

# Quality and Audit Manual



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## **Important safety considerations for service providers and auditors**

### **Service providers and auditors must:**

- Inform owner/occupants as soon as practicable when they become aware of any safety matter or potential risk, regardless of whether or not the safety matter or risk has anything to do with an existing or current installation.
- Make note of any safety issues at the property (e.g. dogs, broken glass, loose wiring), and if practicable make these issues known to installers, auditors and anyone else they are aware of who will be going to the site in relation to the programme.
- Refer to NZS 4246 Appendix B Health and Safety for guidance. Note especially that there are safety issues in dealing with the inspection, remedial work and removal of foil underfloor insulation, in particular the risk of electrocution.

### **Service providers must also:**

- Notify the owner/occupant of any serious installation matter discovered during an assessment.
- Fix any serious installation matter found during an installation or post-installation audit immediately.
- Complete corrective action for a serious installation matter within 48 hours of being notified by either EECA or an auditor.
- Inform the owner/occupant of the potential risks of the owner/occupant doing any work related to any measure or any remedial work.
- Comply with regulation 17(4) of the Electrical Safety Regulations, which states that a person commits an offence if the person “places thermal insulating material on or around fittings in an installation in such a way that the safety of the installation is compromised”. Ensure that service provider personnel are alerted to the fact that failure to comply with the relevant standards could result in serious sanctions.

### **Auditors must:**

- Inform the service provider as soon as practicable of any serious installation matter found during an audit.
- Where practicable, make safe or make good a serious installation matter found during an audit.

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# 1 INTRODUCTION

## 1.1 Preamble

Warm Up New Zealand: Heat Smart is an insulation and clean heating programme that gives New Zealanders the opportunity to make their homes warmer, drier and healthier.

A well insulated house means a significant reduction in the rate of heat loss to the house. This reduced rate makes the house easier and cheaper to heat properly and means the house will be healthier and more comfortable to live in.

Warm Up New Zealand: Heat Smart (the programme) started on 1 July 2009, and aims to retrofit more than 188,500 New Zealand homes over four years. The programme is run by the Energy Efficiency Conservation Authority (EECA) and replaces previous EECA home insulation programmes.

In administering the programme, EECA endeavours to be:

- fair and professional;
- supportive and consistent;
- clear with expectations;
- measured, with a risk focus, and
- open and transparent.

This Quality and Audit Manual (Q&A Manual) contains information and installation specifications for service providers contracted by EECA to deliver specified energy efficiency and heating measures in houses under the Government's Warm Up New Zealand: Heat Smart programme.

Compliance with the Q&A Manual is a requirement under the Warm Up New Zealand: Heat Smart Funding Agreement between the service provider and EECA for the delivery of measures under the programme, and between EECA and auditors under the contract of engagement. This manual is also a reference document for auditors to use.

If as a service provider you are in any doubt about the application of programme requirements to a particular situation, you are strongly advised to consult with EECA before providing a quote.

EECA administers a database that allows auditors and service providers- through a web portal – to record details of their activities under the programme.

Version two of the Q&A Manual is effective for all installations from 3 October 2011 and replaces the previous version released on 29 September 2009.

## 1.2 Principal Documents

### 1.2.1 This Q&A Manual

The Q&A Manual consists of the Q&A Manual and the appendices. For ease of use, the forms and guidelines are published in Appendix C: Forms. There are two complementary documents, *Guidelines for Service Providers* and *Guidelines for Auditors*, which are not published in this manual.

Requirements set out in this manual take precedence over NZS 4246 and/or manufacturers' specifications.

## 1.2.2 Monthly newsletter

EECA provides a monthly electronic newsletter, which may contain updates to this manual, so it is important that service providers and auditors read the newsletter.

## 1.2.3 Programme insulation product policy

For the specifications, criteria and application forms for an insulation product to become acceptable for use under the programme (see Insulation product policy section 5: References).

## 1.3 Definitions

Some terms in this section are the same as terms in the Warm Up New Zealand: Heat Smart Funding Agreement, but have wider and/or extended meanings to clarify their use and context in this Q&A Manual.

**Assessment** means the initial inspection carried out by a service provider when asked to provide a quote for a house. It involves a full inspection of the house in accordance with the requirements of the programme, and in particular, with the requirements of the assessment form and assessment form guidelines (see section 6.3 of this manual).

**Audit** means an audit carried out by an auditor, and excludes a post-installation audit.

**Audit Inspection Form (AIF)** means the paper-based form completed by the auditor when auditing an installation. Note: this form was previously called a Technical Audit Form (TAF).

**Auditor** means a person appointed as an auditor under the programme.

**Audit report** means the database report of an audit. Note: this report was previously called a Technical Audit Form (TAF).

**Corrective action** includes the work carried out after an audit to bring a measure up to the programme requirements, the investigation as to why corrective action was needed, the actions taken to prevent any recurrence, and the required reporting through the database. Correct and corrected have corresponding meanings.

**Database** means the database used by EECA to administer the programme.

**Eligible product** means a product that is in the service provider's Funding Agreement.

**Existing insulation** means insulation installed in the ceiling and/or underfloor of a house at the time of the assessment, and includes foil in the underfloor.

**Funding** means funding through the Warm Up New Zealand: Heat Smart programme. Funded and fund have corresponding meanings.

**Funding Agreement** means the Warm Up New Zealand: Heat Smart Funding Agreement and includes all its schedules.

**Heating device** means a product on the Warm Up New Zealand: Heat Smart List of Accepted Heating Products.

**House** means a residential dwelling built prior to 1 January 2000, whether or not it has been renovated or altered since that date, and includes:

- a dwelling that is part of a retirement village and occupied under a licence to occupy;
- a holiday dwelling used only by its owners and their families and friends, without reward;
- a dwelling owned by a territorial authority;

but does NOT include:

- a dwelling owned by Housing New Zealand Corporation;
- a dwelling owned by Central Government;
- a building that was not used as a residential dwelling prior to 1 January 2000;
- premises excluded from the Residential Tenancies Act 1986 under section 5(1)(a)-(k), (m), (q), (r), (t)-(tb), and (x) of that Act ([see section 5: References](#)).

**Installation matter** includes both serious installation matters and other installation matters.

**Mandatory measures** – are measures that must be complete to qualify for any funding.

**Measure** means a product category that the programme funds and includes mandatory measure and optional measure.

**NZS 4246** is a New Zealand Standard and means NZS 4246:2006 Incorporating Amendment No. 1 Energy Efficiency - Installing Insulation in Residential Buildings (published, and effective from April 2010).<sup>1</sup> (“NZS 4246”).

**Occupant** means a person identified by the service provider as having the legal right to occupy a House.

**Optional measures** – are measures that the owner may elect to install.

**Other installation matter** means any aspect of the installation of a measure that does not meet the requirements of the programme, but excludes serious installation matters.

**Owner** means a person identified by the service provider as the person with legal title to a house.

**Post-Installation Audit (PIA)** means the check carried out by the service provider after the installation of measures.

**Primary living area** means the main living area used in the house, and can be:

- a **dining area**, including a directly-attached open-plan kitchen
- a **bedroom**, but only if special circumstances apply (e.g. where someone is bedridden)
- located in a **hallway** if all of the following apply:
  - the hallway transitions into a primary living area;
  - there is no door between the hallway and the primary living area;

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<sup>1</sup> The previous version, NZS 4246:2006 Energy Efficiency - Installing Insulation in Residential Buildings, was used in the programme up until 1 October 2011.

- the heating device is installed to direct the heat into the primary living area;
- the purpose of the heating device is not to heat an area other than the primary living area.

**Remedial Work** means principally labour-only work, including the removal of existing products, undertaken by a service provider to bring an existing installation into compliance with the requirements of the programme. Remedy and remedied have corresponding meanings.

Remedial work does not include:

- existing ceiling insulation that will form part of a top-up solution or total fill solution.

**Roofing** means both the roof cladding and underlay, but not the timber framing (rafters and purlins), or the roof sarking (usually timber boards fixed to rafters).

**Serious installation matter** means an (unsafe) aspect of an installation that is designated “critical” in the audit report and includes matters that may be designated “critical” in the audit inspection form guidelines.

**Service provider** means a person or organisation that has entered into a funding agreement with EECA. The List of Programme Service Providers identifies all service providers in the programme ([see section 5: References](#)).

**Top-up solution** means an eligible product for topping-up ceiling insulation as specified in section 3.1 Ceiling Insulation.

**Total fill solution** means a ceiling insulation eligible product as specified in [section 3.1 - Ceiling Insulation](#).

## 1.4 Overview

### 1.4.1 An overview of key aspects for the service provider

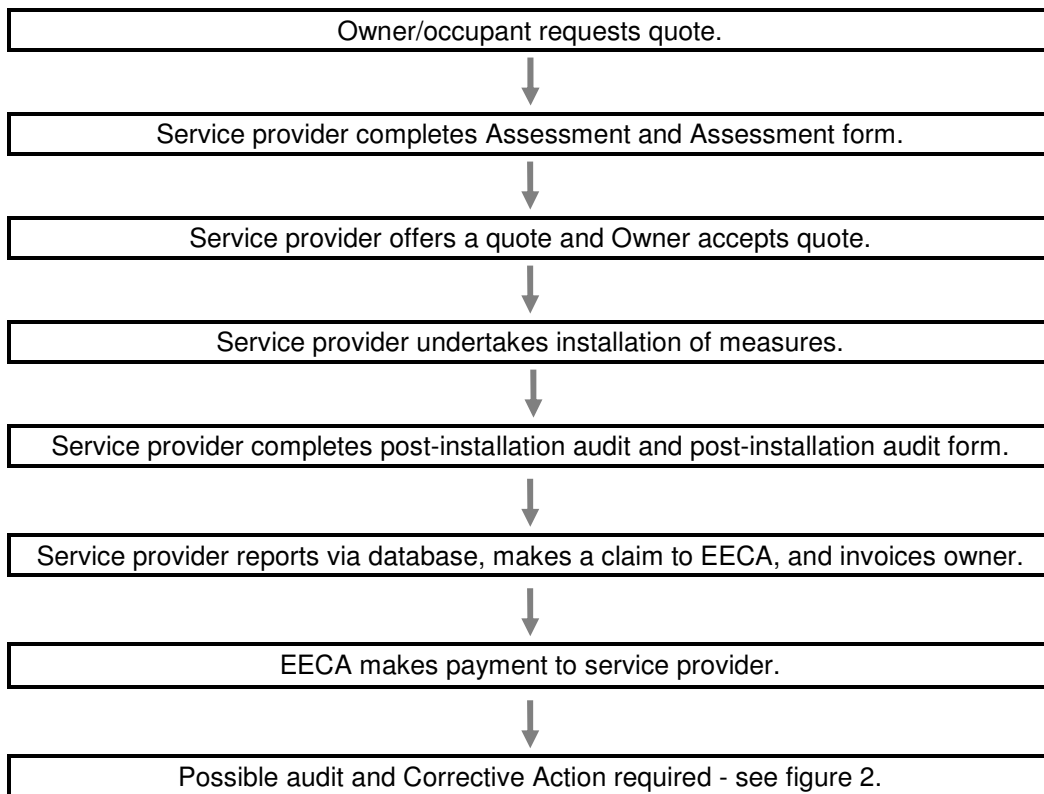


Figure 1 An Overview of Key Aspects for the Service provider

### 1.4.2 An overview of key aspects of the audit process

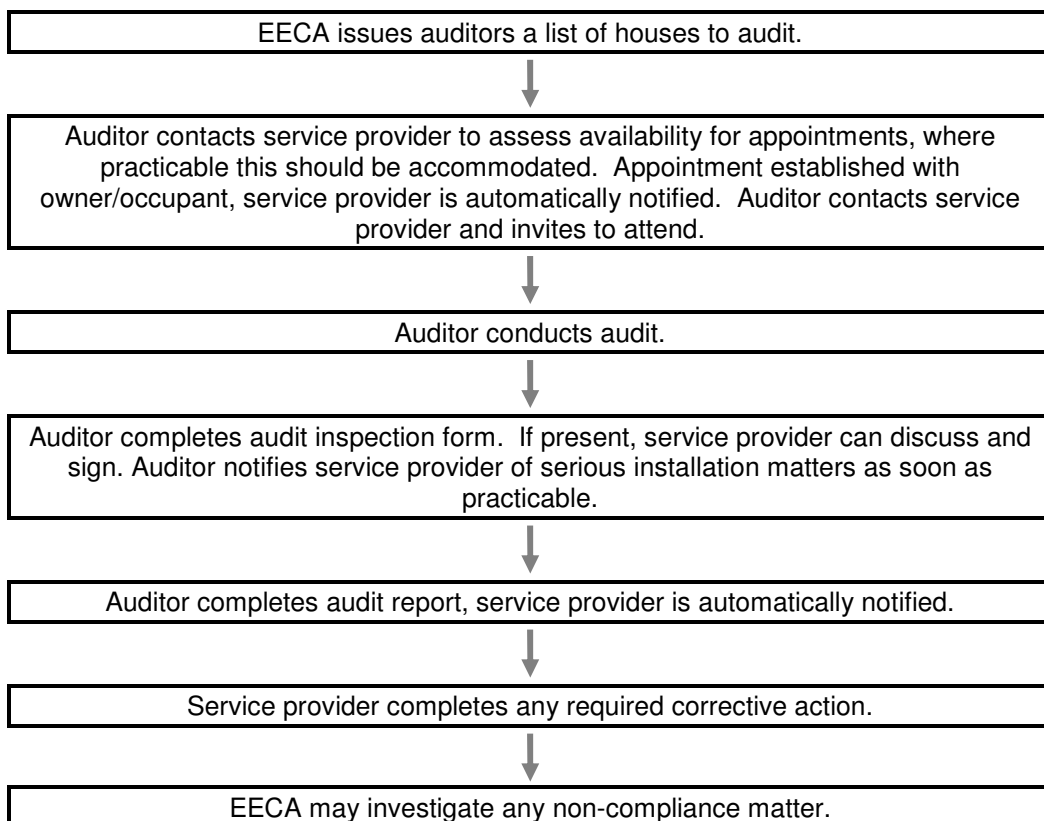


Figure 2 An Overview of key aspects of the audit process

## 2 FUNDING

### 2.1 Houses for which funding is available

Funding is available through the programme for the installation of a measure in any house or any part of a house, including:

- a sleep out or garage which has been permanently converted into a living/bedroom space, i.e. it is no longer used for vehicles, as a workshop or for storage;
- the ceiling of garages with living areas above;
- ceiling space walls – where insulation to the internal ceiling space wall completes the thermal envelope of a ceiling space, i.e. where the internal ceiling space wall has a living space on the other side;

but NOT including:

- Houses where mandatory measures cannot be installed to their full extent because of the presence of stored materials;
- ceiling spaces above attached garages, except where a garage is, or is under, a living space;
- walls – other than internal ceiling space walls.

### 2.2 What the programme funds

Mandatory measures must be installed and meet the programme requirements before any funding is available for optional measures. Therefore funding for optional measures is only available once mandatory measures are installed and meet programme requirements.

Funding for all optional measures is available when:

- required or recommended in this manual; and
- recommended by the service provider; and
- the owner requests the measure.

If a service provider decides, for any reason other than health and safety, not to install a mandatory measure – for example due to recessed lights – there is no funding available to install any measure.

Funding for remedial work is available. Remedial work is funded at the agreed hourly rate as set out in the funding agreement.

## 2.2.1 Mandatory and optional measures

Funding under the programme is available for the following measures. Installation must be in accordance with section 3: Installation Specifications.

- Mandatory measures:
  - ceiling insulation;
  - underfloor insulation;
  - pipe lagging - ceiling space in climate zone 3.
- Optional measures:
  - pipe lagging - ceiling space in climate zones 1 & 2 (prone to freezing);
  - pipe lagging - first metre of pipe (from hot water cylinder);
  - on-ground vapour barrier;
  - draught proofing;
  - hot water cylinder wrap;
  - one heating device.

## 2.2.2 Where mandatory measures are not required

### 2.2.2.1 Insufficient access

Installation of a mandatory measure is not required if the service provider has reasonable grounds to believe there is insufficient access and details are recorded on the assessment and post-installation audit forms.

#### Examples of reasonable grounds for insufficient access:

- a house with a skillion roof or concrete slab floor;
- insufficient workspace in the ceiling or subfloor space (for example because of a low roof pitch) as determined by the service provider's health and safety policy, and noted in the comments section of the assessment and post-installation audit form;
- no entry point to the ceiling or subfloor space;
- no access to pipes for the installation of lagging;
- insufficient space between the wall and a hot water cylinder for the wrap.

In order to receive any funding at all, the owner/occupant must remove all stored material that might block access to any area where mandatory measures should be installed. The presence of stored materials in or blocking access to, such an area does not constitute "insufficient access".

## 2.2.3 Funding of remedial work

The service provider needs to decide whether to instate the measure or remedy the existing installation, but never both. For example, choose *either* to remedy the existing ceiling insulation *or* install a total fill or top-up solution for the ceiling.

The maximum amount of funding available for any house as specified in figure 3: Funding Eligibility Table, covers all measures installed and all remedial work carried out.

Provided it is reasonable and cost-effective to do so, the service provider must remedy the existing installation, rather than removing it and instating a new measure.

Service providers are required to use the products most appropriate for remedying existing installations, for example consumables such as tape, foil, cables and strapping.

Details of all remedial work claimed must be listed in the post-installation audit form "Comments" section and in the comments field of a database claims report.

**Examples of remedial work:**

- where existing ceiling insulation is more than 120mm deep and requires work to bring it up to the requirements of NZS 4246;
- the fixing/taping of an existing measure to bring it up to the requirements of NZS 4246, or the fixing/taping of existing underfloor foil.

## **2.3 Where funding is not available**

There is no funding for:

- removing existing debris, rubble or stored materials, for example to provide access or to allow for a complete installation;
- any work associated with providing access, for example to a ceiling or subfloor space, such as:
  - removing claddings or linings,
  - building an access hatch,
  - digging trenches to access the subfloor;
- insulation of (or remedial work to) subfloor walls, for example multi-storey or split-level houses on sloping sections with walls exposed to the subfloor space;
- second hand heating devices;
- any additional costs above the specified eligible product cost - for a higher specification product;
- providing products and services outside of the programme.

The work is at the service provider's expense and there is no funding for:

- work a service provider is required to do during or after a post-installation audit, to bring an installation into compliance with the programme requirements;
- Corrective action carried out after an audit.

Service providers are welcome to offer other services that are outside of the programme alongside those of the programme (for example fixing something unrelated to the programme), but funding is only available for measures and remedial work under the programme.

When engaged to install a measure, a service provider may not install (or offer to install) as well, any ceiling, underfloor or cylinder wrap insulation, pipe lagging, on-ground vapour barrier, draught proofing and heating device - using products that are not funded under the programme. For example, service providers must not install a product that is an eligible product that is not included in their funding agreement.

## 2.4 Where eligible products of different specifications are permitted

Funding for measures is only available for eligible products as specified, except that in some circumstances a higher- or lower-specification eligible product may be used.

Where an eligible product of a higher- or lower-specification is installed or is to be installed, the reasons for departing from the accepted specifications must be recorded on the assessment and post-installation audit forms and included in the database claims report comments field.

### 2.4.1 Higher -specification product

The owner may request and have installed a higher specification eligible product if the owner/occupant pays for any additional costs above the specified eligible product cost.

### 2.4.2 Lower - specification product

Service providers may install a lower-specification eligible product where a particular roof type or construction does not allow for the installation of the specified eligible product.

#### Examples where lower ceiling product R-value may be required:

- a skillion or low pitch roof where the required R-value ceiling insulation product cannot be installed because of limited space;
- to fill gaps – for example, in climate zone 3,<sup>2</sup> where existing insulation is 75mm or more deep, i.e. prior to installation of a top-up solution;
- to walls of a recessed ceiling space – for example to prevent strapping compressing the insulation;
- a low-sloping roof where the required R-value ceiling insulation product cannot be installed out to the top plate without touching the roofing;
- to block off ends of joist runs where blanket insulation is perpendicular to ceiling joists.

See [section 4: Performance and Management Systems](#) for details on keeping photographic records where areas will become inaccessible after an installation.

## 2.5 Conditions of funding

To receive any funding for a measure:

- the measure and any remedial work must be installed:
  - by or on behalf of a service provider and
  - in accordance with the service provider's funding agreement, and be complete;
- the service provider must have completed an assessment of the house prior to installation and a post-installation audit after installation;
- the service provider must submit a claim via the database.

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<sup>2</sup> Note that in climate zones 1 & 2 a lower specification product would not be required to fill gaps as the specified eligible product should be suitable for this.

## 2.6 Amount of funding available

### 2.6.1 Funding levels

The programme provides funding to the levels set out in figure 3.

Funding eligibility	Funding for insulation (including cylinder wrap), pipe lagging, on-ground vapour barriers, draught-proofing and remedial work (inclusive of GST)	Funding for a heating device (inclusive of GST)
Houses owned by Community Services Card (CSC) holders	60% of the total cost	\$1200
Rental houses with tenants who hold Community Services Cards	60% of the total cost	\$500
All other houses	33% of the total cost (up to \$1300)	\$500

Figure 3 Funding eligibility table

### 2.6.2 Funding for Community Services Card (CSC) holders

#### 2.6.2.1 CSC holder funding:

CSC holder funding is available as shown in figure 3, to:

- the holder of a CSC or CSC endorsed Super Gold card<sup>3</sup> who owns and occupies a house;
- the holder of a CSC or CSC endorsed Super Gold card who is a tenant in a house and is a person named on a Residential Tenancy Agreement.<sup>4</sup>

CSC holder funding are those amounts of funding allocated as “Low Income” in Schedule 1 of the service provider’s funding agreement. The service provider should check with EECA if there is any uncertainty about the amount of CSC holder funding that remains available to the service provider at any time.

#### 2.6.2.2 CSC declaration forms

Where CSC Funding is applied for, service providers must ensure that the appropriate declaration form is completed in full and signed by all parties - see Appendix B: Declaration Forms<sup>5</sup>. The service provider is required to sight the CSC to verify that it is valid at the time the declaration form is completed and signed.

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<sup>3</sup> See section 5 References

<sup>4</sup> See section 5 References

<sup>5</sup> Service providers are encouraged to use the programme forms in Appendix B, but are permitted to develop their forms if all the information on the programme forms is contained in the Service provider’s forms.

## 2.7 Claiming of funds

To receive funding a service provider makes a claim to EECA via the database.

All claims must be in the format required by the database and must be consistent with:

- the measures, products and square metres:
  - actually installed and charged to the owner;
  - on the post-installation audit form.

Service providers must claim all mandatory measures for a house at the same time (given that all mandatory measures must be complete to receive any funding).

## 3 INSTALLATION SPECIFICATIONS

### 3.1 Mandatory measures

Ceiling and underfloor insulation and pipe lagging in zone 3 are mandatory measures under the programme, and must be installed in accordance with this manual, NZS 4246, manufacturers' instructions and best practice. Mandatory measures must be complete before claiming for any optional measures.

#### 3.1.1 Ceiling insulation

##### 3.1.1.1 Products

An eligible product for ceiling insulation is a ceiling insulation product in the service provider's Funding Agreement. These products must be selected from the List of Accepted Insulation Products - [see section 5: References](#).

##### 3.1.1.2 Ceiling insulation required product R-value

Products used for ceiling insulation must meet or exceed the prescribed product R-values for the relevant climate zone set out in [figure 4](#) (apart from exceptions stated in [section 2.4](#)).

##### **A Total fill solution is required**

- When the joists/trusses are greater than 115mm and majority of existing insulation is less than 75mm deep including where there is no insulation, OR
- When the joists/trusses are less than 115mm and majority of existing insulation is less than 75mm deep including where there is no insulation, OR
- When the joists/trusses are greater than 115mm and existing insulation is consistently between 75 to 120mm.

##### **A top-up solution is required**

- When the joists/trusses are less than or equal to 115mm and existing insulation is consistently 75mm to 120mm

<b>Warm Up New Zealand: Heat Smart Required Product R-value</b>			
<b>Climate Zone</b>	<b>A total fill solution is required</b>		<b>A top-up solution is required</b>
		When the joists/trusses are greater than 115mm and majority of existing insulation is less than 75mm deep, including where there is no insulation, or When the joists/trusses are greater than 115mm and existing insulation is consistently between 75 to 120mm. or When the joists/trusses are less than or equal to 115mm and majority of existing insulation is less than 75mm deep, including where there is no insulation	
	Segments or blankets laid between ceiling joists/trusses	Blankets laid over ceiling joists/trusses	Segments or blankets laid over Ceiling joists/trusses
1 & 2	3.4	2.8	1.8
3	4.0	3.2	2.4

**Figure 4 Warm Up New Zealand: Heat Smart Required Product R-value Table for Ceiling Insulation**

### 3.1.1.3 Existing insulation and installation

#### 3.1.1.3.1 Existing insulation

**When the depth of existing insulation is consistently more than 120mm** the service provider must carry out whatever remedial work is necessary to ensure that the existing insulation meets the requirements of NZS 4246, the Q&A Manual and manufacturer’s specifications. The existing installation is then sufficient for all climate zones and there is no funding for any further ceiling insulation.

**When the depth of existing insulation is 75 to 120mm** and the service provider is installing a top-up solution, any full-depth gaps in the existing insulation which are more than 50mm wide must be filled before the top-up solution is installed.

#### 3.1.1.3.2 For all installations

##### **Exposed edges**

The service provider must block off both new and existing insulation at any exposed edges to prevent air movement under the insulation; this includes at roof edges, clearances around recessed lights, other penetrations in the insulation and where insulation is not installed under a header tank.

##### **Header tank**

Always install ceiling insulation under the header tank. Except, to prevent damage to header tanks in frost-prone areas, it is not recommended that ceiling insulation be installed under concrete header tanks; and where there is insufficient access to install insulation.

##### **Lighting**

NZS 4246 gives clearances only for recessed halogen and incandescent lamps. For other lamps use a minimum of 200mm clearance, or the manufacturer’s clearances, if known. Ensure that the clearance distance is maintained by blanking off (with insulation)/using a collar. Blanking off also ensures that there is no air-movement between ceiling lining and Insulation at protrusion sites. See also exposed edges.

### **Fan/light/heat units**

Unless the manufacturer's specifications or legislation state otherwise, insulation must not be within 200mm of the outer edges of fan/light/heat units. EECA considers that these units are a "Built in appliance or enclosure containing electrical equipment" as recognised in NZS 4246 with clearance determined from the exterior housing to insulation. See also exposed edges.

### **Ceiling space walls**

If insulation is required to ceiling space walls to complete the thermal envelope (for example a recessed ceiling space wall, internal ceiling space wall or skylight shaft) the ceiling space walls should be insulated with ceiling insulation and fixed according to the steps in NZS 4246 for unlined walls ([also see Appendix C: Forms](#)).

### **Attached garage**

The ceiling insulation installed under the programme must terminate on the top plate of the wall that separates the house and garage, except where the garage is, or is under, a living space ([see section 2.1](#)).

### **Determine the height of ceiling joists and trusses**

All measurements should be taken from the bottom of the joist or truss.

### **Determine the depth of existing insulation**

Ceiling measurements should be taken from the bottom of the joist or truss.

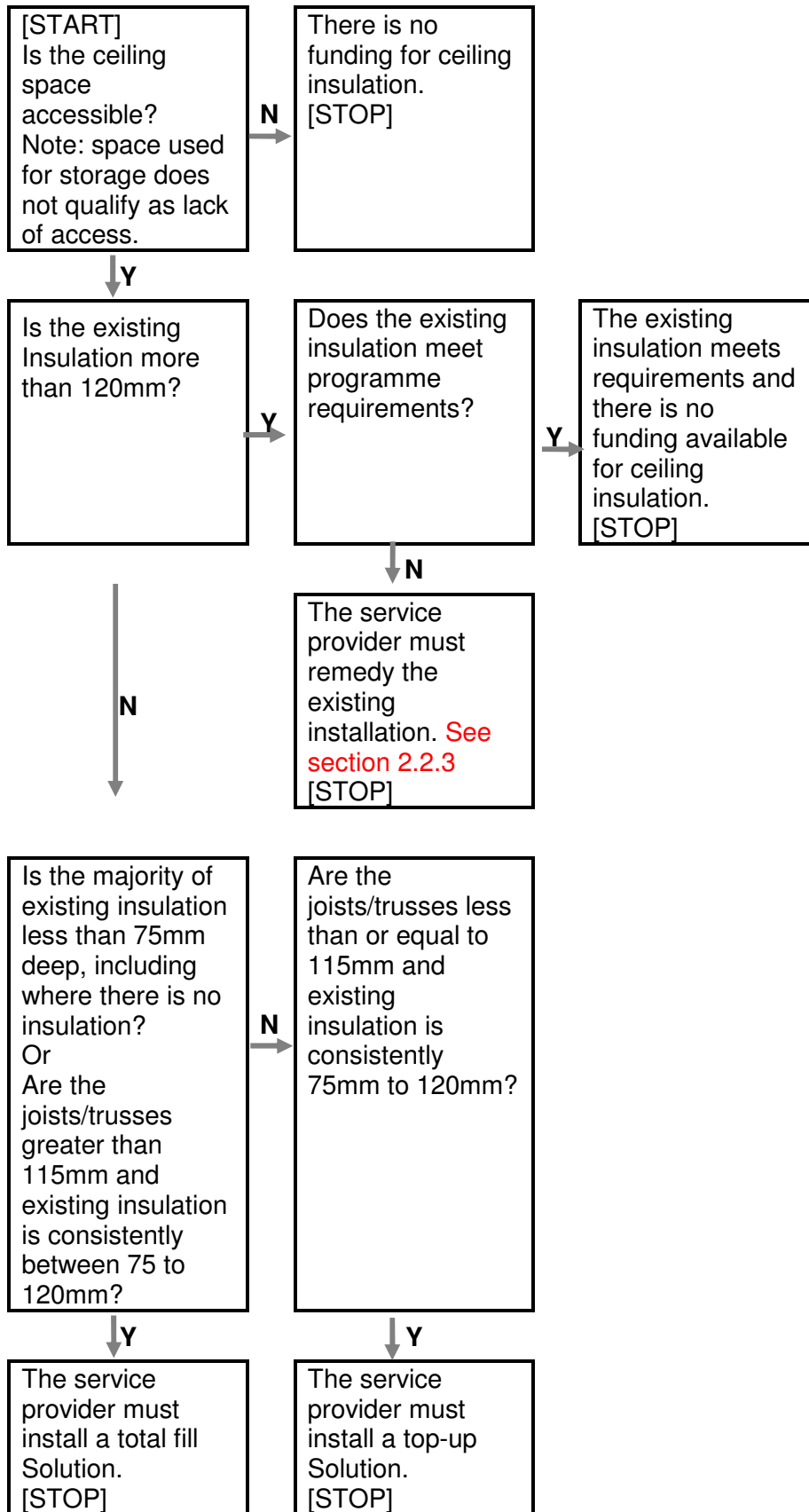
### **Space inaccessible after insulation**

Service providers are advised to keep a detailed photographic record of work completed - particularly in safety-relevant areas, for example, around recessed lights and flues or an underfloor where a lining is required after insulation is installed.

### **Surface mounted lights**

Insulation clearances around surface mounted lights in roof or subfloor spaces. When installing insulation a minimum clearance of 200 mm shall be maintained to surface mounted light fittings, unless manufacturers or regulation requires otherwise. These clearances apply in all directions regardless of the type, location and orientation of the surface mounted light fitting. The clearance does not need to extend to areas where thermal insulation would be fully and permanently shielded from the light by timber framing, plaster board or similar shielding material. Care is needed where there is potential for insulation to loft over time and then no longer be shielded.

### 3.1.1.4 Flow Chart 1: Overview of ceiling insulation requirements



When [STOP] is reached, check that the finished installation or remedial work complies with NZS 4246, the Q&A Manual, best practice and manufacturer’s specifications, and if so, proceed to the next measure.

Figure 5 Flow Chart 1 Overview of ceiling insulation requirements

## 3.1.2 Underfloor insulation

### 3.1.2.1 Products

An eligible product for underfloor insulation is an underfloor insulation product in the Service provider's funding agreement. These products must be selected from the List of Accepted Insulation Products (see section 5: References).

### 3.1.2.2 Underfloor insulation required product R-value

Products used for underfloor insulation must meet or exceed the product R-value for the relevant climate zone set out in figure 6.

Climate zone	Warm Up New Zealand: Heat Smart Required Product R-value
1, 2 & 3	1.4

Figure 6 Warm Up New Zealand: Heat Smart Required Product R-value Table for Underfloor Insulation

### 3.1.2.3 Existing insulation and installation

#### Foil

Provided the service provider considers that the foil underfloor insulation is effective, no other underfloor insulation is required to be installed under the programme – see Appendix C Assessment Guidelines.

Examples of ineffective foil insulation:

- foil product installed hard up against the flooring with no air gap between the foil and flooring;
- foil product upper surface, facing flooring, is no longer reflective.

#### Polystyrene above service space

Polystyrene insulation must not be used if it will be left exposed in the 'underfloor' above an area which is used as a service space, such as a garage, external laundry or workshop, due to fire risk. Polystyrene underfloor meets Building Code requirements for fire if it is installed behind linings (such as Gib) or if the insulation is exposed to spaces that are not habitable (such as the sub-floor spaces beneath the houses). If the space beneath the floor/insulation is used for example as a garage or workshop then a lining would be needed to cover the polystyrene insulation. If this situation exists in a property assessed under the programme, you are still permitted to install mandatory and optional measures, just ensure you're your assessment and PIA forms note that you've brought this to the owner/occupant attention.

#### Pipe work

To accommodate vertical obstacles such as protruding pipes and plumbing. Service providers must maintain approximately 100mm clearances between insulation and plumbing pipe work and fittings. This will ensure there is adequate clearance in case of water leaks, and provide service access to repair damaged pipes and fittings. This applies to rigid, semi-rigid and blanket products in the underfloor.

#### Lighting

Unless the manufacturer's specifications state otherwise, insulation must not be within 200mm of all outer edges of underfloor lights. See surface mounted lights instruction in 3.1.1.3.2.

#### Space inaccessible after insulation

See space inaccessible after insulation in 3.1.1.3.2

### 3.1.2.4 Flow Chart 2: Overview of underfloor insulation requirements

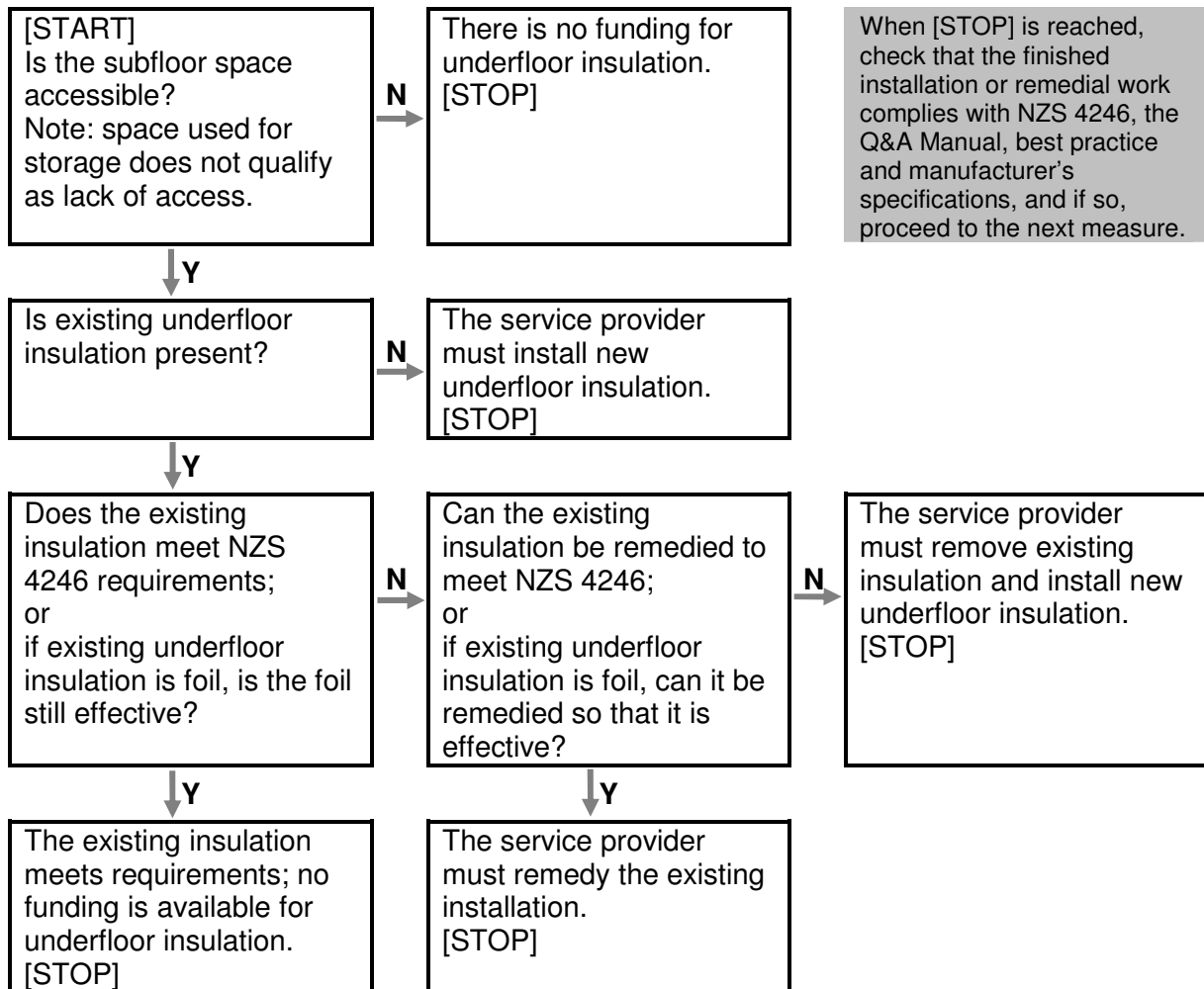


Figure 7 Flow Chart 2 Overview of underfloor insulation requirements

### 3.1.3 Pipe lagging in the ceiling space in climate zone 3

#### 3.1.3.1 Products

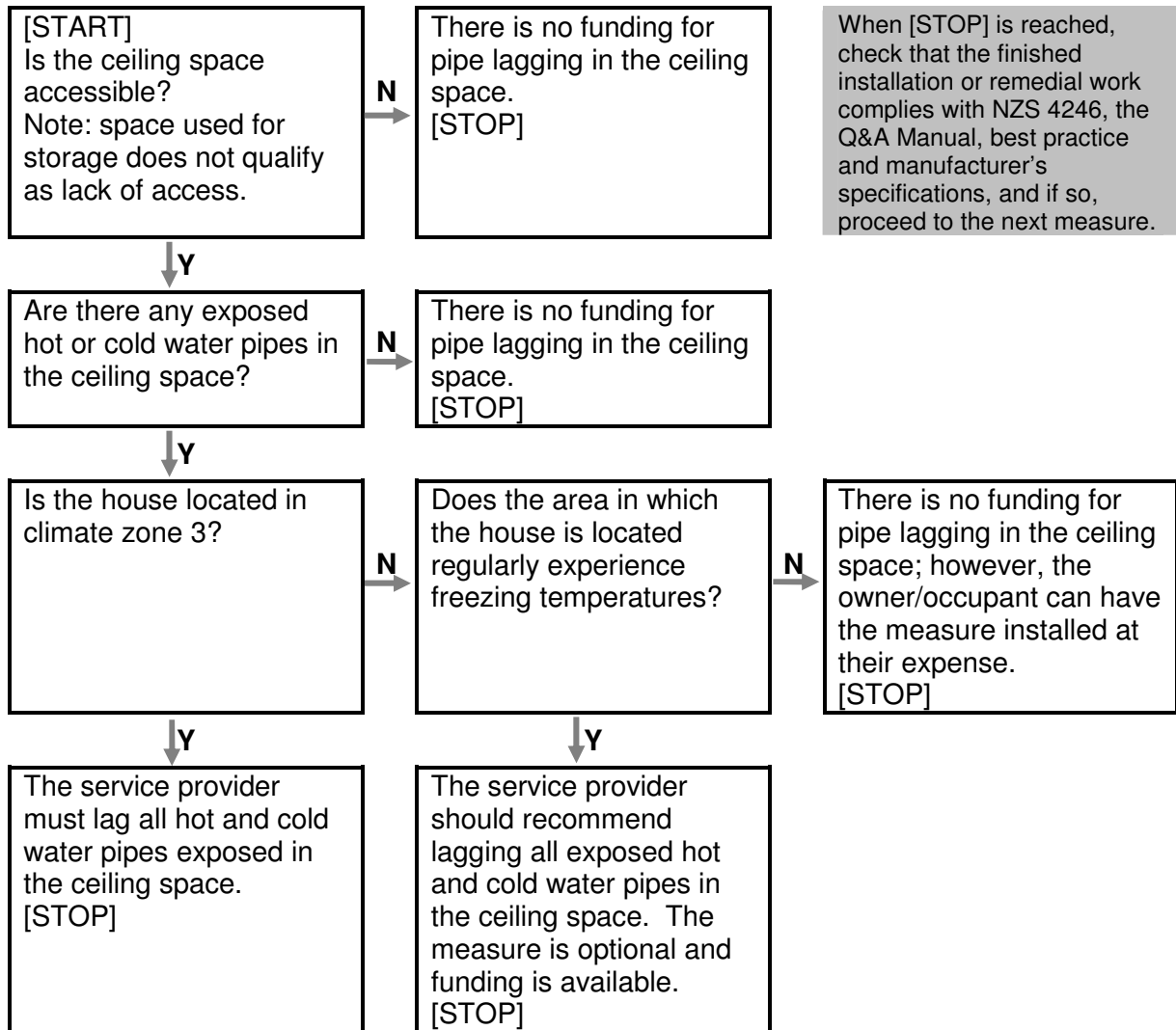
An eligible product for pipe lagging is a pipe lagging product in the service provider's funding agreement. These products must have a minimum R-value of 0.3 or be made of insulation material (e.g. foam, wool or fibreglass) with a minimum thickness of 12mm.

#### 3.1.3.2 Installation

In climate zone 3, lagging of the full length of exposed hot and cold water ceiling space pipes (i.e. pipes above the insulation) is mandatory.

Follow the installation practices for pipe lagging in NZS 4246 for the lagging of hot and cold water pipes in the ceiling space.

### 3.1.3.3 Flow Chart 3a: Overview of pipe lagging in ceiling space requirements



When [STOP] is reached, check that the finished installation or remedial work complies with NZS 4246, the Q&A Manual, best practice and manufacturer's specifications, and if so, proceed to the next measure.

Figure 8 Flow Chart 3a Overview of pipe lagging in ceiling space requirements

## **3.2 Optional measures**

The following are optional measures under the programme. They must be installed in accordance with this manual, NZS 4246, manufacturers' instructions and best practice.

### **3.2.1 Pipe lagging in the ceiling space in climate zones 1 & 2**

#### **3.2.1.1 Products**

An eligible product for pipe lagging is a pipe lagging product in the service provider's funding agreement. These products must have a minimum R-value of 0.3 or be made of insulation material (e.g. foam, wool or fibreglass) with a minimum thickness of 12mm.

#### **3.2.1.2 Installation**

In climate zones 1 & 2, for houses that regularly experience freezing, lagging of the full length of exposed hot and cold water ceiling space pipes (i.e. pipes above the insulation) is recommended and optional. See figure 8: Flow Chart 3a Requirements for Pipe Lagging in Ceiling Space.

If freezing occurs regularly, service providers should note this on the assessment form.

In climate zones 1 & 2 for houses that do not regularly experience freezing, full length pipe lagging is not an optional measure and funding is not available, but the lagging may be installed at the owner/occupant's cost.

### **3.2.2 Pipe Lagging to the first metre of pipe**

#### **3.2.2.1 Products**

An eligible product for pipe lagging is a pipe lagging product on the service provider's funding agreement. These products must have a minimum R-value of 0.3 or be made of insulation material (e.g. foam, wool or fibreglass) with a minimum thickness of 12mm.

#### **3.2.2.2 Installation**

The lagging of the first metre of hot water pipe (or less where practicable) exiting the (electric resistive or wetback assisted) hot water cylinder is an optional measure under the programme in all climate zones.

### 3.2.2.3 Flow Chart 3b: Overview of pipe lagging to first metre of pipe requirements

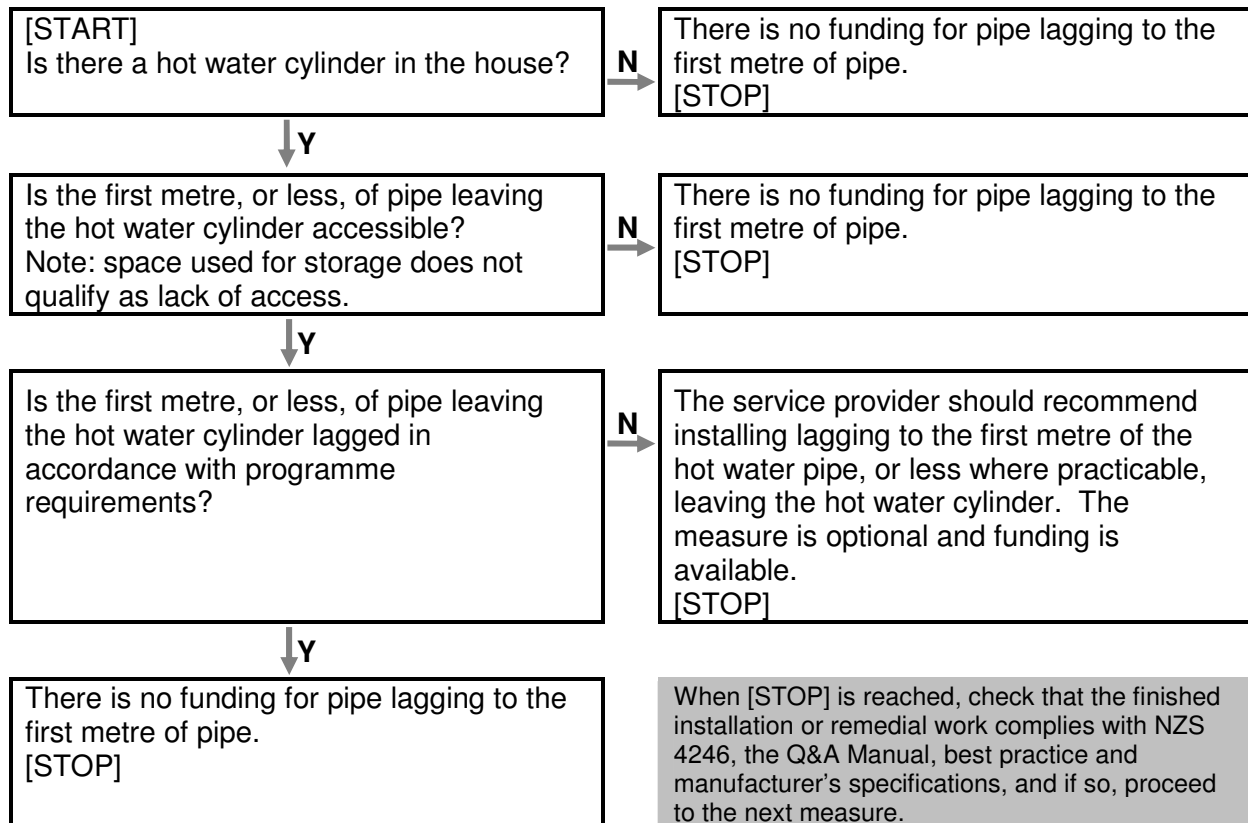


Figure 9 Flow Chart 3b Overview of Pipe Lagging to First Metre of Pipe Requirements

## 3.2.3 On-ground vapour barrier

### 3.2.3.1 Products

An eligible product for an on-ground vapour barrier is an on-ground vapour barrier in the service provider's funding agreement. These products must be polythene, not polyvinyl chloride (PVC), with a minimum thickness of 250 microns.

### 3.2.3.2 Installation

While not mandatory under the programme, it is recommended and the service provider must offer an on-ground vapour barrier to the owner, whenever the house has:

- a suspended timber floor, and
- an enclosed perimeter wall foundation - this includes both masonry foundations and other claddings such as cement board or a solid timber skirt.

### 3.2.3.3 Flow Chart 4: Overview of on-ground vapour barrier requirements

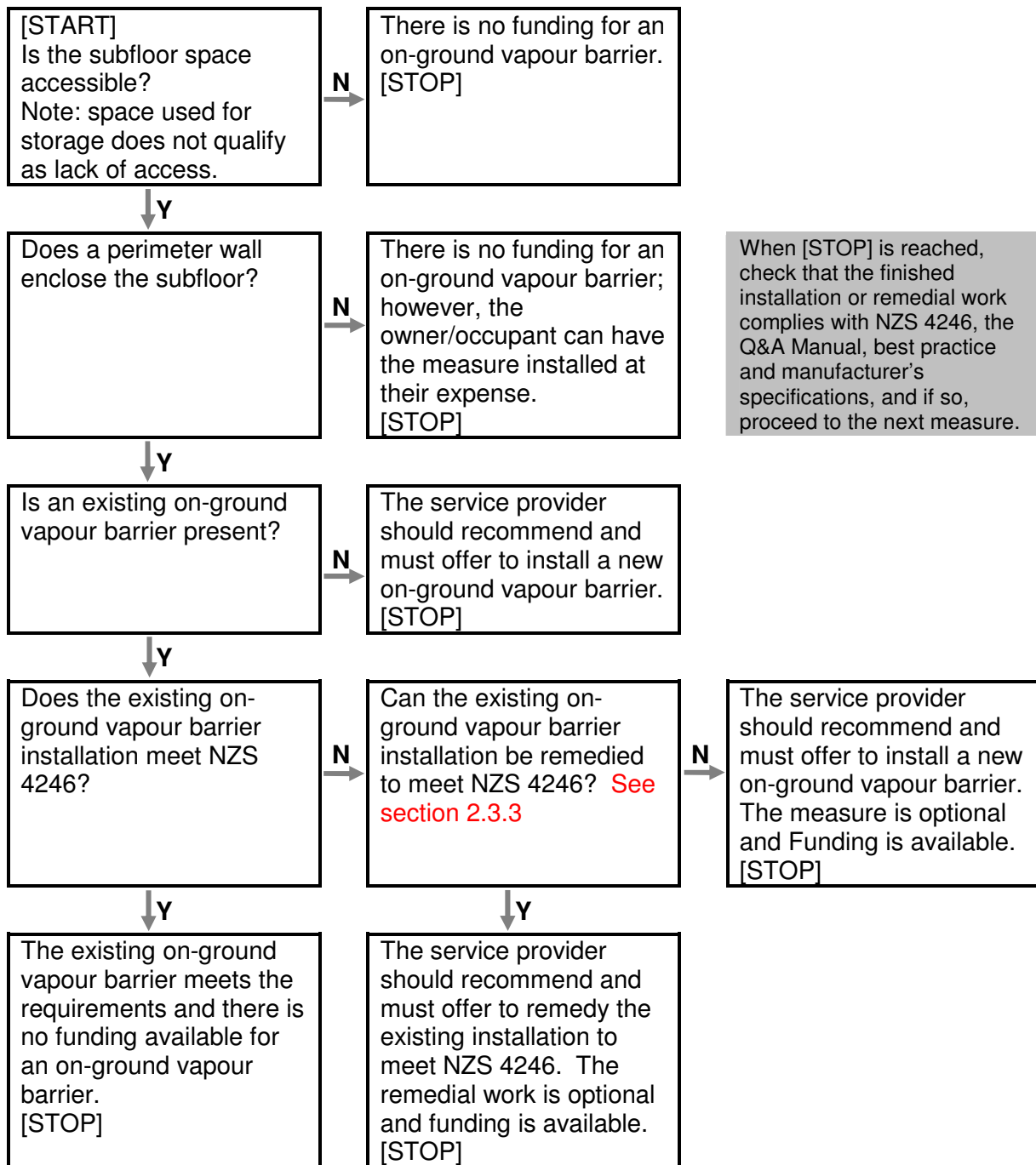


Figure 10 Flow Chart 4 Overview of on-ground vapour barrier requirements

### 3.2.3.4 Draught proofing

### 3.2.3.5 Products

An eligible product for draught proofing is a draught proofing product in the service provider's funding agreement. These products must be:

- draught excluders:
  - brush (internal)
  - weather (external)
- weather strip V-seal.

### 3.2.3.6 Installation

Draught proofing must only be installed onto a maximum of two external doors that have a gap of 2mm or more. It may be installed to:

- the bottom of doors, for draught excluders
- the sides and top of door frames, for up to 12m of weather strip.

Install according to manufacturer's instructions and best practice.

### 3.2.3.7 Flow Chart 5: Overview of draught proofing requirements

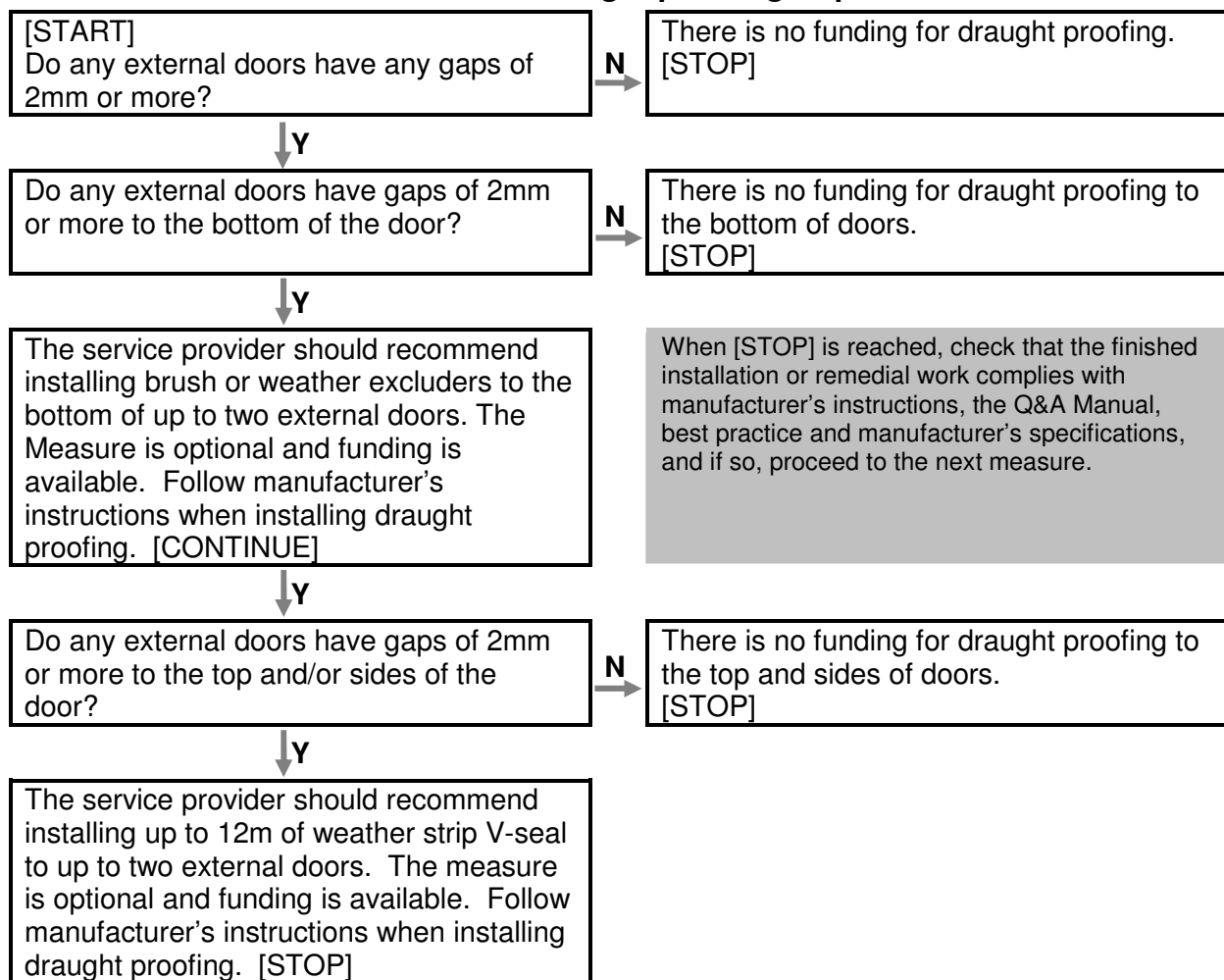


Figure 11 Flow Chart 5 Overview of Draught Proofing Requirements

## 3.2.4 Hot water cylinder wrap

### 3.2.4.1 Products

An eligible product for hot water cylinder wrap insulation is a hot water cylinder wrap insulation product in the service provider's funding Agreement. These products must be selected from the List of Accepted Insulation Products – (see section 5: References).

### 3.2.4.2 Hot water cylinder wrap required product R-value

Products used must meet or exceed the product R-value set out in figure 12.

Climate Zone	Warm Up New Zealand: Heat Smart Required Product R-value
1, 2 & 3	1.1

Figure 12 Warm Up New Zealand: Heat Smart Required Product R-value Table for Hot Water Cylinder Wrap Insulation

### 3.2.4.3 Installation

The installation of a hot water cylinder wrap to an electric resistive or wetback assisted hot water cylinder is recommended, except where the cylinder is:

- a cylinder that meets the Minimum Energy Performance Standards (MEPS).

Do not install hot water cylinder wraps to gas storage water heaters.

### 3.2.4.4 Flow Chart 6: Overview of hot water cylinder wraps requirements

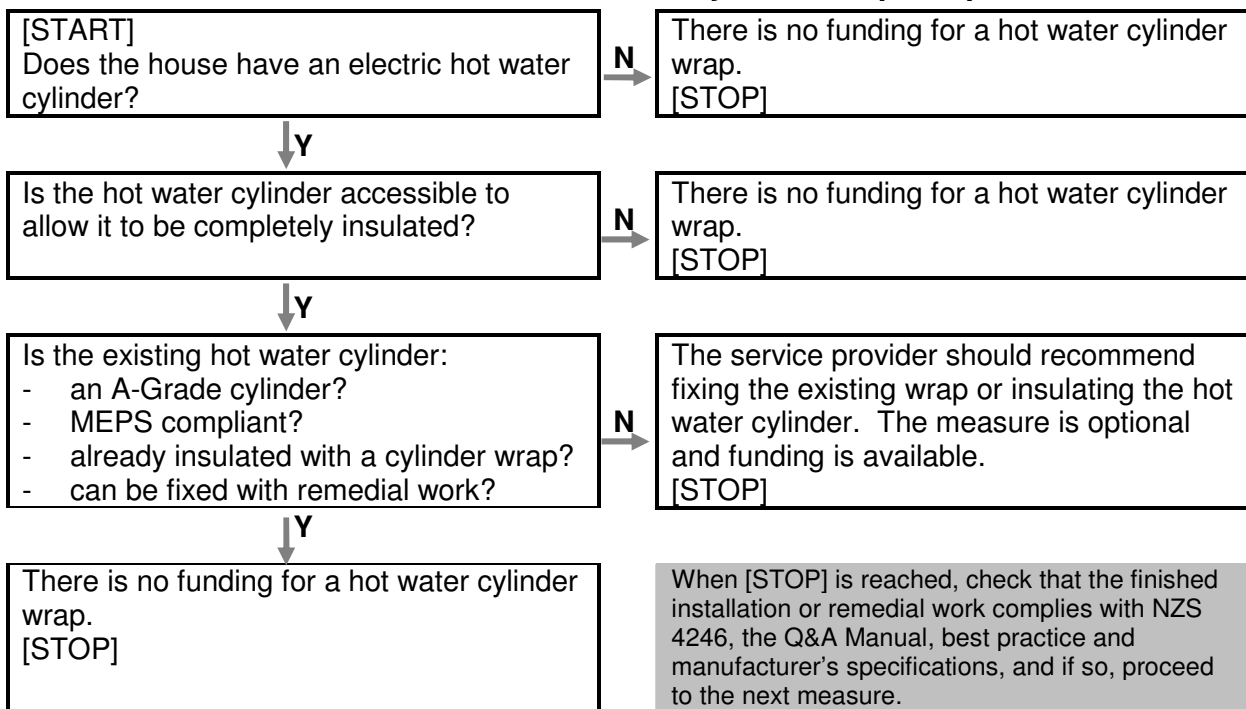


Figure 13 Flow Chart 6 Overview of Hot Water Cylinder Wrap Requirements

## 3.2.5 Heating

### 3.2.5.1 Products

An eligible product for a heating device is incorporated by reference in the service provider's funding agreement to the List of Accepted Heating Products - [see section 5: References](#).

### 3.2.5.2 Sizing of Heating Devices

Heating devices for the primary living area should be sized:

- without taking any existing heating into account.
- using the manufacturer's sizing calculator for the relevant location in New Zealand. Where the manufacturer has not published a sizing calculator for New Zealand conditions, service providers must use the Heater Sizing Calculator - [see section 5: References](#).
- where the Manufacturer's or EECA's sizing calculators do not adequately provide for heating devices installed in colder climates, such as climate zone 3; sizing must be based on the heating devices' capacity and performance at low temperatures, for example their declared heating capacity at wintertime ambient temperature<sup>6</sup> determined by the location of the house.

### 3.2.5.3 Installation

The installation of one heating device is subject to the conditions set out below:

- manufacturers' and installers' warranties being provided to the owner or occupant along with training on how to use the heating device;
- the house ceiling and underfloor insulation must meet the programme requirements;
- the heating device must be installed in the primary living area<sup>7</sup>;
- there must be no correctly sized heating device (a heater from the List of Accepted Heating Products) already installed in the primary living area;
- a heating device has not already been installed under the programme, unless special circumstances apply;
- all heat pump installation work must be carried out by suitably qualified and trained staff;
- heat pumps must be installed according to the manufacturer's specifications;
- Prescribed Electrical Work<sup>8</sup> must be carried out or supervised by a registered electrician;
- an Electrical Certificate of Compliance must be issued;
- gas heaters must be installed by a registered gasfitter;
- a Gas Fitting Certificate of Compliance must be issued where required;

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<sup>6</sup> Ambient temperatures may be obtained from either the Good practice guide: Heat pump installation or the Heater Sizing Calculator - [see section 5: References](#).

<sup>7</sup> The Service provider must consult with the Owner/Occupier if the House has more than one living room, to define which area is used as the primary living area. If in doubt about a particular situation, and for rooms other than primary living areas where special circumstances must apply, Service providers must consult with EECA prior to providing a quote.

<sup>8</sup> Defined in the Electrical Act 1992 - [see section 5 References](#).

- wood burners and pellet fires must be installed by a solid fuel appliance installation technician of the New Zealand Home Heating Association Inc (NZHHA).
- for wood and pellet fires and gas heaters, service providers are also responsible under the programme, for ensuring that, where required, the following are issued by the local council/Building Consent Authority (BCA):<sup>9</sup>
  - a building consent prior to installation, and
  - on completion of the installation, either the final inspection or the Code Compliance Certificate (CCC).

Lack of access to install ceiling and underfloor insulation and pipe lagging in the ceiling space does not preclude an owner from eligibility for funding for a heating device.

#### 3.2.5.3.1 For all heat pump installations

##### **Outdoor unit**

When installing a heat pump, the outdoor unit should be installed as per section 7.3 of the Good practice guide: Heat pump installation. The outdoor unit must be secured down so that it cannot fall over. The various methods for fixing down the unit are outlined in section 7.3 of the Good practice guide: Heat pump installation and, as a minimum, take precedence over the manufacturers' instructions.

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<sup>9</sup> Note, ultimately, the Owner of the property is responsible for ensuring compliance with the Building Act 2004 - [see section 5: References](#).

### 3.2.5.4 Flow Chart 7: Overview of Heating Requirements

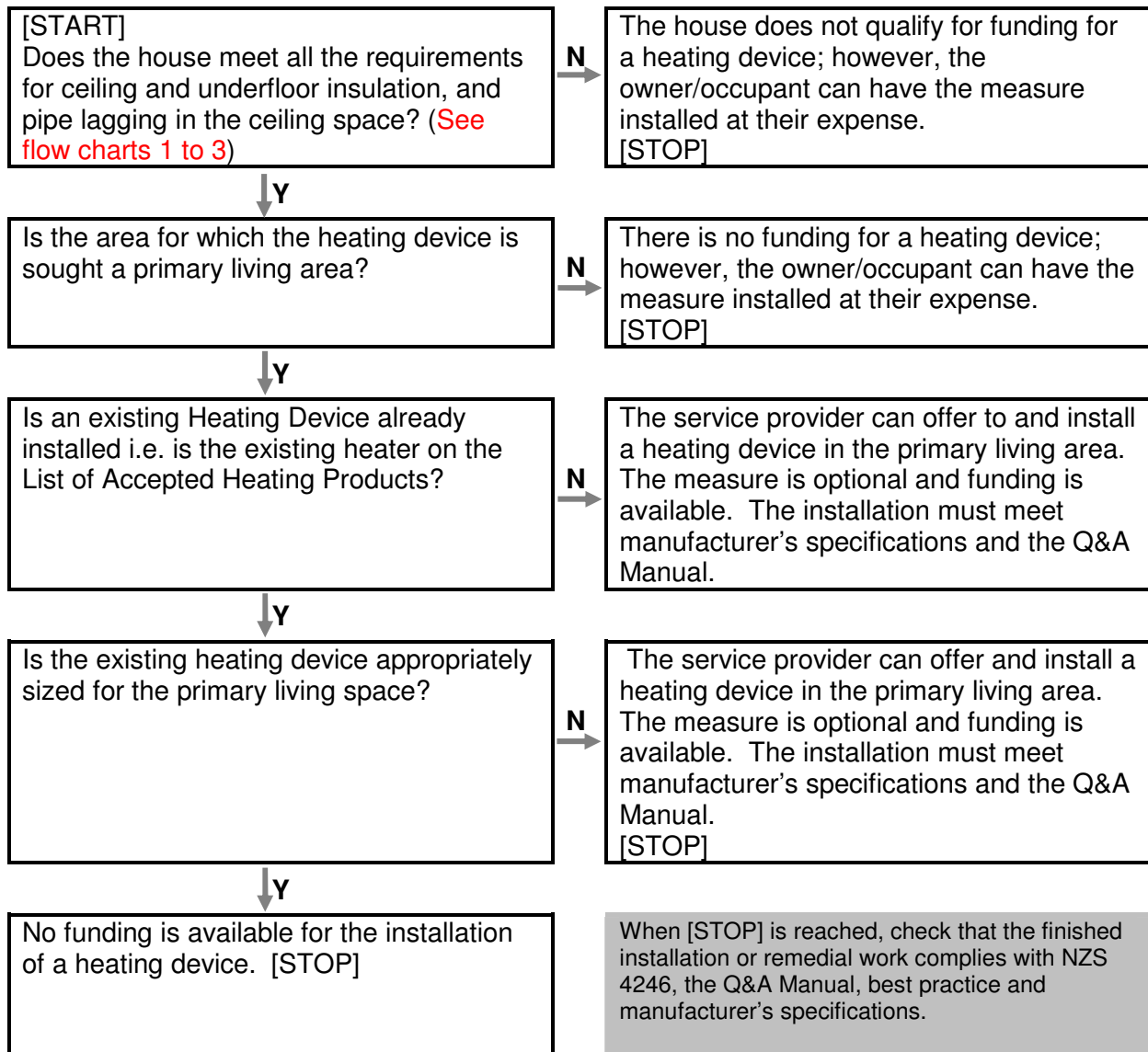


Figure 14 Flow Chart 7 Overview of Heating Requirements

## 4 PERFORMANCE AND MANAGEMENT SYSTEMS

The quality of installations under the programme is paramount to its success and credibility. Performance and management systems are an integral component of evaluating, validating, improving and verifying quality within the programme.

### 4.1.1 Quality Assurance Systems

Service providers need to have internal quality and audit systems in place to monitor their performance and ensure that their staff and subcontractors consistently deliver installations that meet programme requirements.

The service provider should develop and maintain well-defined policies, for example, on how they will:

- communicate with owner/occupants
- communicate with auditors
- communicate and implement programme changes
- provide training and advice
- monitor performance
- resolve complaints
- address corrective action
- develop, maintain and implement health and safety plans
- retain records.

### 4.1.2 Forms

Completed programme forms must be legible.

Service providers must record assessments and post-installation audits on forms that meet programme requirements. Service providers are encouraged to use the programme forms referenced in [Appendix C: Forms and Guidelines](#), but are permitted to develop their own forms if all the information on the programme forms is included for the products they offer.

Service providers and their subcontractors must retain records in accordance with the funding agreement and, on request, provide copies to EECA and auditors.

### 4.1.3 Assessment

Service providers must use their best endeavours to carry out assessments within 20 working days of a request for a quote.

In carrying out assessments, service providers must collect and record at a minimum all the information required to complete the assessment form. This includes carrying out a detailed check of the property to determine whether the programme measures can be installed - [see Appendix C: Forms and Guidelines](#).

Service providers can offer to undertake any work requested by the owner during the assessment, irrespective of whether or not the owner accepts a quote for work under the programme. However, any such work will be at the owner's expense - unless the service provider goes on to complete the installation and the work undertaken is a programme requirement.

## 4.1.4 Quoting

Details of the funding that is available under the programme are set out in [section 2](#) of this manual.

All quotes must clearly identify for the owner the:

- Area (m<sup>2</sup>) to be insulated in ceiling and or underfloor including any on-ground vapour barrier.
- quantity and actual price per measure\*
- which measures are mandatory and which are optional under the programme
- amount that will be payable by the owner
- amount that is programme funding
- amount of GST included in the quote amount
- non-programme related work, if any (including higher specification products).

\*Measure – include the manufacturer's product name and R-value of insulation/capacity of heating device.

Quotes must not include overhead costs such as travel and administration.

When providing a quote, service providers should point out, and may wish to state on their quotes, that the measures provided under the programme can have unintended or unexpected consequences such as:

- the shrinking of floorboards following the installation of insulation and a heating device as a result of a warmer and drier indoor climate
- the freezing and bursting of hot or cold water pipes in ceiling spaces following the installation of ceiling insulation
- the formation of condensation and moisture, for example on the underside of the roofing or ceiling material, or within walls, particularly in colder climates, (for example, where roofs are not lined with building paper or a membrane, condensation can drip onto the insulation material and potentially damage the ceiling lining).

## 4.1.5 Post Installation Audits

A service provider must carry out a quality assurance audit using the post installation audit form and complete this activity within five working days of installation of measures in the house.

The service provider must sign and date the post installation audit form as a declaration that the installation meets all the requirements of their funding agreement and this Q&A Manual.

A service provider must correct any serious installation matter found in the course of conducting a post installation audit immediately; and must correct any other installation matter prior to making a claim.

## 4.1.6 Corrective Action

If notified of an installation matter found during an audit, the service provider must undertake appropriate corrective action:

- in the case of a serious installation matter, within 48 hours of being notified.
  - However in the case where the serious installation matter was made safe, the service provider has 20 working days;
  - and in the case where the serious installation matter was made good the service provider is not required to return to the property to make good the serious installation matter.
- in the case of an other installation matter, within 20 working days of being notified.

If an installation matter is not corrected by the service provider within the required timeframe EECA may:

- have the installation matter corrected by a third party at the expense of the service provider
- impose sanctions on the service provider

Service providers must explain to an owner/occupant the reasons for corrective action and any re-auditing, and that an auditor may contact the owner/occupant to make an appointment for a re-audit.

Service providers are required to respond in writing to installation matters' this obligation is completed through the database. EECA may also request a formal written response.

Service providers must investigate their own systems and processes to establish the cause of the installation matter that has arisen, and report through the database a summary of the steps taken to prevent similar matters occurring in the future.

## 4.1.7 Invoicing

All invoices to an owner or occupant must, as a minimum, state the:

- Quantity and actual price per measure
- product details – including the manufacturer's product name and R-value and the measure
- amount that is programme funding
- amount of GST and GST number
- total amount owing
- reason for any agreed variation from the quote (this must be stated but could be separate to the invoice. Office records should also reflect this difference)
- any non-program related work (not charged to EECA).

Invoices must NOT state:

- overhead costs such as travel and administration for work completed under the programme.

## 4.2 Auditing

In addition to a service provider's own monitoring and quality assurance systems, EECA operates an audit process to provide assurance that installations under the programme comply with requirements.

EECA engages auditors to conduct audits of service providers' installations.

When an installation matter is found EECA may, at its discretion, schedule additional audits of service providers' installations.

Selection may be based on factors which contributed to the matter, for example, the individual who completed the post-installation audit, or the region of operation.

### 4.2.1 Types of installation audits

- Regular audits: An audit includes evaluation and inspection of all mandatory measures, and optional measures if installed, under the programme and may include reviewing service providers' documentation. There is no charge to service providers for this audit.
- Re-audits: EECA may engage an auditor to carry out a re-audit to verify that any installation matter found during an audit has been corrected. The service provider pays for all costs associated with re-audits.
- Special Audits: The nature and scope of special audits are at EECA's discretion and may not be based on the typical audit process.

### 4.2.2 Attendance of service providers at Audits

Auditors must invite, and EECA encourages, service providers to be present for all audits, though attendance is not an absolute requirement. The auditor may request copies of documents from the service provider relating to the property to be audited.

When a service provider attends an audit, they and the auditor should establish in advance which of them will explain audit findings to the owner/occupant.

If a serious installation matter is found the auditor will notify EECA and the service provider as soon as practicable. Once the service provider is notified by either EECA or the auditor, then they have 48 hours to complete the corrective action for a serious installation matter that was unable to be made safe or made good at an audit.

## 5 REFERENCES

**AS/NZS 3000:2007** Electrical installations (known as the Australian/New Zealand Wiring Rules) [http://www.standards.co.nz/web-shop/?action=viewSearchProduct&mod=catalog&pid=3000:2000SOFTBOUND\(AS|NZS\)&searchOrderingIndex=3&searchSessionId=EB0CB13F0E25DE62BB62C644D2DEB6C4](http://www.standards.co.nz/web-shop/?action=viewSearchProduct&mod=catalog&pid=3000:2000SOFTBOUND(AS|NZS)&searchOrderingIndex=3&searchSessionId=EB0CB13F0E25DE62BB62C644D2DEB6C4)

**Australian Gas Association Directory of AGA Certified Products flued gas heater**  
[www.aga.asn.au/product\\_directory](http://www.aga.asn.au/product_directory)

### **Building Act 2004**

[http://www.legislation.govt.nz/act/public/2004/0072/latest/DLM306036.html?search=ts\\_act\\_building+act\\_resel&p=1&sr=1](http://www.legislation.govt.nz/act/public/2004/0072/latest/DLM306036.html?search=ts_act_building+act_resel&p=1&sr=1)

**BRANZ Appraisals** (Independent assessments of building products, materials, systems or methods of design or construction) [http://www.branz.co.nz/cms\\_display.php?sn=32&st=1](http://www.branz.co.nz/cms_display.php?sn=32&st=1)

### **Consumer Guarantees Act 1993**

[http://www.legislation.govt.nz/act/public/1993/0091/latest/DLM311053.html?search=ts\\_act\\_consumer+guarantees+act\\_resel&p=1&sr=1](http://www.legislation.govt.nz/act/public/1993/0091/latest/DLM311053.html?search=ts_act_consumer+guarantees+act_resel&p=1&sr=1)

**Community Services Card** <http://www.workandincome.govt.nz/individuals/a-z/benefits/community-services-card.html>

### **Electrical Act 1992**

[http://www.legislation.govt.nz/act/public/1992/0122/latest/DLM281858.html?search=qs\\_act\\_electrical\\_resel&p=1&sr=1](http://www.legislation.govt.nz/act/public/1992/0122/latest/DLM281858.html?search=qs_act_electrical_resel&p=1&sr=1)

### **Electrical (Safety) Regulations 2010**

<http://www.legislation.govt.nz/regulation/public/2010/0036/latest/DLM2763506.html>

**Energy Efficiency & Conservation Authority** [www.eeca.govt.nz](http://www.eeca.govt.nz)

**Energy Efficiency & Conservation Authority ENERGY STAR® Heat pumps**  
[www.eeca.govt.nz/products/listing/100](http://www.eeca.govt.nz/products/listing/100)

**ENERGY STAR®** <http://www.eeca.govt.nz/standards-and-ratings/energy-star>

**ENERGYWISE™** <http://www.energywise.govt.nz/>

### **Fair Trading Act 1986**

[http://www.legislation.govt.nz/act/public/1986/0121/latest/DLM96439.html?search=ts\\_act\\_fair+trading+act\\_resel&p=1&sr=1](http://www.legislation.govt.nz/act/public/1986/0121/latest/DLM96439.html?search=ts_act_fair+trading+act_resel&p=1&sr=1)

**Good practice guide: Heat pump installation** <http://www.eeca.govt.nz/node/6068>

**Heater Sizing Calculator** <http://www.energywise.govt.nz/how-to-be-energy-efficient/your-House/heater-sizing-calculator>

**List of Accepted Heating Products** <http://www.eeca.govt.nz/node/8838>

**List of Accepted Insulation Products** <http://www.eeca.govt.nz/node/4910>

**List of Programme Service Providers** <http://www.eeca.govt.nz/directory/listing/210>

### **New Zealand Building Code Compliance Documents and Handbooks**

<http://www.dbh.govt.nz/building-code-compliance-documents>

### **NZS4218:2004 Energy efficiency - Small building envelope**

<http://www.standards.co.nz/web->

[shop/?action=basicShopSearch&mod=search&SearchBox1\\_txtShopName=4218&selStatus=CURRENTANDDRAFT&catalog=NZ](http://www.eeca.govt.nz/shop/?action=basicShopSearch&mod=search&SearchBox1_txtShopName=4218&selStatus=CURRENTANDDRAFT&catalog=NZ)

**NZS 4246:2006** Energy Efficiency - Installing Insulation in Residential Buildings (+AMD 1)  
<http://www.eeca.govt.nz/node/1510>

**Ministry for the Environment Airshed Regions**  
<http://www.mfe.govt.nz/laws/standards/airsheds/>

**Insulation Product Policy** <http://www.eeca.govt.nz/node/10974>

**Residential Tenancies Act 1986** – Part one, section five  
[http://legislation.govt.nz/act/public/1986/0120/latest/DLM95000.html?search=ts\\_act\\_residential\\_rese&p=1](http://legislation.govt.nz/act/public/1986/0120/latest/DLM95000.html?search=ts_act_residential_rese&p=1)

**Retirement villages Act 2003**  
[http://www.legislation.govt.nz/act/public/2003/0112/latest/DLM220365.html?search=ts\\_act\\_Retirement+Villages+Act\\_rese&sr=1](http://www.legislation.govt.nz/act/public/2003/0112/latest/DLM220365.html?search=ts_act_Retirement+Villages+Act_rese&sr=1)

**Supergold Card** - CSC endorsed <http://www.supergold.govt.nz/> and Supergold Card Directory <http://www.supergold.govt.nz/features/supergold-card-directory-2010.pdf>

## 6 APPENDICES

### 6.1 Appendix A: Climate Zones of NZ

Since the publishing of NZS 4218:2009 a few territorial authority<sup>10</sup> boundaries, drawn on **figure 17**, have changed. The climate zones,<sup>11</sup> however, remain unchanged.

#### CB1

The climate zone boundaries are based on climatic data taking into consideration territorial authority boundaries, providing for three zones (see figure B1).

- B1** Zone 1 comprises the Thames-Coromandel District, the Franklin District, and all districts north of these, and all offshore islands north of 37°15' south.
- B2** Zone 2 comprises all of the North Island excluding Zone 1, the Taupo District, the Ruapehu District, and that part of the Rangitikei District north of 39°50' south.
- B3** Zone 3 comprises the Taupo District, the Ruapehu District, that part of the Rangitikei District north of 39°50' south, the South Island, Stewart Island, the Chatham Islands, and all offshore islands not in Zone 1.

#### CB3

The latitude of 39°50' south lies just to the south of Mangaweka. Mangaweka is in Zone 3, while Ohingaiti is in Zone 2.

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Figure 15 Climate zones - Description

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<sup>10</sup> The Service provider's funding agreement defines local authorities as including both territorial and regional authorities. All district or city councils are territorial authorities.

<sup>11</sup> The climate zones may also be obtained from the New Zealand Building Code H1/VM1&AS1 Definitions, see <http://www.dbh.govt.nz/UserFiles/File/Publications/Building/Compliance-documents/clause-H1.pdf>





## Privacy Statement


**Collection of Personal Information:** All personal information on this form is collected and held by the **[name of Service Provider]** in its capacity as a Service Provider contracted to the Energy Efficiency and Conservation Authority (EECA) under the government's Warm Up New Zealand: Heat Smart programme.

If requested **[name of Service Provider]** may provide some or all of the information on this form to EECA.

Under the Privacy Act 1993, all individuals have the right of access to, and correction of, their personal information held by **[name of Service Provider]** and EECA.

EECA may use the personal information on this form for administrative, promotional and compliance purposes related to the Warm Up New Zealand: Heat Smart programme, including sharing it with local authorities for the purposes of targeted rate schemes, and auditors for quality inspection and compliance purposes.

### 6.2.2 Health Provider Declaration Form for Non-Tenant CSC holders

Health Provider/Owner Declaration Form	
<p>Under the Warm Up New Zealand: Heat Smart Programme, landlords with tenants that hold a Community Services Card (CSC) can get higher levels of funding for insulation. In special cases, occupants of a residential health care facility may not hold a Residential Tenancy Agreement, but may hold, or be eligible for, a CSC. In such cases the service provider is required to ask the owner (organisation who owns the residential facility) to sign the following declaration.</p>	
<p>Name of person filling in form _____ for,</p>	
<p>Name of organisation who owns the property _____</p>	
<p>Date &amp; place of birth, or ID number (e.g. drivers licence) _____</p>	
<p>I own/represent the owners of the property _____</p>	
<p>_____ (address of property for which Funding is sought)</p>	
<p>I declare that:</p> <ul style="list-style-type: none"> <li>• The property is owned by a not-for-profit organisation/charitable trust</li> <li>• The property is a residential facility housing people with: <ul style="list-style-type: none"> <li>– long term health needs, and/or</li> <li>– a physical and/or intellectual disability.</li> </ul> </li> <li>• The occupants of the house do not hold a Residential Tenancy Agreement.</li> <li>• The occupants of the House are holders of, or are eligible for, a Community Services Card.</li> </ul>	
<p>Signature _____ Date _____</p>	

## **6.3 Appendix C: Forms & Guidelines**

The forms in section 7 and 8 along with service provider guidelines and auditor guidelines are part of this manual. They form the quality assurance framework of the programme and are intended for Service providers, auditors and EECA. All forms must be completed in full and in a proper and efficient manner.

### **6.3.1 For service providers' use**

#### **6.3.1.1 Assessment form**

For assessment form, see section 7 of this document

#### **6.3.1.2 Post installation audit form**

For post installation audit form, see section 8 of this document

### **6.3.2 For auditors' use**

#### **6.3.2.1 Audit inspection form**

For audit inspection form, see document 'guidelines for auditors'

## 7 ASSESSMENT FORM

House owner and/or occupant details	
House owner name	
Tenure – CSC Holder	<input type="checkbox"/> Tenant <input type="checkbox"/> Owner/occupant <input type="checkbox"/> N/A
House occupant/tenant name	<input type="checkbox"/> N/A
CSC Declaration signed and returned	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
House address	
Postcode	
Phone	Occupant Phone
Eligible house	<input type="checkbox"/> Yes <input type="checkbox"/> No
How many storeys in the House?	<input type="checkbox"/> 1 <input type="checkbox"/> 1.5 <input type="checkbox"/> 2 <input type="checkbox"/> 2.5 <input type="checkbox"/> 3
Climate Zone	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3
Is the house in an area that regularly experiences freezing?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Ceiling insulation (mandatory)	
Is ceiling space accessible?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Type of roof structure	<input type="checkbox"/> Truss <input type="checkbox"/> Rafter
Determine what ceiling insulation solution is required?	<input type="checkbox"/> Total fill solution <input type="checkbox"/> Top up solution <input type="checkbox"/> Remedial work
Does the existing insulation require any work associated with the installation of the new product? If 'Yes', please record details in recommendations and comments section	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Ceiling area to be insulated _____ m <sup>2</sup>	Total fill solution _____ m <sup>2</sup>
	Top up Solution _____ m <sup>2</sup>
If surface mounted light(s) are present, specify type Incandescent lamp(s) <input type="checkbox"/> Yes <input type="checkbox"/> N/A Halogen lamp(s) <input type="checkbox"/> Yes <input type="checkbox"/> N/A Other lamp type <input type="checkbox"/> Yes <input type="checkbox"/> N/A	Determine quantity with and without required clearance # _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No # _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No # _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
If recessed light(s) are present, specify type	Determine quantity with and without required clearance
Incandescent lamp(s) <input type="checkbox"/> Yes <input type="checkbox"/> N/A	# _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Halogen lamp(s) <input type="checkbox"/> Yes <input type="checkbox"/> N/A	# _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Fan/light/heat unit(s) <input type="checkbox"/> Yes <input type="checkbox"/> N/A	# _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Other lamp type <input type="checkbox"/> Yes <input type="checkbox"/> N/A	# _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Auxiliary device <input type="checkbox"/> Yes <input type="checkbox"/> N/A	# _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Are chimney(s)/flue(s) present?	# _____ <input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', is the chimney decommissioned.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are unducted extractor fans present? <input type="checkbox"/> Yes <input type="checkbox"/> N/A	Quantity and Required Clearance # _____ <input type="checkbox"/> Yes # _____ <input type="checkbox"/> No
Are recessed spaces present in the ceiling space?	<input type="checkbox"/> Yes <input type="checkbox"/> No

<b>Underfloor insulation (mandatory)</b>	
Is the subfloor space accessible?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
Is there any underfloor existing insulation? If 'Yes', what is the type of insulation fitted?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the existing insulation require any remedial work? If 'Yes', please provide details.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Underfloor area to be insulated	_____ m <sup>2</sup>
Are any light(s) present? Required clearance from all outer edges of surface mounted lights?	<input type="checkbox"/> Yes <input type="checkbox"/> No _____ Quantity
Required clearance from all outer edges of recessed lights?	<input type="checkbox"/> Yes <input type="checkbox"/> N/A <input type="checkbox"/> No # _____

<b>On-ground vapour barrier</b>	
Are there any signs of leaking water or sewerage pipes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there any signs of storm water draining into the subfloor space or is house in a flood prone area?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is there an existing on-ground vapour barrier?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', is it installed to NZS 4246	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'No', can it be remedied or should it be replaced?	<input type="checkbox"/> Remedy <input type="checkbox"/> Replace
Does the Q&A manual recommend installation of an on-ground vapour barrier?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', did you offer the owner/occupant the opportunity to have an on-ground vapour barrier installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'No', did the owner elect to have an on-ground vapour barrier installed at their expense?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> UTD
Ground area to be covered, if applicable.	_____ m <sup>2</sup>

<b>Draught proofing</b>	
Number of external doors with gaps of 2mm or more that require draught proofing (max. two doors)	<input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two
Draught proofing required:	
Brush excluders	<input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two
Weather excluders	<input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two
Weather strip quantity (max. 12m)	_____ m

<b>Pipe lagging (mandatory to exposed ceiling space water pipes in zone 3)</b>	
Hot water pipe lagging already installed on the first metre of the hot water supply pipe off the cylinder?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'No', length of pipe that can be insulated	_____ m
Are/will pipes be exposed in the ceiling space of a climate zone 3 House, or a zone 1 or 2 House where regular freezing occurs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', length required	_____ m

<b>Hot water cylinder wrap (electric resistive hot water cylinders only)</b>	
Is a cylinder wrap installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', is it installed to NZS 4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No

If 'No', can it be remedied or should it be replaced?	<input type="checkbox"/> Remedy <input type="checkbox"/> Replace
Cylinder meets the requirement for EECA assistance (i.e. not A-grade or MEPS compliant)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Volume of the cylinder in litres	_____ litres <input type="checkbox"/> Unknown
Adequate clearance to install the cylinder wrap?	<input type="checkbox"/> Yes <input type="checkbox"/> No

<b>Lower/higher specification products</b>	
Owner has requested lower specification product(s)	<input type="checkbox"/> Yes <input type="checkbox"/> N/A
Provide product details and quantity required	_____ m
Higher specification product(s) needed	<input type="checkbox"/> Yes <input type="checkbox"/> N/A
Provide product details and quantity required	_____ m

<b>Owner/occupant</b>	
Owner/occupant to remove stored objects – provide details	<input type="checkbox"/> Yes <input type="checkbox"/> N/A
Owner/occupant to fix plumbing/roof leaks – provide details	<input type="checkbox"/> Yes <input type="checkbox"/> N/A

<b>Heating Device</b>	
Mandatory measures necessary to be complete prior to accessing funding for a heating device:	
Ceiling insulation	<input type="checkbox"/> Complete <input type="checkbox"/> Install/Remedy <input type="checkbox"/> N/A
Underfloor insulation	<input type="checkbox"/> Complete <input type="checkbox"/> Install/Remedy <input type="checkbox"/> N/A
Pipe lagging in ceiling space pipes in climate zone 3	<input type="checkbox"/> Complete <input type="checkbox"/> Install/Remedy <input type="checkbox"/> N/A
Is there an existing heater in the primary living space?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'Yes', is it an eligible heater – including being suitably sized for the primary living space?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
If 'No' provide details?	

<b>Recommendations and Comments</b>	
<b>Ceiling insulation</b>	
Install total fill Solution	<input type="checkbox"/> Yes
Install top up Solution	<input type="checkbox"/> Yes
Product and R-value	_____
Roof or plumbing leaks that need to be fixed before insulation can be installed	<input type="checkbox"/> Yes
Remedy	<input type="checkbox"/> Yes
<b>Underfloor insulation</b>	
Install	<input type="checkbox"/> Yes
Product and R-value	_____
Plumbing leaks or storm water issues needs to be	<input type="checkbox"/> Yes

resolved prior to insulation being installed? Remedy	<input type="checkbox"/> Yes
<b>Pipe lagging</b> Install Remedy	<input type="checkbox"/> In Ceiling <input type="checkbox"/> On exit of cylinder  <input type="checkbox"/> Yes
<b>On-ground vapour barrier</b> Install Plumbing leaks, storm water or flood prone issues needs to be resolved prior to insulation being installed? Remedy	<input type="checkbox"/> Yes  <input type="checkbox"/> Yes  <input type="checkbox"/> Yes
<b>Draught proofing</b> Install Remedy	<input type="checkbox"/> Yes  <input type="checkbox"/> Yes
<b>Hot water cylinder wrap</b> Install Product and R-value Remedy	<input type="checkbox"/> Yes  _____ <input type="checkbox"/> Yes
<b>Heating</b>  Install  Make and model of heating device The heating installation requires building consent The heating installation requires prescribed electrical work	<input type="checkbox"/> Heat pump <input type="checkbox"/> Gas heater <input type="checkbox"/> Wood fire <input type="checkbox"/> Pellet fire  _____ <input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Provide details of site specific safety issues that are required to be provided to the owner/occupant</b> e.g. insufficient clearances to lights	
<b>Additional Comments</b>	

<b>Declaration of person and company conducting this assessment</b>
I declare and undertake that the information in this assessment form is accurate and complete to the best of my knowledge.

Signature	
Name (please print)	
Company Name	Date

### Privacy Statement

**Collection of Personal Information:** All personal information on this form and the post installation audit form is collected and held by the **[name of Service Provider]** in its capacity as a Service Provider contracted to the Energy Efficiency and Conservation Authority (EECA) under the government's Warm Up New Zealand: Heat Smart programme.

If requested **[name of Service Provider]** may provide some or all of the information on this form to EECA.

Under the Privacy Act 1993, all individuals have the right of access to, and correction of, their personal information held by **[name of Service Provider]** and EECA.

EECA may use the personal information on this form for administrative, promotional and compliance purposes related to the Warm Up New Zealand: Heat Smart programme, including sharing it with local authorities for the purposes of targeted rate schemes, and auditors for quality inspection and compliance purposes.

## 8 POST INSTALLATION AUDIT FORM

Service provider and audit details	
Name of service provider (company)	
Date of installation	Date of Audit
Have you reviewed the assessment form for this property?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Have you reviewed, or participated in, a health and safety site assessment prior to completing this post installation audit?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Owner/occupant details
Name
Address
Phone

Lower/higher specification products	
Owner has requested lower specification product(s)	<input type="checkbox"/> Yes <input type="checkbox"/> N/A
Quantity? _____m <sup>2</sup>	
Higher specification product(s) needed (e.g. limited space)	<input type="checkbox"/> Yes <input type="checkbox"/> N/A
Quantity? _____m <sup>2</sup>	

Ceiling insulation	
Was ceiling insulation installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Are any light(s) present?	<input type="checkbox"/> Yes _____ Quantity <input type="checkbox"/> No
Product installed (manufacturer, type, R-value)?	
	<b>Pass      Fail</b>
And is product installed the right product for the situation according to the programme requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer's label present and permanently fixed on site where it can be easily found?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was there any existing insulation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Separate piece of insulation over access hatch?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Required clearance from all outer edges of surface mounted lights?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Required clearance from all outer edges of recessed lights?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Any light(s) and/or auxiliary device(s) covered by any insulation?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Insulation (new and existing) 50 mm from all outer faces of concrete or brick chimney(s) or metal flue(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Required clearance to unducted extractor fans?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Recessed space(s) insulated down walls and across ceiling space(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Good friction fits – both sides and end fits?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If blanket was installed is it installed so no air movement occurs between insulation and ceiling?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Tightly-fitted between ceiling joists, ceiling runners/strong backs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Any insulation touching roofing materials (25mm clearance between roofing and insulation material maintained)?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Top plate covered if possible (while maintaining 25mm clearance to roofing material)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Insulation installed under header tank?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Installation debris removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does ceiling installation meet the intent of NZS 4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Quantity quoted? _____ m <sup>2</sup>	Quantity installed? _____ m <sup>2</sup>
Ceiling comments (e.g. if not installed, explain why not)	

<b>Underfloor insulation</b>	
Any existing insulation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Provide details of type of existing insulation installed	
Are any light(s) present?	<input type="checkbox"/> Yes _____ Quantity <input type="checkbox"/> No
Was underfloor insulation installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Product installed (manufacturer, type, R-value)?	
	<b>Pass      Fail</b>
And is product installed an Eligible product?	<input type="checkbox"/> Yes <input type="checkbox"/> No
All accessible areas done?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer's label present and permanently fixed on site where it can be easily found?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Required clearance from all outer edges of surface mounted lights?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Required clearance from all outer edges of recessed lights?	<input type="checkbox"/> Yes <input type="checkbox"/> No # _____ <input type="checkbox"/> N/A
Product installed to bottom plate of exterior walls?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Good friction fits?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Any significant gaps?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Are clearances of approximately 100mm maintained around plumbing pipe work and fittings?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Any sagging?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Any folds too big with insulation hanging below floor joist level?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Has strapping been installed properly (if required)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Has stapling been installed properly (if required)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Insulation installed according to programme requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does underfloor installation meet the intent of NZS 4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Installation debris removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Quantity quoted? _____ m <sup>2</sup>	Quantity installed? _____ m <sup>2</sup>
Underfloor comments (e.g. if not installed, explain why not)	

<b>On-ground vapour barrier</b>	<b>Pass      Fail</b>
Was on-ground vapour barrier installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Does the Q&A manual recommend installation of on-ground vapour barrier?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Installation debris removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Installed in accordance with NZS 4246 requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Quantity quoted? _____ m <sup>2</sup>	Quantity installed? _____ m <sup>2</sup>
On-ground vapour barrier comments	

<b>Draught proofing</b>	
Was draught proofing installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How many doors? (max. 2 doors)	<input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two
	<b>Pass      Fail</b>
Brush excluders installed properly on inside of door(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Weather excluders installed properly on outside of door(s)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Weather strip installed properly around door(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
How many metres? (typically 5-6m/door)	_____ m
Draught proofing comments	

<b>Pipe lagging</b>	<b>Pass</b>	<b>Fail</b>
Was pipe lagging installed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Installed to first metre prior to cylinder wrap?	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
Fixed/taped properly?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Lagged in accordance with climate zone requirements – where practicable.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Length quoted? _____ m	Length installed? _____ m	
Pipe lagging comments (e.g. if not installed, explain why not)		

<b>Hot water cylinder wrap</b> (electric resistive hot water cylinders only)	
Cylinder wrap installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Product installed (manufacturer, type, R-value)?	
	<b>Pass      Fail</b>
Label in close proximity to the cylinder?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Wrap fully sealed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fitted properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pipe fully enclosed at hot water cylinder?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Quantity quoted? # _____	Quantity installed? # _____
Hot water cylinder wrap comments	

<b>Heating</b>	
	<input type="checkbox"/> Wood fire <input type="checkbox"/> Pellet fire
What type of heating device was installed?	<input type="checkbox"/> Heat pump <input type="checkbox"/> Gas heater
Identify make and model of heating device installed	

	<b>Pass      Fail</b>
Does insulation meet the programme requirements prior to the installation of a heating device?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If 'No', please provide details	

<b>Heating compliance</b>	
	<b>Pass      Fail</b>
Was the wood or pellet fire installation carried out by an NZHHA Solid Fuel Appliance Installation Technician?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Has a building consent been obtained for the work?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Code Compliance Certificate (CCC) issued?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A # _____
Gas heater installation carried out by a registered gasfitter?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Gas fitting Certificate of Compliance issued and left on site or with the owner/occupant?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A # _____
Heating device installation requires prescribed electrical work?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has the electrical Certificate of Compliance been issued (mandatory for heat pumps) and left on site for the owner/occupant?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A # _____

<b>Heat pumps</b>	
	<b>Pass      Fail</b>
Installation carried out in accordance with manufacturer's specifications and/or EECA Good Practice Guide – heat pump installation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Outdoor unit secure with no likelihood of falling?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Any excessive vibration?	<input type="checkbox"/> No <input type="checkbox"/> Yes
Area around unit clear with no likelihood the air supply routes will become blocked and other appropriate clearance distances maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Unit installed to provide future servicing access?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Interior and exterior installation neat and tidy?	<input type="checkbox"/> Yes <input type="checkbox"/> No
All service covers present and installed properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Indoor unit secure and does not vibrate?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Instructions to the owner/occupant</b>	
The operation of the system was explained to the owner/occupant?	<input type="checkbox"/> Yes <input type="checkbox"/> No
The owner/occupant has the operating manual?	<input type="checkbox"/> Yes <input type="checkbox"/> No
The owner/occupant was advised of maintenance and servicing requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
The owner/occupant was given copy of the warranty?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Heating comments	

Overall comments

Declaration of person conducting post installation audit
I declare and undertake that the information in this post installation audit form is accurate and complete to the best of my knowledge.
Signature
Name (please print)
Company name <span style="float: right;">Date</span>