby and able to assist if you need help.

>Stand on the framing when you are moving around the roof space to avoid damaging or falling through the ceiling.

> Make sure the required clearances are in place for items that get hot, such as downlights, downlight transformers and flues. Ensure that open downlights are free of potentially flammable debris such as loose fill insulation – if you find some debris, call a licensed electrician.

> Get a professional installer in if you have any doubts about the existing insulation or whether insulation can be installed safely and effectively.

> If a professional installer installs new insulation, ask for a certificate or similar to show that they have installed it in accordance with the RTA requirements. Keep this with the maintenance files for the property.

> Install the insulation according to the instructions of the manufacturer and NZS 4246:2016.

**Figure 1: Timeline for the rollout of insulation requirements under the Residential Tenancies Act.**

| **1 July 2016** |
| --- |
| Rented homes with tenants receiving the IRRS must have insulation which meets or exceeds the minimum requirements. |
| Any new insulation installed into rented homes (whether income-related or not) from this date must meet or exceed the higher requirements for newly installed insulation. |
| All landlords must declare the extent of insulation in their rental properties on new Tenancy Agreements from this date. |
| **1 July 2019** |
| Privately owned rented homes must have insulation which meets or exceeds the minimum requirements. |

# Things not to do

> Don't touch foil without turning off the power at the main switchboard – but proceed with caution, as in some instances the foil may still be live – See NZECP 55 for more information.

> Don't enter hot roof spaces – wait until it's cool, and take a water bottle with you. Take frequent breaks out of the roof space.

> Stay out of spaces where there are known health and safety hazards – e.g. asbestos dust, poorly installed electrical wires, or sewerage contamination. Get these sorted out first.

> Don't go into spaces that are too small or hard to exit.

> Don't fill required safety clearances, e.g. around downlights, over downlight transformers, or around flues or chimneys.

> Don't tamper with the electrics – if you think you've damaged something or a wire comes loose, call a licensed electrician.

## Tips

**> To improve the performance of the insulation you may wish to consider changing older downlights. Many modern downlights allow insulation to be fitted right up to them, and others even allow insulation to be put over them. Seek advice from a licensed electrician.**

**> Check the price per square meter of insulation before you buy. You may be able to get a product with a higher R-value (higher performance) for less than one with a lower R-value.**

**> It is often cost competitive to get a professional installer to do the insulation for you due to their ability to bulk purchase insulation.**

**> Check for subsidies and assistance schemes.**

# Assessing Existing Ceiling Insulation

## Rule of Thumb for Ceiling Insulation Installed before 1 July 2016

The following Rule of Thumb is designed to help people assess whether the existing insulation is likely to comply with the RTA requirements.

This applies to homes that have had insulation installed before 1 July 2016. Most homes built after 1978 should have had insulation installed that was specified to meet the above Construction R-values when it was installed – the specifications should be on the building permit documentation at your Local Council.

Homes built after 1978 with insulation which met thermal requirements at the time of construction are likely to still comply with the Regulations provided the insulation is in reasonable condition.

This Rule of Thumb has been created for the most common types of older ceiling insulation materials – glass fibre insulation, and macerated paper insulation. It may also be applied to blown wool insulation.

Most common types of older insulation would have been at least 100mm thick when new[1], however some settlement or compression can be expected for older insulation[2]. In general, all areas of ceiling insulation should have a thickness greater than 70 mm above all accessible habitable spaces, as shown in table 2.

**Table 1: Minimum levels of ceiling and underfloor insulation (Element Construction R-value) required at the time of installation for insulation installed before 1 July 2016 for rented homes.**

| **MASONRY MINIMUM** **(Solid construction, including concrete block, single-skin brick etc)** | **TIMBER-FRAMED** **and other construction minimum** |
|---|---|
| Ceiling R 1.5 | Ceiling R 1.9 |
| Underfloor R 0.9 | Underfloor R 0.9 |

1 For a list of generic R-values for new insulation material, see http://alf.branz.co.nz/tools/insulation-r-values (accessed 14/6/2016)

2 Durability requirements for building elements, including insulation, were brought in as part of the New Zealand Building Code on 1 January 1993. The performance criteria B2.3.1 of Clause B2 Durability of the New Zealand Building Code currently requires building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building 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: (iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.

Table 2. Ceiling or roof framing is commonly 90 mm deep, so insulation should be within 20 mm of the top of the ceiling or roof framing, if not above it.

If the insulation sits below the roof framing, this means it has settled, and will continue to settle over time to the point where it will no longer meet the requirements of ceiling insulation under the Regulations. Areas of older ceiling insulation that are less than 70 mm thick require upgrading in accordance with the retrofit requirements.

If there is any question as to whether the existing insulation complies with the requirements, the Landlord may choose to ask a reputable installer to make an assessment.

**Table 2: Rule of thumb assessment for thickness of existing ceiling insulation installed before 1 July 2016.**

| Existing Ceiling Insulation Thickness Over Habitable Spaces[3] | |
|---|---|
| **OK** | Over 100 mm in all places (except safety clearances) |
| **MAY NEED TOPPING UP** | Between 70 mm and 100 mm in places |
| **REQUIRES RETROFIT** | Below 70 mm in places |

3 Habitable spaces, for the purposes of these regulations, include areas inside the house where people undertake daily activities, such as bedrooms, living rooms, bathrooms, internal laundries and hallways. They do not include garages or outbuildings such as sheds (unless they have been converted to living accommodation).

## Damage and Degradation

From 1 July 2016 for social housing, and 1 July 2019 for all other rental homes, any damaged insulation will need to be replaced in accordance with the retrofitted insulation requirements in Table 3. Damage includes (but is not limited to) rips, tears, excessive settlement or compression, vermin nests or entrance holes patches of mould or other contamination.

If there are numerous places in which the insulation is damaged or degraded, it may be more efficient to get professionals in to assess whether to do patch replacements of the affected ceiling insulation, or whether it would be more efficient to retrofit insulation throughout the applicable space.

## Gaps

Existing insulation must have the required safety clearances in the insulation, such as those around downlights, downlight transformers or heating appliance flues (see NZS 4246:2016 for more information about clearances).

There must not be visible gaps between the insulation and the edge of the framing or between pieces of insulation. Gaps can be filled by either moving displaced existing insulation back into place or filling gaps with new insulation which meets the new requirements, as shown in Table 3.

Areas of damaged foil underfloor insulation will need to be replaced from 1 July 2016 with non-electrically conductive insulation with a product R-value of at least R 1.3. The installation or repair of foil insulation is prohibited under the Regulations due to the risk of electrocution when installing and repairing foil insulation products.

## Addressing dampness

Insulation which is damp (e.g. from roof leaks or due to proximity to an extraction fan which vents to the roof space[4]) or otherwise damaged must be replaced with new insulation that meets the requirements set out in Table 3.

The Residential Tenancies Act requires that properties must be let in a reasonable state of cleanliness and repair and the Housing Improvement Regulations (1947) require properties to have adequate ventilation and be free from dampness.

It is important that insulation stays dry so that it remains effective. Roof leaks and dampness in subfloors need to be fixed before insulation is installed. Extraction fans in bathrooms and kitchens (including rangehoods) should be vented to the outside of the house – they should not vent into the roof space.

Where the soil of the subfloor is damp (it sticks to your fingers if you press on it) or wet, first check that there are no leaks from plumbing, that gutters and downpipes are clear and in good working order, and that there is adequate drainage and subfloor ventilation.

A common problem is that built up paths direct water through subfloor vents into the subfloor – this should be fixed without compromising the amount of ventilation. A qualified building surveyor may be able to assist in identifying any issues and how to go about fixing them.

Once these potential issues have been ruled out or solved, installing a polythene ground cover sheet throughout the subfloor may help to keep the subfloor space, framing timbers and insulation dry – see NZS 4246:2016 for more information and instructions on how to install it.

4 Extraction fans and rangehoods should vent to the outside of the building to prevent moisture build up within the roof cavity and contamination of the surrounding insulation.

## Existing Underfloor Insulation Installed before 1 July 2016

The underfloor insulation must cover all accessible parts of the floor (see Exceptions) below the habitable spaces of the dwelling, except where clearances are required – e.g. for pipework – refer to the New Zealand insulation installation standard NZS 4246:2016 for guidance on required clearances.

The insulation must be in reasonable condition – damage such as rips, tears, or salt or dust deposits on the shiny face of foil insulation degrades the performance of foil insulation.

It is common to find damage to underfloor foil insulation. Where existing insulation is damaged, degraded, missing or incomplete, new non-electrically conductive underfloor insulation must be installed with an R-value of at least R 1.3 from 1 July 2016. All insulation retrofitted for compliance with the RTA from 1 July 2016 must also comply with NZS 4246:2006.

As of the 1st of July 2016, installing or repairing electrically conductive insulation into rented homes is prohibited under the Regulations.

### Safety first:

**If there is foil underfloor insulation, do not touch the foil without turning off the power at the mains first as there is an electrocution risk. Even then proceed with caution.**

**Refer to NZECP 55 for important safety information before proceeding with the insulation inspection or any other work in the subfloor space.**

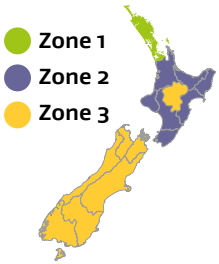
## Requirements for Insulation Installed after 1 July 2016

The R-values for all new insulation installations in rented homes, whether owned by a private landlord or a community housing provider, has been expressed in product R-values, which should be clearly stated on the packet. The requirements for new insulation installations from 1 July 2016 are listed below in Table 3. A more detailed map of the climate zones can be found in NZS 4218:2009.

**Table 3: Minimum product R-value requirements for insulation installed in dwellings containing residential tenancies from 1 July 2016, and associated climate zone map.**

| ZONE 1 & 2 | ZONE 3 |
|---|---|
| Ceiling R 2.9 | Ceiling R3.3 |
| Underfloor R 1.3 | Underfloor R 1.3 |

**Map of climate zones**




There will be some existing ceiling insulation in many homes – this can usually be left in place and insulation installed over the top. The landlord may wish to seek advice from a professional installer as to the most effective way to achieve the required R-values as set out in Table 4.

## Ceiling Insulation

The R-values for all new insulation installations in rented homes, whether owned by a private landlord or a community housing provider, has been expressed in product R-values, which should be clearly stated on the packet. The requirements for new insulation installations from 1 July 2016 are listed below in Table 3. A more detailed map of the climate zones can be found in NZS 4218:2009.

**Table 4: Ceiling Insulation retrofit scenarios**

### Ceiling insulation retrofit scenarios

| MINIMUM DEPTH OF CEILING INSULATION INSTALLED PRIOR TO 1 JULY 2016 | ACTION (unless exception applies) |
|---|---|
| None or gaps | Install insulation to meet or exceed new requirements. |
| < 70 mm, damaged or damp | Install new insulation into affected areas (or throughout affected space |
| > 70 mm, < 100 mm | Meets minimum requirements if in reasonable condition throughout. |
| 100 mm + | Ok if no gaps, dampness, or damage. Consider topping up the insulation to meet or exceed the new R-values. |

## Underfloor Insulation

Table 5 provides an overview of some of the underfloor insulation options. Remember to turn off the electricity at the mains before you enter the subfloor if foil insulation is present, and follow the safety and installation instructions in NZS 4246:2016 when installing new insulation.

**Table 5: Floor insulation retrofit scenarios**

### Floor insulation retrofit scenarios

| FLOOR INSULATION INSTALLED PRIOR TO 1 JULY 2016 | ACTION (unless exception applies) |
|---|---|
| None | Must install new insulation products (unless exception applies). |
| Damaged/ Ripped/Gaps | Must replace areas of damaged or missing insulation with new insulation products. |
| Foil insulation | Ok if the top surface is still shiny, and there are no rips, gaps or damage. Consider replacing with non-electrically conductive insulation products. |
| Modern bulk insulation | Ok if no rips, gaps, dampness, or damage. Bulk insulation should be in full contact with the underside of the floor. |

## Exceptions

While insulating homes is good, this legislation recognises that not all homes are built the same, and some have features which are not reasonably practicable to insulate without substantial building work. The legislation allows for the following exemptions.

There are five main exceptions where parts of properties are exempt from having to install ceiling or underfloor insulation.

**1.** Properties which are sold and immediately rented back to the former owner-occupier for a period of up to 12 months. This includes properties acquired by the NZ Transport Agency for roading projects, or by private developers. Note: the exception lasts for 12 months from the change of ownership of the property.

**2.** Properties where, within 12 months from the start of a tenancy, the landlord intends to demolish the property or substantially rebuild parts of the property and has applied for any necessary resource consent or building consent. If requested, the landlord will need to provide evidence that they have applied for the relevant resource consent or building consent for redevelopment work.

**3.** Some areas of some homes, due to limited access, their design, potential for substantial damage, or health and safety reasons may be impracticable or unsafe to access[5]. There is an exemption for parts of homes where a professional installer is unable to access and/or insulate, until such a time as this becomes possible (for example when a property is reroofed).

The following scenarios demonstrate situations where impracticability exceptions may apply. **The exception applies, in particular, where:**

> an experienced professional installer of insulation cannot access the location to install the insulation without substantial building work; or causing substantial damage to the premises

> an experienced professional installer of insulation cannot install the insulation at the location without creating risks to the health or safety of any person that are greater than the risks that are normally acceptable when insulation is being installed by an experienced professional installer of insulation; or

> it is otherwise not reasonably practicable for an experienced professional installer of insulation to install the insulation at the location.

5 While a landlord is not required to use a professional installer to install the insulation, if a landlord is unable to do the work themselves and it is reasonably practicable to install the insulation, then they must commission someone to do the work on their behalf.

**4.** A very small number of properties may have met insulation requirements at the time they were built, but did not meet the minimum R-values for the ceiling and underfloor as contained in Table 1.

A home may have had higher levels of wall insulation and high performance glazing to balance out lower R values in the ceiling or under floor[6], and a council may have accepted such a design or approach. In such a situation the house is not required to insulate to meet the new requirements provided a landlord can provide evidence, such as the specifications outlined in a building consent, that when insulation was originally installed it complied with particular insulation requirements, and provided the insulation remains in reasonable condition.

Note: This exception also applies to insulation that does not meet Table 3 R-values.

**5.** Areas of ceilings or floors which are directly below or above habitable spaces.

The following section illustrates some common construction types which may be impractical to insulate without substantial construction work.

## Inaccessible roof spaces

Skillion ceilings and very low pitched roofs typically have no way to access the cavity to insulate them unless the ceiling lining or the roofing is removed and replaced.

However, at the point when the roof or ceiling lining is replaced the cavity will become accessible and, where insulation does not meet the requirements, must be insulated to the required standards as set out in Table 3.

6 A house may have complied with New Zealand Building Code Clause H1 under the Verification or Calculation Method, or an Alternative Solution.

**Figure 2:** Skillion ceiling

**Figure 3:** Very low pitched roof

**Figure 4:** Bitumen membrane skillion roof

**Figure 5:** Lean-to skillion roof

**Figure 6:** Skillion ceiling

## Inaccessible subfloors

Areas of homes with concrete slab on ground floors, or suspended floors that sit directly above the habitable spaces of neighbouring units are not required to be insulated.

Areas of subfloor spaces that are too low to the ground for a professional installer to insulate safely are not required to be insulated until such a time as it becomes possible (e.g. replacing floorboards, repiling).

**Common subfloor situations which are often impractical to insulate.**

**Figure 7:** Areas of subfloor space with insufficient clearance

**Figure 8:** Areas of subfloor space with insufficient clearance

## Low Roof Clearances

Where parts of the roof are too low to install the required thickness of insulation, a lower performance product may be installed in those areas. Insulation must maintain a clearance of at least 25 mm from the roof underlay, as per NZS 4246:2016.

## Apartments & Multi-Units

Where the habitable space of another unit is directly above or below a ceiling or floor, this area does not need to be insulated.

Particularly in buildings with Bodies Corporate, owners of units will likely need to seek permission to alter the thermal envelope of the exterior of the building. Bodies Corporate might consider incorporating the installation of insulation into their long term maintenance plans, particularly if a building consent is required to install insulation.

## Outbuildings & Garages

Uninhabited outbuildings such as sheds and stand-alone garages are exempt from the insulation requirements.

However, where a garage is located directly beneath habitable spaces, the underside of the floor between the garage and the habitable space needs to be insulated.

## What is not exempt

Where there is no existing designated access point into an otherwise accessible roof cavity or subfloor space, landlords are expected to create one for the purposes of insulating the space so long as it does not require significant building work.

This may be temporary (e.g. removing a fibre cement sheet from an enclosed subfloor perimeter wall), or permanent (e.g. a hatch into a ceiling space).

## Habitable spaces outside the main dwelling

Where a property includes structures outside of the main dwelling which are consistently used as a habitable space, such as a caravan, studio or sleepout, these require insulation where it is reasonably practicable to install.

## Getting in touch with us

If you've got a question about bonds, call us free on **0800 737 666**.

Our website can give you lots more useful information. Remember, you can download copies of all our forms too.

We have tried to make this guide as accurate as possible. However, it doesn't cover everything and it's not the same as getting legal advice.

If you need more detailed information or specific advice, phone us free on **0800 TENANCY (0800 836 262)**.

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