

Warm Up New Zealand: Heat Smart

Quality and Audit Manual

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II. INTRODUCTION

1. Purpose

The Quality and Audit Manual is aimed at service providers¹ contracted by EECA to deliver specified energy efficiency and clean heating measures in qualifying residential homes² under the Government's *Warm Up New Zealand: Heat Smart* programme ("the programme").

The purpose of the manual is to ensure that all measures installed under the programme meet high standards of quality and achieve the outcomes and deliver the benefits the Government and homeowners expect of the programme by setting out in an open and transparent way:

- i. the requirements for the products to be installed under the programme;
- ii. the requirements for the installation of those products;
- iii. other relevant requirements under the programme;
- iv. how the requirements are to be interpreted and applied generally and in specific situations;
- v. how EECA will conduct audits of service providers and their installations under the programme;
- vi. how EECA will quantify the performance of service providers; and
- vii. the sanctions EECA will apply in the case of a service provider's failure to comply with the requirements set out in this manual.

Compliance with the Quality and Audit Manual is a requirement under the *Warm up New Zealand: Heat Smart Funding Agreement*³ between service providers and EECA for the delivery of measures under the programme.

The manual will also be used by EECA's auditors in the course of conducting audits of service providers' installations. The manual will therefore ensure consistency by clearly setting out what is expected of service providers and EECA's auditors assessing service providers' performance against the manual.

KEY MESSAGE: Service providers are contractually bound to adhere to the requirements set out in this manual.

2. Structure

The Quality and Audit Manual consists of the manual itself as well as a number of documents relating to products accepted for use under the programme that are incorporated by reference in the manual. All documents incorporated by reference are referenced by way of links to those documents on Internet websites.

In this manual:

¹ any reference to "service provider" includes the organisation that entered into a *Warm Up New Zealand: Heat Smart Funding Agreement* with EECA, as well as any subcontractors or third parties engaged by that organisation in the delivery of measures under the programme;

² the meaning of the term "home" corresponds to the meaning of the term "house" as defined in the *Warm Up New Zealand: Heat Smart Funding Agreement*; and

³ the terms "contract", "agreement", "contractually", "contracted", etc. all refer to the *Warm Up New Zealand: Heat Smart Funding Agreement*.

Following this introduction and a general outline of the programme, the manual sets out the requirements for the products accepted by EECA for use under the programme, the requirements for the installation of those products and EECA's audit process. Appended to the manual are the forms EECA expects service providers to use at specified stages of the programme.

3. Amendments

The Quality and Audit Manual, as well as the documents incorporated by reference in the manual (e.g. EECA's List of Accepted Products) will be amended from time to time.

Amendments to the manual itself become binding for service providers one week following notification of an amendment by EECA. Notification will be by e-mail with a link to the amended manual on EECA's website.

Amendments to documents incorporated by reference in the manual as they relate to the products accepted by EECA for use under the programme will not be notified to service providers because service providers' agreements with EECA set out the specific products service providers are permitted to offer under the programme.

As a result, any changes to the documents relating to the products accepted by EECA for use under the programme do not have an immediate impact on service providers because they do not affect service providers' contractually agreed product portfolios. Service providers are encouraged to monitor the documents incorporated by reference, e.g. if they wish to keep up to date about new products acceptable for use under the programme; but they should note that any changes to the products specified in their agreements with EECA require formal contract variations. In practice, this means that:

- i. if a service provider wishes to use a product under the programme that has recently been added to a relevant document incorporated by reference in this manual, the service provider must first contact EECA to request a corresponding variation of contract (the new product must not be offered under the programme until a formal contract variation is in place); and
- ii. if a product is removed from a relevant document incorporated by reference, service providers are permitted to continue to use that product – provided that the product is covered under their existing agreement with EECA – until EECA requests a variation of contract removing the product (in removing a product from an existing agreement, EECA will consider and balance issues such as product performance and safety, and service providers' stock and commitments to suppliers).

Service providers can, at any time, contact EECA with proposals for amendments to the manual.

KEY MESSAGES: The Quality and Audit Manual will be amended from time to time. Service providers will be notified of amendments by e-mail with the amendments taking effect one week after notification.

Amendments to documents incorporated by reference relating to the products accepted for use under the programme will not be notified because service providers' product portfolios are specified in their agreements with EECA. Service providers should regularly check the documents incorporated by reference but note that any changes to the products they offer under the programme require formal contract variations.

III. THE PROGRAMME

The *Warm Up New Zealand: Heat Smart* programme is primarily a residential insulation retrofit programme. The emphasis of the programme is therefore on the installation of ceiling and underfloor insulation, rather than the installation of heating devices.

1. Eligible homes

Only homes built prior to 1 January 2000 qualify for funding for measures under the programme. Relevant for the year of construction is the year in which the original home was built – no matter when the home was last altered or renovated.

Provided that they were built prior to 2000, homes that are part of a retirement village and occupied by the applicant under a Licence to Occupy qualify for the same funding as owner-occupied homes. Holiday homes built prior to 2000 also qualify provided that they are not used commercially, i.e. used only by their owners and, without reward, by their families and friends.

Rental properties owned by Housing New Zealand Corporation and homes excluded under section 5 of the Residential Tenancies Act 1986⁴ do not qualify for funding under the programme.

2. Measures and funding

For qualifying homes, funding under the programme is available for the following measures:

- i. Ceiling and underfloor insulation, up to a required standard⁵ (to qualify for funding, both ceiling and underfloor insulation must be done if possible⁵);
- ii. a clean heating device in the primary living space (only if the primary living space does not already have a clean heating device installed, and only if both ceiling and underfloor insulation meet the required standard⁵); and
- iii. the following energy efficiency measures where necessary⁵: a hot water cylinder wrap, pipe lagging, draught-stopping, and a ground vapour barrier.

⁴ http://legislation.govt.nz/act/public/1986/0120/latest/DLM95000.html?search=ts_act_residential_rese&p=1

⁵ For details please refer to the corresponding sections in this manual. Note: In addition to ceiling and underfloor insulation, some homes may also require the installation of a ground vapour barrier (if specified under *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*) and the installation of pipe lagging in the ceiling space (in the case of homes in climate zone 3 that receive a full thickness ceiling insulation retrofit under the programme). For details please refer to *VI. Installation of ground vapour barriers* and *VIII.2. Lagging of cold and hot water pipes in ceiling spaces.*

The government provides funding to the levels outlined below:

	Funding for insulation (including GST)	Funding for a clean heating device (including GST)
All eligible homes	33% of the total cost (up to \$1300)	\$500
Homes owned by Community Services Card (CSCs) holders	60% of the total cost [#]	\$1200
Rental homes with tenants who hold Community Services Cards (CSCs)	60% of the total cost	\$500

In some regions, the total funding given to CSC holders may be higher, where third party funding from, for example, charities, lines companies or councils is available.

The above funding is available only for insulation and clean heating products installed by service providers working under a formal contract with EECA for the delivery of measures under the programme⁶. No funding is available for products installed by homeowners or companies that are not service providers under contract with EECA.

KEY MESSAGES: The focus of the programme is on the installation of insulation, rather than the installation of heaters. Only homes built prior to 2000 qualify for funding under the programme.

Funding is available only for measures installed by service providers under contract with EECA. No funding is available for measures installed by homeowners or by companies that are not service providers.

⁶ For EECA's current service providers please refer to: <http://www.energywise.govt.nz/funding-available/insulation-and-clean-heating/step-one>.

IV. PRODUCTS

1. GENERAL REQUIREMENTS

The quality, performance and effectiveness of insulation and clean heating installations are determined by the workmanship of installers as well as the products installed. In terms of the latter, EECA requires service providers to use only products accepted by EECA for use under the programme or, in the case of ground vapour barriers, pipe lagging and draught proofing, products that meet specified requirements.

In their product portfolios for the programme, service providers are contractually required to offer products in all of the categories described in this chapter, i.e. each service provider must be able to offer homeowners a package consisting of ceiling insulation (both a full thickness product and a top-up product appropriate for the climate zones in which a service provider operates), underfloor insulation, a hot water cylinder wrap, a ground vapour barrier, pipe lagging, draught proofing and a clean heating device.

2. INSULATION PRODUCTS

EECA maintains a List of Accepted Products which sets out the insulation products (ceiling insulation, underfloor insulation and hot water cylinder wraps) accepted by EECA for use under the programme. The current List of Accepted Products is available on EECA's website under www.eeca.govt.nz/node/4910.

EECA's Technical Team is responsible for maintaining the List of Accepted Products. Please refer to *Appendix A: Product Policy* for details on the criteria and the process for the acceptance of ceiling insulation, underfloor insulation and hot water cylinder wraps for use under the programme.

Service providers are required to select appropriate insulation products for use under the programme from the List of Accepted Products. The selected products then form part of the agreement between a service provider and EECA. Under the programme, a service provider can offer and install only the products specified in their agreement with EECA. Any changes to the insulation products specified in the agreement require a formal variation of contract.

Service providers are required to promote to potential customers seeking funding under the programme (for any measure) only the insulation products specified in their agreements with EECA.

KEY MESSAGES: Only insulation products on EECA's List of Accepted Products qualify for use under the programme.

For their agreement with EECA, service providers must select insulation products from the List of Accepted Products.

Under the programme, service providers can offer and install only the insulation products specified in their agreements with EECA.

3. GROUND VAPOUR BARRIERS

Ground vapour barriers must be made of polythene (not PVC) with a minimum thickness of 250 microns.

4. PIPE LAGGING

Product used for pipe lagging must either have a minimum R-value of 0.3 or be made of insulation material (e.g. foam, wool or fibre glass) with a minimum thickness of 12 mm. It is acceptable to lag pipes with off cuts from hot water cylinder wrap material.

5. DRAUGHT PROOFING

Draught proofing under the programme consists of draught excluders (brush or external rain shield) at the bottom of up to two external doors, and up to 12 m of weather stripping V-seal where closed external doors have a gap of 2 mm or more around the sides or the top.

KEY MESSAGE: Under the programme, service providers can offer and install only ground vapour barrier, pipe lagging and draught proofing products that meet the requirements specified above.

6. CLEAN HEATING DEVICES

A clean heating device under programme is defined as:

- i. a clean wood burner as per the following list maintained by the Ministry for the Environment: www.mfe.govt.nz/laws/standards/woodburners/authorised-woodburners.html;
- ii. a clean pellet fire as per the following list maintained by the Ministry for the Environment: www.mfe.govt.nz/laws/standards/woodburners/pellet-burners.html;
- iii. an ENERGY STAR ® (see label on right) registered heat pump as per the following list maintained by EECA: www.eeca.govt.nz/products/listing/100; and
- iv. an AS 4553 compliant **flued** radiant/convection gas heater with a star rating of 4.0 or higher as listed in the following document (refer to sections dealing with AS 4553) maintained by the AGA: www.aga.asn.au/product_directory.



Service providers are required to select clean heating devices for use under the programme from one of the four lists referenced above. The selected clean heating devices then form part of the agreement between the service provider and EECA. Service providers can offer and install only the clean heating devices specified in their agreement with EECA under the programme. Any changes to the clean heating devices specified in the agreement require a formal variation of contract.

KEY MESSAGES: Only clean heating devices on the four lists referenced above qualify for installation and funding under the programme.

For their agreement with EECA, service providers must select clean heating devices from the above four lists.

Under the programme, service providers can offer and install only the clean heating devices specified in their agreements with EECA.

V. INSTALLATION OF INSULATION

1. GENERAL REQUIREMENTS

Funding under the programme is available only if the owner of a qualifying home is prepared to have, as a minimum, ceiling **and** underfloor insulation installed⁷. In other words, in order to receive any funding under the programme, homeowners must agree to have both measures installed unless:

- i. ceiling or underfloor insulation cannot be installed because there is either no or insufficient access to the ceiling or subfloor space (see section V.2. *Access for details*); or
- ii. existing ceiling or underfloor insulation meets EECA requirements or can be repaired to meet EECA requirements (see section V.6 *Existing insulation* for details).

Under the programme, service providers are permitted to offer and install only the insulation products (ceiling insulation, underfloor insulation and hot water cylinder wraps) specified in their agreements with EECA. All insulation products specified in the agreement between a service provider and EECA must be selected from EECA's List of Accepted Products (www.eeca.govt.nz/node/4910).

Specifically, a service provider is not permitted to offer a customer seeking funding under the programme (for any measure) an insulation product (ceiling insulation, underfloor insulation or hot water cylinder wrap) that is not specified in their agreement with EECA, even if the customer is prepared to pay for that product themselves, i.e. without seeking funding for the non-accepted product.

KEY MESSAGE: Funding is available under the programme only if a homeowner is prepared to have, as a minimum, ceiling and underfloor insulation installed⁷ – unless there is no or insufficient access; or existing ceiling or underfloor insulation already meets EECA requirements or can be repaired to meet EECA requirements.

2. ACCESS

The installation of both ceiling and underfloor insulation (and a ground vapour barrier if specified under NZS 4246) is not required if there is no or insufficient access to the ceiling or subfloor space, for example:

- a home has a skillion roof;
- there is no access to the ceiling space (no manhole) or the subfloor space;
- there is insufficient height in the ceiling space, e.g. because of a low roof pitch (as determined by the service provider based on health and safety considerations); or
- there is insufficient height in the subfloor space (as determined by the service provider based on health and safety considerations).

Funding under the programme is not available for any work associated with providing access to a ceiling or subfloor space. For example, if a customer wishes to install a manhole in order

⁷ In addition to ceiling and underfloor insulation, some homes may also require the installation of a ground vapour barrier (if specified under *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*) and the installation of pipe lagging in the ceiling space (in the case of homes in climate zone 3 that receive a full thickness ceiling insulation retrofit under the programme). For details please refer to VI. *Installation of ground vapour barriers* and VIII.2. *Lagging of cold and hot water pipes in ceiling spaces*.

to gain access to the ceiling space, the costs associated with installing the manhole do not qualify for funding under the programme and must be paid for by the customer in full.

If a ceiling or subfloor space cannot be accessed because it is used for storage, the homeowner must clear the space to allow the service provider to install the insulation. If a homeowner is not prepared to clear the space, the home does not qualify for **any** funding under the programme.

For example, if access to a subfloor space is insufficient because the space is used for storage and the homeowner is not prepared to clear the space to allow for the installation of underfloor insulation (and, if required, a ground vapour barrier), the home neither qualifies for funding for the installation of ceiling insulation, nor a clean heating device.

Service providers can offer to clear the space for the homeowner but the homeowner must pay for the clearing work in full, i.e. the costs for clearing a subfloor or ceiling space do not qualify for funding under the programme.

KEY MESSAGES: The installation of insulation is not required in cases where there is no or insufficient access to the ceiling or subfloor space.

Homeowners must clear ceiling and/or subfloor spaces of stored objects to allow service providers sufficient access to install insulation. Funding under the programme is not available for any work associated with clearing a subfloor or ceiling space.

3. INSTALLATION OF CEILING INSULATION

The installation of ceiling insulation is a **mandatory** measure under the programme – subject to access as set out in section *V.2 Access* and subject to the quality of any existing ceiling insulation as set out in section *V.6.1 Existing ceiling insulation*.

Ceiling insulation installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other requirements set out in this manual, any manufacturer's instructions, and best practice.

In addition to installing only ceiling insulation products specified in their agreements with EECA, service providers must also ensure that they only quote for and install products accepted for use in the climate zones in which their customers' houses are located. EECA's List of Accepted Products (www.eeca.govt.nz/node/4910) sets out the climate zones for which the listed ceiling insulation products have been accepted.

Specifically, ceiling insulation products accepted for use in climate zones 1 and 2 must not be installed in climate zone 3 (with the exception of homes covered under *V.3.1 Ceiling insulation in confined spaces*). Similarly, ceiling insulation products accepted for use in climate zone 3 must not be installed in climate zones 1 or 2 unless:

- i. a customer requests an upgrade and is content to pay for the upgrade as set out in section *V.3.2 Ceiling insulation upgrades*; or
- ii. a particular roof type or construction does not allow for the installation of a climate zone 3 insulation product, e.g. because of the thickness of the product, in which case service providers can select a lower specification product from their contractually agreed product portfolio (refer to *V.3.1 Ceiling insulation in confined spaces*).

Funding under the programme is not available for any work other than the direct work of installing or repairing existing ceiling insulation (for the requirements on repairs to existing insulation please refer to section *V.6.1 Existing ceiling insulation*). For example, if a customer wishes to insulate a lined skillion roof, the costs associated with removing and/or installing

plasterboard do not qualify for funding under the programme and must be paid for by the customer in full.

KEY MESSAGES: The installation of ceiling insulation is a mandatory measure under the programme – subject to access as set out in section V.2 Access.

Ceiling insulation installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other requirements set out in this manual, any manufacturer's instructions, and best practice.

3.1 Ceiling insulation in confined spaces

If a particular roof type or construction does not allow for the installation of a ceiling insulation product that complies with the full requirements of the programme because the space available is insufficient to accommodate the thickness of a fully complying product, service providers are permitted to install a ceiling insulation product of lower specification (lower R-value) provided that:

- i. the lower specification product is a product on the List of Accepted Products;
- ii. the lower specification product is a product in the service provider's contractually agreed product portfolio; and
- iii. the customer pays in full for any work required other than work directly associated with the installation of the ceiling insulation.

For example, if the owner of a home with a skillion roof is prepared to either remove the internal plasterboard lining or the external roofing material at their cost in order to provide access for the installation of ceiling insulation, but the space available does not allow for the installation of a product with the required thickness (e.g. because the insulation material would otherwise touch the roofing material), service providers are permitted to offer and install a ceiling insulation product of a lower specification under the programme. The lower specification product should be as close as possible to the specification of the products otherwise required while observing the installation requirements of NZS 4246.

In cases where the insulation is no longer accessible for auditing after the installation (as in the above skillion roof example) service providers must keep a **detailed** photographic record of the installation for auditing purposes. In other words, before the installation is closed in (e.g. prior to the plasterboard or roofing material being reinstalled), service providers must take detailed photographs of the ceiling insulation installation, in particular of safety-relevant areas such as around downlights and flues.

KEY MESSAGES: In a confined ceiling space that cannot be insulated using a product normally required to be installed under the programme, a service provider can offer and install a lower specification ceiling insulation product, provided that the lower specification product is on the List of Accepted Products, specified in the service provider's agreement with EECA, and provided that the customer pays in full for any work required other than other than work directly associated with the installation of the ceiling insulation.

If the ceiling insulation can no longer be accessed following the installation, the service provider must keep a **detailed** photographic record of the installation, in particular of safety-relevant areas such as around downlights and flues.

3.2 Ceiling insulation upgrades

If a customer wishes to install a ceiling insulation product that is of a higher specification (higher R-value) than stipulated in the List of Accepted Products (e.g. a full thickness product instead of a top-up product, a full thickness product for climate zone 3 instead of a full thickness product for climate zones 1 and 2, or a top-up product for climate zone 3 instead of a top-up product for climate zones 1 and 2), service providers can offer the higher specification product provided that:

- i. the higher specification product is a product on the List of Accepted Products;
- ii. the higher specification product is a product in the service provider's contractually agreed product portfolio; and
- iii. the customer pays in full for the difference between a product accepted for the climate zone and the higher specification product (service providers must state two product prices on the invoice to homeowners – the price for the actual (higher specification) product installed and a price for a standard product for the climate zone as per the List of Accepted Products – the programme funding portion is then to be calculated on the basis of the latter).

KEY MESSAGE: A ceiling insulation upgrade is permitted provided that the higher specification product is on the List of Accepted Products, specified in the service provider's agreement with EECA, and provided that the customer pays in full the marginal difference between a standard product for the climate zone and the higher specification product.

4. INSTALLATION OF UNDERFLOOR INSULATION

The installation of underfloor insulation is a **mandatory** measure under the programme – subject to access as set out in section V.2 Access and subject to the quality of any existing underfloor insulation as set out in section V.6.2 *Existing underfloor insulation*.

Underfloor insulation installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other requirements set out in this manual, any manufacturer's instructions, and best practice.

Multi-storey or split-level homes on sloping sections can have walls exposed to the subfloor space. Funding under the programme is available only for the insulation of floors but not for the insulation of walls exposed to subfloor spaces. Walls exposed to subfloor spaces should be insulated using suitable wall insulation products but no funding is available under the programme for any such work. Underfloor insulation products are not suitable for use on walls and service providers are not permitted to use underfloor insulation products on walls exposed to subfloor spaces.

Funding under the programme is not available for any work other than the direct work of installing or repairing existing underfloor insulation (for the requirements on repairs to existing insulation please refer to section V.6.2 *Existing underfloor insulation*). For example, if there is a problem with access to the subfloor space and a customer wishes trenches to be dug for access to insulate the underfloor, the costs associated with the trenching do not qualify for funding under the programme and must be paid for by the customer in full.

KEY MESSAGES: The installation of underfloor insulation is a mandatory measure under the programme – subject to access as set out in section V.2 Access.

Underfloor insulation installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other requirements set out in this manual, any manufacturer's instructions, and best practice.

5. INSULATION OF GARAGES

Homes with garages attached often have a continuous ceiling space. Funding for ceiling insulation under the programme is available only for the space above living areas. Ceiling insulation fitted under the programme must therefore terminate on the top plate of the wall that separates the house and the garage.

If a garage has been permanently converted into a living space, i.e. is no longer used for vehicles, as a workshop or for storage, the ceiling space above the garage qualifies for funding for ceiling insulation under the programme.

In the case of homes with living areas above a garage, funding under the programme is available for the installation of underfloor insulation in the garage ceiling provided that the ceiling in the garage is readily accessible for the installation of underfloor insulation.

KEY MESSAGE: Ceiling spaces above attached garages do not qualify for funding under the programme. Ceiling insulation installed under the programme must therefore terminate on the top plate of the wall that separates the house and the garage.

6. EXISTING INSULATION

6.1 Existing ceiling insulation

As part of the initial assessment, service providers are required to carry out a detailed check of any existing ceiling insulation. The check involves measuring the thickness of existing ceiling insulation in several places and checking the insulation for defects, including serious ceiling insulation defects (insufficient clearance to recessed downlights, unducted ceiling extractor fans or metal flues); and other defects such as insulation touching the roofing material and wet insulation. In the case of existing ceiling insulation with a thickness greater than 120 mm, the installation must be checked in full for compliance with NZS 4246, including defects such as gaps.

There are three cases to consider with existing ceiling insulation:

(a) *Thickness greater than 120 mm*

If existing insulation is consistently more than 120 mm thick, the insulation is considered sufficient for all climate zones provided that it is not, for example, wet and provided that the installation meets the requirements of NZS 4246.

REPAIRS (for repairs to serious defects please refer also to the note “IMPORTANT” below): Once a service provider has been contracted by a homeowner to carry out work under the programme, any defects with existing ceiling insulation with a thickness greater than 120 mm must be repaired so that the installation meets the requirements of NZS 4246. This applies to any defects, including wet insulation, identified during the initial assessment as well as any additional defects picked up in the course of carrying out the repair work (if the initial assessment was carried out diligently, installers should not find any additional defects in the course of carrying out the repair work). The costs associated with repairs to existing ceiling insulation with a thickness greater than 120 mm qualify for funding under the programme at the contractually agreed hourly rate for remedial work.

(b) Thickness between 75 and 120 mm

If existing ceiling insulation, including settled loose-fill insulation, is consistently between 75 and 120 mm thick, the insulation is treated as existing insulation (provided that it is not, for example, wet) and service providers are required to install a top-up product from the List of Accepted Products (www.eeca.govt.nz/node/4910).

REPAIRS: In the case of existing ceiling insulation with a thickness between 75 and 120 mm, service providers are not required to repair defects other than serious ceiling insulation defects (see note "IMPORTANT" below), insulation touching the roofing material and wet insulation prior to installing the top-up. The top-up must, of course, be installed in accordance with NZS 4246.

(c) Thickness less than 75 mm

If the majority of existing ceiling insulation is less than 75 mm thick, service providers are required to install a full thickness ceiling insulation product as per EECA's List of Accepted Products.

REPAIRS: In the case of existing ceiling insulation with a thickness less than 75 mm, service providers are not required to repair defects other than serious ceiling insulation defects (see note "IMPORTANT" below), insulation touching the roofing material and wet insulation prior to installing the new full thickness product. The new full thickness product must, of course, be installed in accordance with NZS 4246.

IMPORTANT: Service providers are required to check the installation of existing ceiling insulation as part of the initial assessment. If, in the course of conducting an initial assessment, a service provider finds a serious ceiling insulation defect with an existing installation (irrespective of the thickness of the insulation), i.e. insufficient clearance between insulation material and a recessed downlight, unducted ceiling extractor fan or metal flue (including, of course, a downlight or unducted ceiling fan covered by insulation), the service provider must bring the issue and the potential risk of a fire to the immediate attention of occupants and/or the homeowner verbally and in writing, e.g. on the assessment form.

Service providers should also offer to fix any serious defects picked up during the initial assessment on the spot but may charge the homeowner for doing so. Repairs to serious defects carried out during an initial assessment must be paid for by the homeowner in full and do not qualify for funding under the programme unless the homeowner subsequently enters into a contract with the service provider for work under the programme. In the latter case, the costs for repairs to serious defects carried out during the initial assessment can be added to the final invoice at the agreed hourly rate for repairs and qualify for funding under the programme.

Once a service provider has been contracted by a homeowner to carry out work under the programme, installers must repair any serious defects found with existing ceiling insulation, irrespective of the thickness of the insulation. Because a contract between the service provider and the homeowner is already in place at that stage, the costs associated with any such repairs qualify for funding under the programme based on the service provider's contractually agreed hourly rate for remedial work.

6.2 Existing underfloor insulation

As part of the initial assessment, service providers are required to carry out a detailed check of any existing underfloor insulation.

(a) *Existing foil underfloor insulation*

Existing foil underfloor insulation is deemed sufficient and does not need to be replaced provided that the installation meets the requirements of NZS 4246.

If an initial assessment shows that there are problems with an existing foil installation, service providers are expected to repair the existing foil insulation as part of any work carried out under the programme (i.e. once a contract with the homeowner is in place).

A valid repair could entail fixing cuts in the foil with tape, replacing smaller sections of damaged foil with new foil, or replacing a whole length of damaged foil with an accepted bulk insulation product (while leaving the remainder of the undamaged foil in place). The costs associated with repairs to existing foil underfloor insulation qualify for funding under the programme at the contractually agreed hourly rate for remedial work. Only if a foil installation is ineffective (e.g. a foil product installed hard up against the floor with no air gap) or damaged to an extent that repairs are unreasonable and uneconomic should an existing foil installation be removed and replaced entirely with a bulk product.

If existing foil insulation is damaged to an extent that requires it to be replaced with a bulk insulation product, the foil insulation must be removed prior to the installation of the bulk product. Particularly in cases where foil insulation was draped on top of the floor joists prior to the floor boards being installed, it is tempting for installers to leave the foil insulation in place and simply push it up against the floor with the new bulk product. This practice is **not acceptable** because it prevents the bulk product from sitting flush against the floor and is prone to leaving an air space between the floor and the insulation which may reduce the effectiveness of the insulation.

If existing foil insulation is damaged to an extent that requires it to be replaced with a bulk insulation product, the cost of removing the existing foil insulation qualifies for funding under the programme. Service providers should therefore include in their quotes the cost of removing the existing insulation (based on their contractually agreed hourly rate for remedial work) unless a homeowner is prepared to arrange for the removal themselves.

IMPORTANT: There are safety issues in dealing with the inspection, repair or removal of foil underfloor insulation, in particular a risk of electrocution. Please refer to Appendix B "Health and Safety" in NZS 4246 for guidance on how to manage safety risks around foil underfloor installations.

(b) *Existing bulk underfloor insulation*

Existing bulk underfloor insulation is deemed sufficient and does not need to be replaced provided that the installation meets the requirements of NZS 4246.

If an initial assessment shows that there are problems with an existing bulk underfloor installation, service providers are expected to repair the existing bulk insulation as part of any work carried out under the programme (i.e. once a contract with the homeowner is in place).

A valid repair could entail fixing gaps or replacing segments of damaged product with new bulk product. The costs associated with repairs to existing bulk underfloor insulation qualify for funding under the programme at the contractually agreed hourly rate for remedial work. Only if the existing bulk installation is damaged to an extent that repairs are unreasonable and uneconomic should the existing installation be removed and replaced entirely with a new bulk product.

If existing bulk insulation is damaged to an extent that requires it to be replaced with a new bulk insulation product, the cost of removing the existing insulation qualifies for funding under the programme. Service providers should therefore include in their quotes the cost of removing the existing insulation (based on their contractually agreed hourly rate for remedial work) unless a homeowner is prepared to arrange for the removal themselves.

7. SIZING AND INVOICING

When carrying out initial assessments, service providers must carefully measure the ceiling and/or underfloor areas to determine the actual areas that require insulating.

Service providers are permitted to charge the homeowner and EECA the installed price per square meter only for the actual areas insulated. Areas that cannot be insulated must be deducted when determining actual areas. This applies to, for example:

- i. areas that cannot be insulated because of insufficient access; and
- ii. areas that are significant in size that cannot be insulated because of an applicable requirement in NZS 4246.

The latter applies primarily to ceiling installations that must be kept away from the top plate because the insulation would otherwise touch the roofing material. In that case, service providers are permitted to charge the installed price only for the actual area insulated and not for the area determined by the top plate perimeter.

In determining the actual area to be insulated, service providers are not required to make allowances for framing (e.g. in the case of segment insulation), recessed downlights, flues, ceiling extractor fans or ventilation system vents.

KEY MESSAGES: Service providers are permitted to charge up to the contractually agreed price per square meter only for the actual areas insulated.

If, in the course of an EECA audit, a service provider is found to have charged for an area larger than the actual area insulated, EECA will request a corresponding refund from the service provider. Other sanctions may also be applied.

8. INSTALLATION OF HOT WATER CYLINDER WRAPS

The installation of a hot water cylinder wrap is an **optional** measure under the programme for electric hot water cylinders other than A-Grade cylinders or cylinders that meet Minimum Energy Performance Standards (MEPS).

Service providers are required to assess the need for a hot water cylinder wrap during the initial assessment and offer an accepted hot water cylinder wrap as part of their contractually agreed product portfolio, but are required to install one only if agreed by the homeowner.

Hot water cylinder wraps can be offered for, and installed on, electric hot water cylinders only. A hot water cylinder wrap must not be installed on a gas hot water cylinder.

All hot water cylinder wraps installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice.

KEY MESSAGES: The installation of a hot water cylinder wrap is an optional measure under the programme for electric hot water cylinders other than A-Grade cylinders or cylinders that meet Minimum Energy Performance Standards (MEPS). Service providers must assess the need for a hot water cylinder wrap and offer a hot water cylinder wrap under the programme, but are required to install one only if agreed by the homeowner.

Hot water cylinder wraps can be offered for, and installed on, electric hot water cylinders only. A hot water cylinder wrap must not be installed on a gas hot water cylinder.

A hot water cylinder wrap installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other requirements set out in this manual, any manufacturer's instructions, and best practice.

VI. INSTALLATION OF GROUND VAPOUR BARRIERS

The installation of a ground vapour barrier is a **mandatory** measure under the programme (subject to access as set out in section *V.2 Access*) if required under *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*. If NZS 4246 requires a ground vapour barrier to be installed, the measure must be installed and qualifies for funding under the programme.

Existing ground vapour barriers are acceptable provided that the product used and the installation meet the requirements set out in this manual. If a ground vapour barrier is required under NZS 4246, any repairs needed to make an existing ground vapour barrier meet the installation requirements of NZS 4246 qualify for funding under the programme.

The owners of homes that do not require the installation of a ground vapour barrier as per NZS 4246 can opt to have the measure installed on a voluntary basis but the installation does not qualify for funding under the programme and must be paid for in full by the homeowner.

All ground vapour barriers installed under the programme must be installed in accordance with NZS 4246, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice.

If a homeowner wishes to claim a grant for a clean heating device and the home requires the installation of a vapour barrier as per NZS 4246, the vapour barrier must be installed before the homeowner can claim the grant for the heating device (again, subject to access as set out in section *V.2 Access*).

KEY MESSAGES: Subject to access, a ground vapour barrier must be installed and qualifies for funding under the programme if required under *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*.

If a ground vapour barrier is required to be installed as per NZS 4246, it must be installed before a homeowner can claim a grant under the programme for a clean heating device (subject to access to the subfloor space).

Ground vapour barriers installed under the programme must be installed in accordance with NZS 4246, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice.

VII. INSTALLATION OF DRAUGHT PROOFING

The installation of draught proofing on up to two external doors with gaps of 2 mm or more around the sides or the top is an **optional** measure under the programme.

Service providers are required to assess the need for draught proofing during the initial assessment and offer draught proofing as part of their contractually agreed product portfolio, but are required to install the draught proofing only if agreed by the homeowner.

All draught proofing installed under the programme must be installed in accordance with any manufacturer's instructions, and best practice.

KEY MESSAGES: The installation of draught proofing is an optional measure under the programme for up to two external doors with gaps of 2 mm or more around the sides or the top. Service providers must assess the need for draught proofing and offer draught proofing under the programme, but are required to install it only if agreed by the homeowner.

Draught proofing installed under the programme must be installed in accordance with any manufacturer's instructions, and best practice.

VIII. INSTALLATION OF PIPE LAGGING

1. LAGGING OF THE FIRST 1.5 m OF HOT WATER PIPE EXITING THE HOT WATER CYLINDER

The lagging of the first 1.5 m of hot water pipe exiting the hot water cylinder is an **optional** measure under the programme.

Service providers are required to assess the need for pipe lagging of the first 1.5 m of hot water pipe exiting the hot water cylinder during the initial assessment and offer pipe lagging as part of their contractually agreed product portfolio, but are required to install the lagging only if agreed by the homeowner.

All pipe lagging installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice.

2. LAGGING OF COLD AND HOT WATER PIPES IN CEILING SPACES

Installing ceiling insulation reduces the amount of heat escaping through the ceiling. In some homes, particularly homes with low pressure water systems and homes in areas that experience freezing temperatures in winter, the retrofitting of ceiling insulation can therefore lead to water pipes exposed in the ceiling spaces freezing and bursting in low temperature conditions.

(a) **Homes in climate zone 3**

In homes in climate zone 3 that require and receive the installation of a full thickness ceiling insulation product under the programme, the lagging of all exposed hot and cold water pipes (i.e. all pipes not covered by existing or new ceiling insulation) in the ceiling space is a **mandatory** measure. The costs associated with this measure qualify for funding under the programme.

(b) **Homes in climate zones 1 and 2**

In homes in climate zones 1 and 2 that require and receive the installation of a full thickness ceiling insulation product under the programme, the lagging of all hot and cold water pipes in the ceiling space is a recommended **optional** measure but limited to homes in areas that regularly experience freezing temperatures in winter.

If freezing occurs regularly in winter, service providers should note this on the *Assessment Form* and recommend the measure to homeowners. If a homeowner follows the recommendation, the measure qualifies for funding under the programme.

To clarify, the measure is not an option for homes in climate zone 1 and 2 areas that do not regularly experience freezing temperatures in winter.

All pipe lagging installed in ceiling spaces under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice. Particular attention must be paid to the lagging of joints and bends.

KEY MESSAGES: The lagging of the first 1.5 m of hot water pipe exiting the hot water cylinder is an optional measure under the programme. Service providers must assess the need for lagging and offer the lagging under the programme, but are required to install it only if agreed by the homeowner.

The lagging of all hot and cold water pipes in ceiling spaces of homes in climate zone 3 that require and receive an insulation retrofit under the programme is a mandatory measure. In climate zone 1 and 2 homes that regularly experience freezing temperatures in winter the measure is a recommended optional measure. The measure is not available for climate zone 1 and 2 homes that do not regularly experience freezing temperatures in winter.

All pipe lagging installed under the programme must be installed in accordance with *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*, other applicable requirements set out in this manual, any manufacturer's instructions, and best practice. When lagging pipes in ceiling spaces, particular attention must be paid to the lagging of joints and bends.

IX. INSTALLATION OF CLEAN HEATING DEVICES

1. GENERAL REQUIREMENTS

The installation of a clean heating device is an **optional** measure under the programme subject to the conditions set out below.

Homeowners can claim funding for a clean heating device only if their homes' ceiling and underfloor insulation meet the requirements under the programme in terms of their effectiveness, as set out in section *V. Installation of insulation*⁸. A clean heating device under the programme should therefore not be installed unless both existing ceiling and underfloor insulation meet the relevant requirements (repairs may be required as set out under section *V.6 Existing insulation.*), or until new ceiling and underfloor insulation have been installed in accordance with the requirements (subject to access as set out under section *V.2 Access*)⁸.

Service providers may deviate from this rule only in exceptional circumstances, for example in cases where the heating device should be installed first for logistical reasons, e.g. because the service provider is waiting for the supply of insulation materials. However, service providers are not permitted to invoice either their customers or EECA for a heating device installed prior to, as required, the repair or installation of ceiling and/or underfloor insulation⁸. In such cases, invoicing can only take place after the repair or installation of insulation⁸.

Service providers need to be aware that they may potentially expose themselves to a financial risk if they decide to install a heating device prior to attending to the insulation⁸. If a customer changes their mind following the installation of a clean heating device under the programme and subsequently refuses work on the insulation to go ahead⁸, the heating device does not qualify for the government grant and the service provider will be left to recover the full cost of the heating device from the customer.

KEY MESSAGES: A clean heating device qualifies for funding under the programme only if a home's ceiling and underfloor insulation meet EECA requirements⁸.

A service provider may opt to install a clean heating device prior to installing or repairing ceiling and underfloor insulation to the required levels⁸ but needs to be aware of the risks of doing so as outlined above.

2. PRIMARY LIVING AREA

A clean heating device qualifies for funding under the programme only for installation in the primary living area, and only if there is not already a correctly sized accepted clean heating device installed in the primary living area.

(a) Lounges / living rooms

In most cases, the primary living area is a home's main lounge or living room. If a home has more than one lounge or living room, service providers should consult with homeowners on which area is used as the primary living area.

⁸ In addition to ceiling and underfloor insulation, some homes may also require the installation of a ground vapour barrier (if specified under *New Zealand Standard (NZS) 4246:2006 Installing insulation in residential buildings*) and the installation of pipe lagging in the ceiling space (in the case of homes in climate zone 3 that receive a full thickness ceiling insulation retrofit under the programme). For details please refer to *VI. Installation of ground vapour barriers* and *VIII.2. Lagging of cold and hot water pipes in ceiling spaces*.

(b) Dining rooms / kitchens

A primary living area can be a dining area, including a directly attached open-plan kitchen.

(c) Bedrooms

A bedroom is not a primary living area unless special circumstances apply, e.g. in the case of a permanently or long-term bed-bound occupant.

(d) Hallways

A hallway is not a primary living area. A clean heating device installed in a hallway qualifies for funding under the programme only if all of the following apply:

- i. The hallway transitions into a primary living area; and
- ii. there is no door between the hallway and the primary living area; and
- iii. the heating device is installed such that the heat is directed into the primary living area; and
- iv. the purpose of the heating device is not to heat an area other than the primary living area.

(e) Other rooms

Rooms other than the ones identified above are not primary living areas unless special circumstances apply. Service providers **must** contact EECA for advice prior to quoting for a clean heating device for funding under the programme for a room other than a room/situation identified above.

KEY MESSAGES: Clean heating devices under the programme can be installed only in primary living areas as defined above. If in doubt about a particular situation, service providers are strongly advised to consult with EECA prior to providing quotes.

If, in the course of an EECA audit, a service provider is found to have installed a clean heating device in an area that is clearly not a primary living area, EECA will request a refund from the service provider for any funding provided under the programme for the incorrectly installed heating device.

3. SIZING OF CLEAN HEATING DEVICES

Clean heating devices must be sized correctly for the primary living area in which they are to be installed, irrespective of any existing heating devices. In other words, any existing heating devices (other than a correctly sized clean heating device – in which case the home does not qualify for funding for another clean heating device) are to be disregarded when sizing the clean heating device.

If a homeowner wishes an existing heating device (other than a correctly sized clean heating device – in which case the home does not qualify for funding for another clean heating device) to be removed prior to the installation of a clean heating device, the costs for removal must be borne by the homeowner in full and do not qualify for funding under the programme.

Information, including a worksheet, on how to calculate the heat load of a room (primary living area) for the purpose of heater sizing is available in Chapter 4 of EECA's *Good Practice Guide to Heat Pump Installation* (www.eeca.govt.nz/node/6068). The information and worksheet are applicable to all types of heaters, i.e. not limited or specific to heat pumps.

Heat pumps installed in colder climates, such as climate zone 3 (South Island and North Island Central Plateau), must be sized based on their capacity and performance at low temperatures (i.e. their rated heating capacity at 2°C (H2), or lower, as determined by the location of the home).

4. INSTALLATION OF HEAT PUMPS

Heat pumps must be installed in accordance with EECA's *Good Practice Guide to Heat Pump Installation* (www.eeca.govt.nz/node/6068).

All work is to be carried out by suitably qualified and trained staff. Prescribed Electrical Work must be carried out or supervised by a Registered Electrician and, if required, an Electrical Certificate of Compliance must be issued.

5. INSTALLATION OF WOOD AND PELLET FIRES

Wood burners and pellet fires must be installed by a Solid Fuel Appliance Installation Technician of the New Zealand Home Heating Association Inc.

Service providers are responsible for ensuring that a Building Consent has been obtained from the local council prior to commencing any installation work. Service providers are also required to ensure that, following the installation, the council carries out a final inspection and issues a Code Compliance Certificate to the homeowner.

Prescribed Electrical Work must be carried out or supervised by a Registered Electrician and, if required, an Electrical Certificate of Compliance must be issued.

6. INSTALLATION OF GAS HEATERS

Gas heaters must be installed by a Registered Gasfitter and a Gas Certificate must be issued for the installation.

Service providers are responsible for ensuring that a Building Consent has been obtained from the local council prior to commencing any installation work. Service providers are also required to ensure that, following the installation, the council carries out a final inspection and issues a Code Compliance Certificate to the homeowner.

Prescribed Electrical Work must be carried out or supervised by a Registered Electrician and, if required, an Electrical Certificate of Compliance must be issued.

KEY MESSAGES: Service providers must size clean heating devices such that they can heat the whole primary living space, irrespective of any other heaters installed.

Heat pumps must be installed in accordance with EECA's *Good Practice Guide to Heat Pump Installation* (www.eeca.govt.nz/node/6068).

Wood burners and pellet fires must be installed by a Solid Fuel Appliance Installation Technician of the New Zealand Home Heating Association Inc.

Gas heaters must be installed by a Registered Gasfitter and a Gas Certificate must be issued for the installation.

Prescribed Electrical Work must be carried out or supervised by a Registered Electrician and, if required, an Electrical Certificate of Compliance must be issued.

If required, service providers must either obtain Building Consent or ensure that Building Consent has been obtained prior to commencing any work. Following completion, service providers must ensure that a Code Compliance Certificate is issued for the work.

X. INITIAL ASSESSMENT

Service providers must use their best endeavours to carry out initial assessments within 30 days of a potential customer requesting a quote. Initial assessments must be recorded on a suitable form. Service providers are encouraged to use the *Assessment Form* (see Appendix B) but they are permitted to develop their own forms provided that **all** information on the *Assessment Form* is contained on the service providers' own forms.

An assessment form must identify the person who carried out the assessment and must be signed and dated. The form must be filed by the service provider and produced to EECA and auditors appointed by EECA on request.

When providing quotes to homeowners, 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 clean heating device as a result of a warmer and dryer indoor climate;
- the freezing and bursting of cold or hot water pipes in ceiling spaces following the installation of ceiling insulation;
- the formation of condensation on the underside of the roofing material, particularly in colder climates – in the case of roofs not lined with building paper or a membrane, water can drop onto the insulation material and potentially damage the ceiling lining;
- an increase in heating energy use following the installation of insulation – and therefore a cost increase – as a result of people heating to higher temperatures, heating larger areas of the house, or heating longer than previously.

KEY MESSAGES: Service providers must use their best endeavours to carry out initial assessments within 30 days of a potential customer requesting a quote.

Service providers are encouraged to use the *Assessment Form* in Appendix B but are permitted to develop their own forms provided that **all** information on the *Assessment Form* is contained on the service providers' own forms.

An assessment form must identify the person who carried out the assessment and must be signed and dated. The form must be filed by the service provider and produced to EECA on request.

XI. COMMUNITY SERVICES CARD DECLARATION

Additional funding is available under the programme for homes owned and occupied by Community Services Card (CSC) holders, or homes occupied by tenants who hold CSCs.

Eligibility for the higher funding is tied to either:

- the owner and occupier of a home holding a CSC, i.e. at least one of the persons named on the home's Title; or
- the principal tenant of a home holding a CSC, i.e. at least one of the adult persons named on the Residential Tenancy Agreement for the home.

The higher funding under the programme is not available in cases where a dependent, e.g. a child, of an owner/occupier or tenant holds a CSC but not the owner/occupier or tenant themselves.

EECA developed two forms (see Appendix C) that service providers must use in the case of an application for funding under the CSC criteria:

- i. a CSC declaration form for a home where one or more of the owner/occupiers hold a CSC (to be completed by the owner/occupier and the service provider); and
- ii. a CSC declaration form for a home where one or more adult tenants hold a CSC (to be completed by the tenant, landlord and the service provider).

The appropriate form must be completed in full and signed by all parties, including the service provider. Service providers are required to sight the CSC to establish that the card is valid. A CSC must be valid at the time the declaration form is completed and signed. It is not necessary for the CSC to be valid into the future, e.g. at the time of installation.

For privacy reasons, service providers should not record any details of the CSC on the declaration form (e.g. card number or expiry date).

If a potential client does not wish to provide their date and place of birth on the CSC declaration form, it is acceptable for the service provider to record the client's driver licence, passport or firearms licence number instead. The licence or passport must be current and valid, and must identify the person making the declaration.

A home does not qualify for funding under the programme's CSC criteria if a potential client or a potential client's tenant:

- i. is unable to produce a current and valid CSC;
- ii. refuses to complete and sign the required CSC declaration form; or
- iii. is unable or unwilling to provide either their date and place of birth, or their current and valid driver licence, passport or firearms licence.

IMPORTANT: The eligibility of a home for funding under the CSC criteria is determined by the occupants, rather than the homeowner. For example, a landlord holding a CSC is eligible for funding under the CSC criteria only for the home in which they reside themselves. Funding availability under the CSC criteria for the landlord's rental properties is determined by whether or not their tenants hold CSCs.

XII. POST-INSTALLATION AUDITS

Service providers are required to carry out post-installation audits for all homes within 5 working days of completion of an installation. Post-installation audits (previously referred to as post-implementation reports) must be recorded on a suitable form such as the *Post-Installation Audit Form* (see Appendix D). Service providers are strongly encouraged to use the form in Appendix D but are permitted to develop their own forms provided that **all** information on the *Post-Installation Audit Form* in Appendix D is contained on the service providers' own forms.

All safety-relevant compliance failures (e.g. insufficient clearance to recessed downlights, unducted ceiling extractor fans or metal flues, or unsafe wiring or gas plumbing) found in the course of conducting a post-installation audit **must be remedied immediately**. Compliance failures that are not safety-relevant must be remedied within 20 working days.

A *Post-Installation Audit Form* must identify the person who carried out the audit and must be signed and dated. The form must be filed by the service provider and produced to EECA and auditors appointed by EECA on request.

It is acceptable for a service provider to have post-installation audits carried out by the team leader or foreman of the installation team immediately following the installation. However, service providers need to be mindful of the objectivity of persons carrying out audits of their own work. Service providers therefore need to exercise good judgement in the confidence in relevant staff and need to have in place internal quality and audit systems to monitor self-audits by members of their installation teams.

KEY MESSAGES: Post-installation audits must be carried out by service providers within 5 working days of completion of an installation.

Service providers are encouraged to use the *Post-Installation Audit Form* in Appendix D but are permitted to develop their own forms provided that **all** information on the *Post-Installation Audit Form* is contained on the service providers' own forms.

A *Post-Installation Audit Form* must identify the person who carried out the audit and must be signed and dated. The form must be filed by the service provider and produced to EECA on request.

XIII. EECA AUDITS

1. INTRODUCTION

The quality of installations under the *Warm Up New Zealand: Heat Smart* programme is paramount for the success and credibility of the programme. Poor quality installations can put the health and safety of installers and occupants at risk (e.g. risk of a fire from insufficient clearance of ceiling insulation to recessed downlights), can markedly reduce performance (e.g. gaps in insulation), and cause damage to a home (e.g. water damage from condensation collected by ceiling insulation touching the roofing material).

EECA also has an obligation to ensure that the funding made available by the Government for the programme is spent prudently and appropriately. This includes ensuring that service providers charge only the prices agreed with EECA and only for measures actually installed.

Service providers are responsible for ensuring that all installations carried out under the programme meet the requirements set out under their agreement with EECA, including this manual. Service providers are required to have suitable and working quality systems in place to ensure that their staff and subcontractors consistently deliver high quality installations.

Service providers are further responsible for ensuring that homeowners and EECA are invoiced correctly, i.e. invoiced only the agreed prices and only for measures actually installed.

In addition to service providers' own quality systems, EECA therefore operates an audit regime to ensure that installations under the programme meet the requirements, including the correct and timely completion of required documentation such as *Assessment Forms* and *Post-Installation Audit Forms*, and that homeowners and EECA are invoiced in accordance with the prices agreed between service providers and EECA and only for measures actually installed. The audit regime consists of regular audits, and re-audits or follow-up audits.

2. PRINCIPLES OF ENGAGEMENT

In administering the programme and engaging with service providers EECA will be:

- **Supportive** – EECA will support service providers through advice and guidance (while expecting service providers to have in place, and operate, their own quality and training systems);
- **Clear on expectations** – EECA will clearly set out the requirements under the programme service providers are expected to follow (e.g. relating to products, installation and auditing);
- **Measured with a risk focus** – EECA will aim to minimise the costs of compliance to EECA and service providers by being measured with requests made and actions taken in respect of service providers, based on the risk involved in a particular situation (including, but not limited to, the nature and extent of compliance failures found, project size, past performance and service provider staff turnover);
- **Consistent** – EECA will be consistent with its advice and guidance to service providers, as well as with any requests made and actions taken;
- **Open and transparent** – EECA will administer the programme and deal with service providers in an open and transparent way (this does not preclude mystery shopper exercises and unannounced random audits – the results of which will be communicated to service providers);
- **Fair and professional** – EECA will treat service providers fairly and professionally.

EECA will apply similar principles in engaging with other stakeholders under the programme, including homeowners and auditors.

3. TYPES OF AUDITS

3.1 Regular audits

EECA will conduct regular audits of each service provider's installations. The number of regular audits EECA will carry out of each service provider's installations depends on the service provider's project size, i.e. the volume of homes that a service provider has been assigned under their contract with EECA, and the service provider's risk status. The risk status is discussed in more detail below. Regular audits consist of a site visit and a check of relevant documentation a service provider is required to complete.

Regular auditing is an integral part of the programme and is funded by EECA as part of the administration of the programme, i.e. service providers are not charged for regular audits.

3.2 Re-audits

If, in the course of conducting a regular audit, EECA finds a high-risk compliance failure with an installation, EECA will carry out a re-audit or follow-up audit to check that the compliance failure has been remedied. High-risk compliance failures are defined in *Table A: Compliance failures* of section *XIII.6 Compliance failures and risk status* below.

Following notification from a service provider that a high-risk compliance failure has been remedied, EECA will schedule a re-audit. All costs associated with re-audits required to follow-up on high-risk compliance failures will be charged directly to service providers.

3.3 Specialist audits

Specialist audits are audits conducted or commissioned by EECA on an ad-hoc basis. Examples for specialist audits include:

- an audit of a service provider's records, e.g. Assessment Forms and Post-Installation Audit Forms;
- a mystery shopper exercise;
- an audit by a manufacturer's representative of the installation of one of its products;
- an audit by a refrigeration expert of a heat pump installation;
- an audit by a Registered Electrician of a clean heating device installation involving electrical work;
- an audit by a Registered Gasfitter of a gas heater installation; or
- an audit by representative of the New Zealand Home Heating Association Inc. of a wood or pellet fire installation.

EECA may schedule specialist audits on a random basis but a specialist audit can also be triggered by, for example, a complaint about a service provider. Service providers may not be invited to be present for specialist audits but will be advised of the findings and given an opportunity to respond to the findings.

Any compliance failures found during a specialist audit must be remedied by the service provider within the required timeframes, i.e. 48 hours for safety-relevant high-risk compliance failures and 20 working days for all other compliance failures.

EECA will bear the costs for specialist auditing unless a specialist audit finds a high-risk compliance failure, in which case the service provider will be charged for all costs associated with the specialist audit. If a high-risk compliance failure is found, a re-audit will also be required at the expense of the service provider.

KEY MESSAGES: Regular audits are an integral part of the programme and funded by EECA. There is no charge to service providers for regular auditing.

Service providers will be charged for the costs of re-audits required to follow-up on high-risk compliance failures.

High-risk compliance failures are defined in *Table A: Compliance failures* of section *XIII.6 Compliance failures and risk status*.

4. EECA AUDIT PROCESS

EECA's process of conducting regular audits is as follows:

- i. The auditor is provided by EECA with a list of properties to be audited and makes appointments with homeowners for audit visits. The auditor notifies the service provider of the audit appointments and invites a representative of the service provider to be present for the audits. (EECA encourages service providers to be present for the audits but this is not a requirement). The auditor may request from the service provider copies of the initial assessment forms and the post-implementation reports for the properties to be audited.
- ii. The auditor audits an installation using the EECA Technical Audit Form to record the audit findings and any remedial action required.
- iii. The auditor provides an audit report to EECA and the service provider's head office within one month, unless they find a high-risk compliance failure with an installation, in which case the auditor is required to notify EECA immediately.
- iv. EECA liaises with the service provider to ensure that any remedial action required is completed within the required timeframe.
- v. Safety-relevant high-risk compliance failures must be remedied by service providers within 48 hours of notification. If a safety-relevant high-risk compliance failure is not remedied by a service provider within 48 hours, EECA may get the compliance failure remedied by a third party at the expense of the service provider, issue a written warning to the service provider, and withhold payment for the installation or a future invoice. Service providers are required to explain to homeowners the reasons for the urgent remedial work required as a result of safety-relevant high-risk compliance failures.
- vi. All installations with high-risk compliance failures will be re-audited by EECA with the costs of re-auditing charged to the service provider. Service providers are required to explain to homeowners at the time the remedial work is undertaken that a re-audit by EECA is required and that EECA will directly contact the homeowner to make an appointment for the re-audit.
- vii. Compliance failures other than safety-relevant high-risk compliance failures found in a regular audit must be remedied within 20 working days of being notified by EECA. If a compliance failure other than a safety-relevant high-risk compliance failure is not remedied by a service provider within 20 working days, EECA may get the compliance failure remedied by a third party at the expense of the service provider, issue a written warning to the service provider, and withhold payment for the installation or a future invoice. Service providers are required to explain to homeowners the reasons for the remedial work required as a result of compliance failures.
- viii. Service providers must formally respond to EECA on all compliance failures found during auditing to confirm they have remedied the failures together with a summary of actions they are taking to mitigate further similar failures.

5. SANCTIONS

Safety-relevant high-risk compliance failures (as defined in *Table A: Compliance failures of section XIII.6 Compliance failures and risk status*) must be remedied by service providers within 48 hours of notification by EECA. All other compliance failures must be remedied within 20 working days.

Service providers are required to advise EECA of the completion of any remedial action taken and the steps put in place to reduce the likelihood of further similar compliance failures occurring. All high-risk compliance failures will be followed up with a re-audit at the expense of the service provider.

If a service provider fails to remedy a compliance failure within the required timeframe without valid reason, EECA has at its disposal a number of sanctions, including:

- written warnings (three written warnings can lead to a termination of the agreement between the service provider and EECA);
- elevating a service provider's risk status resulting in more regular audits;
- withholding payment on the service provider's invoices to EECA;
- getting compliance failures remedied by a third party at the expense of the service provider; and
- exiting a service provider from the programme by terminating the agreement between the service provider and EECA.

In applying sanctions, EECA will take into account issues such as a service provider's history in delivering measures under the programme and the nature and risk of the compliance failures found.

Written warnings may be issued as a result of the following:

- a service provider is in breach their agreement with EECA;
- installations are not to EECA requirements, particularly where the installations endanger human life (e.g. in the case of a risk of fire as a result of insufficient clearance of ceiling insulation to a downlight);
- an initial assessment does not meet EECA requirements;
- a post-implementation audit is not carried out or not carried out as required;
- failure to remedy a notified compliance failure within the required timeframe;
- the use of products not accepted by EECA for use under the programme or not specified in a service provider's agreement with EECA;
- work carried out without a required building consent;
- a required Electrical Certificate of Compliance not issued;
- a required Gas Certificate not issued;
- an invoice issued incorrectly (e.g. for work not undertaken, for more work than actually undertaken, for product not installed, or work or charged at a price higher than the contractually agreed price);
- the incorrect or inappropriate use of one of EECA's brands;
- a service provider giving false or misleading information to EECA or homeowner.

EECA may terminate a service provider's agreement as a result of the following:

- a service provider is on serious breach of their agreement with EECA;
- there is a history of failure to remedy notified compliance failures within the required timeframe;
- the issuing of three written warnings;
- fraud, theft or other criminal behaviour by a service provider that raises doubts about the suitability of the service provider to provide measures under the programme;
- there is a history of high-risk compliance failures which, in EECA's opinion, presents a serious risk to public safety.

The above lists are not exhaustive and EECA reserves the right to issue written warnings to service providers in other instances. EECA also reserves the right to terminate a service provider's agreement in other instances. For details on the provisions for the early termination of the *Warm Up New Zealand: Heat Smart Funding Agreement* please refer to the agreement.

In the event of EECA terminating a service provider's agreement early, EECA will pay the service provider for all work completed prior to termination provided that the work meets all applicable requirements under the agreement.

KEY MESSAGES: In cases of compliance failures, EECA has at its disposal a range of sanctions including written warnings, withholding payment and terminating service providers' agreements.

In applying sanctions, EECA will take into account issues such as a service provider's history in delivering measures under the programme and the nature and risk of the compliance failures found.

6. COMPLIANCE FAILURES AND RISK STATUS

For the purpose of assessing and quantifying service providers' performance under the programme, EECA developed a list of compliance failures – refer to *Table A: Compliance failures* below. For each compliance failure the table sets out the associated risk (low, medium, high) and number of demerit points. Compliance failures include technical failures as well as administrative failures.

There are four types of compliance failures set out in the table:

- i. Safety-relevant high-risk compliance failures (including serious ceiling insulation defects, i.e. insufficient clearance to recessed downlights, unducted ceiling extractor fans and metal flues);
- ii. High-risk compliance failures (other than safety-relevant high-risk compliance failures);
- iii. Medium-risk compliance failures; and
- iv. Low-risk compliance failures.

Under the programme, each service provider is assigned a "risk status" (low, medium, high) based on their performance history under the programme. A service provider's risk status determines the amount of scrutiny the service provider will receive, e.g. in terms of regular auditing, and will be used to determine the level of any sanctions EECA may impose in cases of compliance failures. The risk status of all new service providers is set to "high" by default.

Each audit (regular audit, re-audit or specialist audit) conducted in respect of a service provider's installation is scored on the basis of the number and risk of any compliance failures found. High-risk compliance failures attract a higher number of demerit points than low risk failures.

All safety-relevant high-risk compliance failures attract a score of 100 demerit points. Other high-risk compliance failures score 80 demerit points. Medium and low-risk compliance failures attract scores ranging from 5 to 40 demerit points. A score of zero means that no compliance failures were found.

The total number of demerit points for an installation is the sum of the individual demerit points of all compliance failures found. The maximum number of demerit points for an installation is 100, i.e. the score for a single safety-relevant high-risk compliance failure.

Compliance failures and their corresponding risks and demerit points are set out in *Table A: Compliance failures* below.

Table A: Compliance failures

Compliance failure	Risk	Points
1. Insufficient clearance of ceiling insulation to a recessed downlight, unducted extractor fan or metal flue (applies to new installations as well as repairs to existing insulation)	High (safety-relevant)	100
2. Unsafe electrical wiring or gas plumbing	High (safety-relevant)	100
3. Other safety-relevant compliance failure, e.g. an unsecured wall-mounted outdoor heat pump unit or insufficient clearances around a clean heating device	High (safety-relevant)	100
4. Post-installation audit not carried out within 5 days of completion of installation	High (safety-relevant)	100
5. Notified safety-relevant high-risk compliance failure not remedied within 48 hours	High (safety-relevant)	100
6. Electrical Certificate of Compliance not issued for Prescribed Electrical Work	High	80
7. Gas Certificate not issued	High	80
8. No initial assessment carried out prior to installation	High	80
9. Volume of insulation does not match EECA invoice	High	80
10. A product that qualifies for funding under the programme was installed but the product is not an accepted product (whether or not funding was sought for the product under the programme)	High	80
11. Work carried out without required Building Consent	High	80
12. The overall quality of an installation is so poor that it undermines the purpose, performance or durability of the installation	High	80
13. Notified high-risk compliance failure (other than a safety-relevant high-risk compliance failure) not remedied within 48 hours	High	80
14. Initial assessment does not meet the requirements set out in this manual	Medium	40
15. Post-installation audit does not meet the requirements set out in this manual	Medium	40
16. Notified compliance failure (other than a high-risk compliance failure) not remedied within 20 working days	Medium	40
17. Heater installed in home with ceiling or underfloor insulation that is not to EECA requirements	Medium	40
18. Heater installed in a home without a ground vapour barrier where a ground vapour barrier is required under NZS 4246	Medium	40
19. Heater not sized correctly for primary living area	Medium	40
20. Heater installed in area that is not a primary living area	Medium	20
21. Exposed cold and hot water pipes in ceiling space of climate zone 3 home receiving a full thickness ceiling insulation retrofit not lagged	Medium	20

Compliance failure	Risk	Points
22. Insulation gaps or poor friction fit	Medium	20
23. Insulation touching roof material	Medium	20
24. No strapping under-floor (if required)	Medium	20
25. Product not covered under agreement between service provider and EECA	Medium	20
26. Top plate not covered	Medium	20
27. Under-floor insulation sagging	Medium	20
28. Product not installed to bottom plate	Low	20
29. Insulation labels not present (e.g. insulation, cylinder wrap)	Low	15
30. Cylinder wrap and pipe insulation installed with gaps or not correctly taped	Low	15
31. Moisture barrier not taped to piles	Low	10
32. No insulation under header tank	Low	10
33. Manhole is not insulated	Low	10
34. Debris not removed	Low	5

A service provider's risk status is determined by the service provider's average audit score. *Table B: Average audit score and risk status* below sets out how a service provider's average audit score translates into the service provider's risk status.

Table B: Average audit score and risk status

Average audit score of last 5 installations	Risk status
76-100	High
40 - 75	Medium
0 - 39	Low

7. PRODUCT AUDITING (CHECK TESTING)

In addition to the auditing of service providers' installations, EECA also randomly tests products accepted for use under the programme to determine it meets manufacturers' specifications and relevant standards. The check testing process is as follows:

Step	Action
1	A sample is selected from a home that had measures installed under the programme, removed from the home and forwarded for testing.
2	If an installation failure (not a product failure) is noted in the check testing process, the installation is treated as an audit and will be processed as a regular audit.
3	The sample is tested and a report is provided to EECA stating the R-value (thermal resistance) of the product sample and whether it passes or fails the performance and labeling requirements of AS/NZS 4859.1.
4	If the product fails check testing, EECA may conduct more testing to determine the extent of the problem. If the problem is significant EECA may remove the product from the List of Accepted Products.
5	EECA provides written notification that product has failed check testing to: <ul style="list-style-type: none"> ▪ the product manufacturer/supplier and ▪ the affected service providers.
6	EECA may require the manufacturer/supplier to undertake further testing for compliance of the product with the standard. The supplier has 21 days to: <ul style="list-style-type: none"> ▪ undertake remedial actions so the product meets EECA insulation product requirements; and ▪ rectify all installations using the non-complying production batch (e.g. by means of top-up insulation). The manufacturer/supplier must liaise with all affected service providers who must notify all affected homeowners.
7	The manufacturer/supplier reports back to EECA within 21 days, specifying the remedial actions taken. Where necessary, EECA undertakes follow-up tests to ensure the remedial actions are effective.
8	If the problem is resolved after 21 days, then the action taken is recorded by EECA and the file closed. If the problem is unresolved, EECA discusses progress with the supplier/manufacturer. Where a plan is in place and sufficient progress has been made, EECA provides an appropriate time extension. Where insufficient or no progress has been made, EECA may take a range of actions, including, but not limited to: <ul style="list-style-type: none"> ▪ removing the product from the List of Accepted Products; ▪ advising all service providers that the product is no longer accepted by EECA for use under the programme; or ▪ in the case of serious failures, forwarding the check testing results to the appropriate agency (e.g. the Commerce Commission) for further investigation and action.
9	EECA reserves the right to add or remove products from the List of Accepted Products. When considering an reapplication from a manufacturer/supplier for use of the product under the programme, EECA will consider the past performance of the product and the manufacturer/supplier.

XIV.APPENDICES

APPENDIX A: Product Policy

This policy sets out the criteria and process applied by EECA for assessing whether insulation products are acceptable for use under the *Warm Up New Zealand: Heat Smart* programme (“the programme”). The policy applies to ceiling insulation, underfloor insulation and hot water cylinder wraps.

The purpose of the policy is to:

- ensure the use of quality products that achieve the outcomes and deliver the benefits expected of the programme by the Government and homeowners; and
- provide the industry with a level playing field for the delivery of measures under the programme by clearly and transparently setting out the requirements for products accepted for use under the programme.

Manufacturers, suppliers and installers have obligations under the Fair Trading Act 1986, Consumer Guarantees Act 1993 and other relevant Acts, Regulations, Codes and Standards. This policy applies in addition to any statutory requirements. In the case of a conflict between this policy and a statutory requirement, the latter will prevail.

EECA's Technical Team is responsible for:

- maintaining this policy;
- assessing applications from product manufacturers or suppliers for EECA accepting ceiling insulation, underfloor insulation and hot water cylinder wrap products for use under the programme;
- deciding on the acceptability of a particular product for use under the programme based on this policy;
- maintaining EECA's List of Accepted Products (www.eeca.govt.nz/node/4910).

Insulation product performance criteria

In order to qualify for use and funding under the programme, EECA must be satisfied that an insulation product, as typically installed, meets the following seven criteria:

1. Product must meet New Zealand Building Act / Code requirements. For durability, product must last at least 15 years. Product that, once installed, is difficult to access or replace must last at least 50 years.

2. Product must perform to its stated R-value. Product must meet the testing and labelling requirements of *AS/NZS 4859:2002 Materials for the thermal insulation of buildings - General criteria and technical provisions* as tested and certified by an independent and accredited laboratory (AS/NZS 4859 is referenced in the New Zealand Building Code Compliance Document).

3. Product must be able to be installed correctly. Product must be able to be installed to *NZS 4246:2006 Energy efficiency – Installing insulation in residential buildings* and manufacturer's instructions. EECA will not accept a product that cannot be shown to be able to be installed consistently to achieve its stated R-value.

4. Product must perform over its stated life time. Some reduction in performance over time is inevitable with many products. However, EECA will not accept a product with the potential to deteriorate significantly over time, or a product with the potential to be damaged easily, e.g. in the course of regular home maintenance or repair work.

5. Product, as installed, must be amenable to independent check testing. Check testing is a critical element to ensure compliance with EECA performance requirements and manufacturer's specifications. Installed product sections must be able to be removed, transported and replaced easily exactly as installed. The process of removing product must not compromise the integrity and performance of the remaining product in situ. The check testing process is outlined below.

6. Product, during installation and as installed, must not endanger the health and safety of installers and occupants. The process of installing the product must not expose installers or occupants to health or safety risks that are unreasonable or difficult to manage. The product, once installed, must not pose a risk to the health and safety of occupants. The product, once installed, must not expose trades people carrying out maintenance or repair work to health or safety risks that are unreasonable or difficult to manage.

7. Product should not cause deterioration or damage to any part of the house. For example, a product should not increase the possibility of damage to the building structure (e.g. weathertightness, fire hazard). A product should promote reduced maintenance where possible.

A product manufacturer or supplier must satisfy EECA in its application that a particular product, as typically installed, meets all of the above criteria. EECA may, at its discretion:

- accept information such as independent laboratory testing or installation trials, in support of a manufacturer or supplier demonstrating compliance with the above criteria;
- request further evidence in respect of any of the above criteria if, in EECA's view, the information supplied in an application is insufficient to demonstrate compliance;
- refuse to accept a product for use under the programme if, in EECA's view, a product fails to comply with one or more of the above criteria; and
- remove an already accepted product from the List of Accepted Products if serious concerns are raised about the product's performance, its NZS 4859:1 test is not maintained, or if, in EECA's view, it fails to perform in situ.

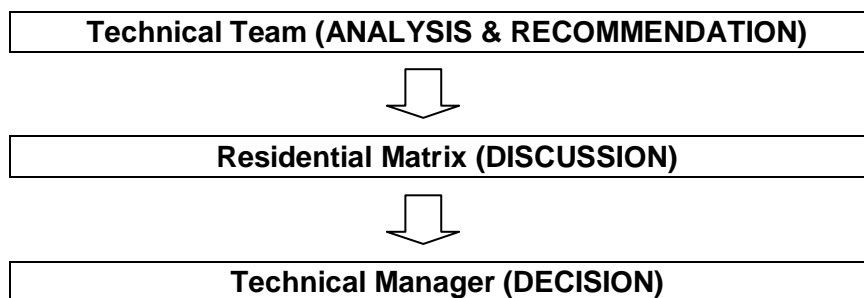
Following a decision to accept or not accept a product for use under the programme, EECA will formally write to the manufacturer or supplier to advise of the outcome and the reasons for EECA's decision. If a product is accepted by EECA for use under the programme, EECA will, within one week, add the product to the List of Accepted Products.

Product Approval Process

Product manufacturers or suppliers, or service providers interested in having a product assessed and accepted for use under the programme must complete the *Application Form for EECA Insulation Product Assessment (IPR1)* (attached) for each product.

EECA will assess each application using the *EECA Insulation Product Assessment Form (IPA1)* (attached). The assessment will occur as soon as possible, and the results conveyed to the applicant.

Applications will be considered in a three-stage process, as follows:



The Technical Team:

- receives applications for product approval;
- conducts a technical assessment of the application, taking advice from specialist advisers and other EECA business units as needed;
- completes Form IPA1 and sends it to the Residential Matrix with a recommendation (accepted/declined);
- informs applicants that a product has been accepted or declined, including the reasons for the decision; and
- ensures that, in the case of acceptance, the product is added to the List of Accepted Products.

The Residential Matrix:

- reviews the Technical Team's assessment and recommendation, considering the impact of the recommendation on each business group; and
- supports the recommendation or refers any objections or concerns back to the Technical Team for consideration.

The Technical Manager:

- reviews the Technical Team's recommendation and any feedback from the Residential Matrix;
- decides whether or not to accept the product and discusses the decision with the Manager Residential;
- communicates the decision back to the Technical Team.

Applications

Applications for products to be accepted by EECA for use and funding under the programme should be submitted to EECA's Technical Team:

Energy Efficiency and Conservation Authority
Technical Team
Level 8
44 The Terrace
PO Box 388
Wellington 6011

Applications should be accompanied by the attached *Application Form for EECA Insulation Product Assessment (IPR1)* and relevant documents in support of demonstrating compliance with the seven criteria outlined above.



Energy Efficiency and
Conservation Authority
Te Tari Tiaki Pūngao



Application Form for EECA Insulation Product Assessment (IPR1)

Applicant Name:	
Address:	
Telephone:	Email:
Website:	Date:

Product description	
History of product use in NZ and relevant references	
Benefits to EECA of accepting product for use under its programme(s)	
Typical wholesale and recommended retail prices for the product	
Copy of NZS4859 test certificate attached (if applicable)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Copy of product label attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Test certificates from an approved authority attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer's specification sheets attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Manufacturer's installation instructions attached	<input type="checkbox"/> Yes <input type="checkbox"/> No
When installed, complies with NZ Building Act/Code requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Complies with appropriate NZ, Australian, or International Standards?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Complies with Health & Safety requirements under NZ statutes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Information on embodied energy, life cycle analysis attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Can the product be recycled (and if so, by how much)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Additional information be attached (please list)?	



EECA Insulation Product Assessment Form (IPA1)

[Form completed by EECA]

Requirement / criterion (as per Product Policy)	Assessment	Evidence / comments	Action required
Form IPR1 completed and attached	<input type="checkbox"/> Yes <input type="checkbox"/> No		
1. Product meets Building Act/Code requirements	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2. Product performs to stated R-value	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3. Product can consistently be installed correctly	<input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Product performs over its stated life	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5. Product can be check-tested	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6. Product does not endanger health and safety	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Product does not cause deterioration or damage	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Accepted / comments	<input type="checkbox"/> Yes <input type="checkbox"/> No		

APPENDIX B: Assessment Form



Assessment Form

Homeowner	
Name	
Tenure	<input type="checkbox"/> Landlord <input type="checkbox"/> Owner Occupier
Home address	
Postcode	
Phone	
Tenant Phone	
Home pre-2000?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Ceiling insulation	
Is the ceiling accessible?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is existing insulation present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Thickness of existing insulation	<input type="checkbox"/> Below 75mm <input type="checkbox"/> 75 to 120mm <input type="checkbox"/> Over 120mm
Is the existing insulation installed to the requirements of NZS4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", provide details	
Does existing insulation need any repair?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes", provide details	
Ceiling area to be insulated (m ²)	
Are recessed downlights present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are chimneys / flues present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are unducted extractor fans present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is a mechanical ventilation system (e.g. HRV, DVS) present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Roof or plumbing leaks that need fixing before insulation can be installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Underfloor insulation	
Is the subfloor space accessible?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is existing insulation present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes", what is the condition and type of insulation fitted?	
Is the existing insulation installed to the requirements of NZS4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", provide details	
Does insulation need any repair?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes", provide details	
Underfloor area to be insulated (m ²)	

Ground vapour barrier	
Is an existing ground vapour barrier present?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is the subfloor enclosed by a continuous perimeter wall?	<input type="checkbox"/> Yes <input type="checkbox"/> No
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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there signs of inadequate ventilation in the subfloor space (e.g. dampness, wet soil)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes", can subfloor ventilation be improved to meet the requirements of New Zealand Building Code Acceptable Solution E2/AS1 sections 10.2.4 and 10.2.5?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Hot water cylinder wrap (electric hot water cylinders only)	
Is a cylinder wrap installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes", is it installed to NZS4246?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", can it be repaired or should it be replaced?	<input type="checkbox"/> Repair <input type="checkbox"/> Replace
Does the cylinder meet the requirement for EECA assistance (i.e. non-A-grade or non-MEPS compliant)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Volume of the cylinder in litres	litres <input type="checkbox"/> Unknown
Is there adequate clearance to install the cylinder wrap?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a

Pipe lagging	
Hot water pipe insulation already installed on the first 1.5 m of the hot water supply pipe off the cylinder? If "No", length of pipe that can be insulated	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 1.5 m If less, how much: m
Pipes exposed in ceiling space of climate zone 3 home or zone 1 or 2 home where regular freezing occurs? (Relevant only if ceiling insulation is to be installed in a home with no or little existing ceiling insulation.)	<input type="checkbox"/> Yes <input type="checkbox"/> No If "Yes", length required: m

Draught proofing	
Number of external doors with gaps >2 mm that require draught proofing?	<input type="checkbox"/> None <input type="checkbox"/> One <input type="checkbox"/> Two

Clean heating device	
Actions necessary to access funding for clean heating device. (Refer to Q & A Manual for info on homes that must have a vapour barrier and pipe lagging installed.)	<input type="checkbox"/> Install ceiling insulation <input type="checkbox"/> Repair ceiling insulation <input type="checkbox"/> Install underfloor insulation <input type="checkbox"/> Repair underfloor insulation <input type="checkbox"/> Install ground vapour barrier <input type="checkbox"/> Install pipe lagging in ceiling space

Recommendations & Comments	
Install ceiling insulation	<input type="checkbox"/>
Top up ceiling insulation	<input type="checkbox"/>
Repair ceiling insulation	<input type="checkbox"/>
Install underfloor insulation	<input type="checkbox"/>
Repair underfloor insulation	<input type="checkbox"/>
Install ground vapour barrier	<input type="checkbox"/>
Install hot water cylinder wrap	<input type="checkbox"/>
Install pipe lagging	<input type="checkbox"/> On exit of cylinder <input type="checkbox"/> In ceiling space
Install clean heater	<input type="checkbox"/> Heat pump <input type="checkbox"/> Gas heater <input type="checkbox"/> Wood fire <input type="checkbox"/> Pellet fire
Will the clean heater installation require Prescribed Electrical Work? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Install draught proofing	<input type="checkbox"/>

I declare and undertake that the information in this assessment form is correct and complete to the best of my knowledge.	
Signature: _____	Name (please print): _____
Service Provider: _____	Date: _____

APPENDIX C: CSC Declaration Forms

Tenant and landlord declaration

Landlords with tenants that hold Community Services Cards can get higher grants for insulation and clean heating under the *Warm Up New Zealand: Heat Smart* programme. This declaration must be completed by the tenant and the landlord to establish eligibility for the higher grant.

Tenant declaration

Name: _____

Date and place of birth, or ID number: _____

I declare that:

1. I reside at: _____
(ADDRESS OF PROPERTY FOR WHICH FUNDING IS SOUGHT)
2. I am named as a tenant on the Residential Tenancy Agreement for the property at that address.
3. I am the holder of a valid and current Community Services Card (CSC), or SuperGold Card with CSC endorsement, issued by the Ministry of Social Development (Work and Income / SuperGold Card Centre).

Date and signature: _____

Landlord declaration

Name: _____

Date and place of birth, or ID number: _____

I declare that:

1. I am the owner, or one of the owners, of the property at:

(ADDRESS OF PROPERTY FOR WHICH FUNDING IS SOUGHT)
2. The above tenant is named as a tenant on the Residential Tenancy Agreement for the property at that address.

Date and signature: _____

Service provider to complete (completed form to be kept on record by service provider)

I have sighted the Community Services Card, or SuperGold Card with CSC endorsement, issued to the tenant named above and established that the CSC, or CSC endorsement, is valid and current; and I have sighted the Residential Tenancy Agreement for the property for which funding is sought, and established that the tenant is named on the agreement.

Name: _____

Date and signature: _____

Homeowner declaration

Homeowners that hold Community Services Cards can get higher grants for insulation and clean heating under the *Warm Up New Zealand: Heat Smart* programme. This declaration must be completed by the homeowner to establish eligibility for the higher grant.

Declaration of homeowner

Name: _____

Date and place of birth, or ID number: _____

I declare that:

1. I reside, and am the owner (or one of the owners) of the property at:

ADDRESS OF PROPERTY FOR WHICH FUNDING IS SOUGHT

2. I am the holder of a valid and current Community Services Card (CSC), or SuperGold Card with CSC endorsement, issued by the Ministry of Social Development (Work and Income / SuperGold Card Centre).

Date and signature: _____

Service provider to complete (completed form to be kept on record by service provider)

I have sighted the Community Services Card, or SuperGold Card with CSC endorsement, issued to the homeowner named above and established that the CSC, or CSC endorsement, is valid and current; and I have sighted (tick one):

- a copy of the Title for the property for which funding is sought, and established that the homeowner is named on the Title; or
- a recent rates invoice from the relevant local authority, and established that the homeowner is named as a rate payer on the invoice.

Name: _____

Date and signature: _____

APPENDIX D: Post-Installation Audit Form



Post-Installation Audit Form

Service provider and auditor details	
Name of service provider	
Date of installation	
Name of person conducting audit	
Date of audit	

Homeowner or occupant details	
Name	
Address	
Phone number	

Ceiling insulation	
Was ceiling insulation installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", why not?	
What product was installed (manufacturer, type, R-value)?	
Was there any existing insulation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Insulation (new and existing) kept 150 mm from metal flues?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Insulation (new and existing) kept 150 mm from downlights?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Insulation (new and existing) kept 150 mm from non-ducted ceiling extractor fans?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Insulation (new and existing) kept 50 mm from concrete or brick chimneys?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Recessed spaces insulated down walls and across ceiling space?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
If blanket was installed, was it pushed down on the top plate to ensure no air gap?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Insulation has good friction fits both sides and ends?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Insulation tightly fitted between ceiling runners / strong backs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Insulation installed under header tank(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Any insulation touching roof materials?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Top plate covered (unless material would touch the roofing material, in which case a gap of 25 mm to the roofing material is required)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Manhole insulated and insulation attached to manhole?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Label attached in the vicinity of the manhole?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does installation meet NZS 4246 and best practice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Quantity installed? m²	Quantity quoted / claimed? m²	
Comments		

Underfloor insulation		
Was underfloor insulation installed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If "No", why not?		
What product was installed (manufacturer, type, R-value)?		
Was there any existing insulation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Product installed to bottom plate of exterior walls?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Insulation has good friction fits?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are there any gaps?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is there any sagging?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are any folds too big with insulation hanging below floor joist level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Insulation installed according to manufacturer's specifications?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does installation meet NZS 4246 and best practice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Quantity installed? m²	Quantity quoted / claimed? m²	
Comments		

Ground vapour barrier		
Was a ground vapour barrier installed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pinned/fixed adequately?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Taped securely around piles?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does installation meet NZS4246 and best practice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Quantity installed? m²	Quantity quoted / claimed? m²	
Comments		

Hot water cylinder wrap	
Cylinder wrap installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
What product was installed (manufacturer, type, R-value)?	
Label attached to the cylinder wrap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Wrap fitted correctly, e.g. fully sealed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does installation meet best practice?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Quantity installed?	Quantity quoted / claimed?
Comments	

Pipe lagging	
Hot water pipe leaving the cylinder lagged?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "Yes" was lagging installed prior to cylinder wrap?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Cold and hot water pipes in ceiling space lagged?	<input type="checkbox"/> Yes <input type="checkbox"/> No
All lagging taped correctly?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Joints and bends (if any) lagged correctly?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does installation meet best practice?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Length installed? m	Length quoted / claimed? m
Comments	

Draught proofing of doors	
Draught proofing installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Brush excluders installed?	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> n/a
Weather excluders installed on outside of doors?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a
Ends filed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does the installation meet best practice?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Comments	

Heating	
Clean heater installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Type of heater installed (enter make and model below)	<input type="checkbox"/> Wood fire <input type="checkbox"/> Pellet fire <input type="checkbox"/> Heat pump <input type="checkbox"/> Gas heater
In the case of a wood or pellet fire , was the installation carried out by an NZHHA Solid Fuel Appliance Installation Technician?	<input type="checkbox"/> Yes <input type="checkbox"/> No
In the case of a gas heater , was the installation carried out by a Registered Gasfitter? If "Yes": Has a Gas Certificate been issued?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
In the case of a heat pump , was the installation carried out in accordance with EECA's Good Practice Guide to Heat Pump Installation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the clean heater installation require Prescribed Electrical Work ? If "Yes": Was the work carried out or supervised by a Registered Electrician? Has an Electrical Certificate of Compliance been issued?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
Has building consent been obtained for the work? If "Yes": Who will arrange for the final inspection by the council and the issuing of the Code Compliance Certificate?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/> Service provider <input type="checkbox"/> Homeowner <input type="checkbox"/> Other (specify):
Comments	

APPENDIX E: New Zealand Climate Zones

Simplified summary

Climate zone 1

All areas north of, and including, Franklin District. Thames-Coromandel is also part of Climate Zone 1.

Climate zone 2

All North Island areas not covered by Climate Zones 1 and 3.

Climate zone 3

All of South Island and North Island Central Plateau (Taupo and Ruapehu Districts, and northern part of Rangitikei District).

Definitions (as per the New Zealand Building Code)

Climate zone 1 means—

- (a) all areas that at the close of 30 October 2007 were within the district of one of the following territorial authorities:
 - (i) Far North District Council
 - (ii) Whangarei District Council
 - (iii) Kaipara District Council
 - (iv) Rodney District Council
 - (v) Auckland City Council
 - (vi) North Shore City Council
 - (vii) Waitakere City Council
 - (viii) Manukau City Council
 - (ix) Papakura District Council
 - (x) Franklin District Council
 - (xi) Thames-Coromandel District Council and
- (b) all areas in those islands situated in the South Pacific Ocean lying between the 177th and 180th degrees of west longitude and between the 29th and 32nd parallels of south latitude, commonly known as the Kermadec Group and
- (c) all areas in other land territories, islands, and islets lying north of the 42nd parallel of south latitude and within the internal waters of New Zealand (as defined by section 4 of the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977).

Climate zone 2 means—

all areas that at the close of 30 October 2007—

- (a) were in any land territories, islands, and islets lying within the internal waters of New Zealand (as defined by section 4 of the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977) and
- (b) did not fall within climate zone 1 or climate zone 3.

Climate zone 3 means—

- (a) all areas in the North Island that at the close of 30 October 2007 were within the districts of the following territorial authorities:
 - (i) Taupo District Council
 - (ii) Ruapehu District Council and
- (b) all areas north of 39°50' south latitude that at the close of 30 October 2007 were within the district of the Rangitikei District Council and
- (c) all areas in the South Island and
- (d) the Chatham Islands, Stewart Island, and all other land territories, islands, and islets lying between the 162nd degree of east longitude and the 173rd degree of west longitude and between the 42nd and 53rd parallels of south latitude.

APPENDIX F: Requirements Flow Charts

This appendix provides five flow charts to aid service providers in assessing the requirements relating to (in order of priority):

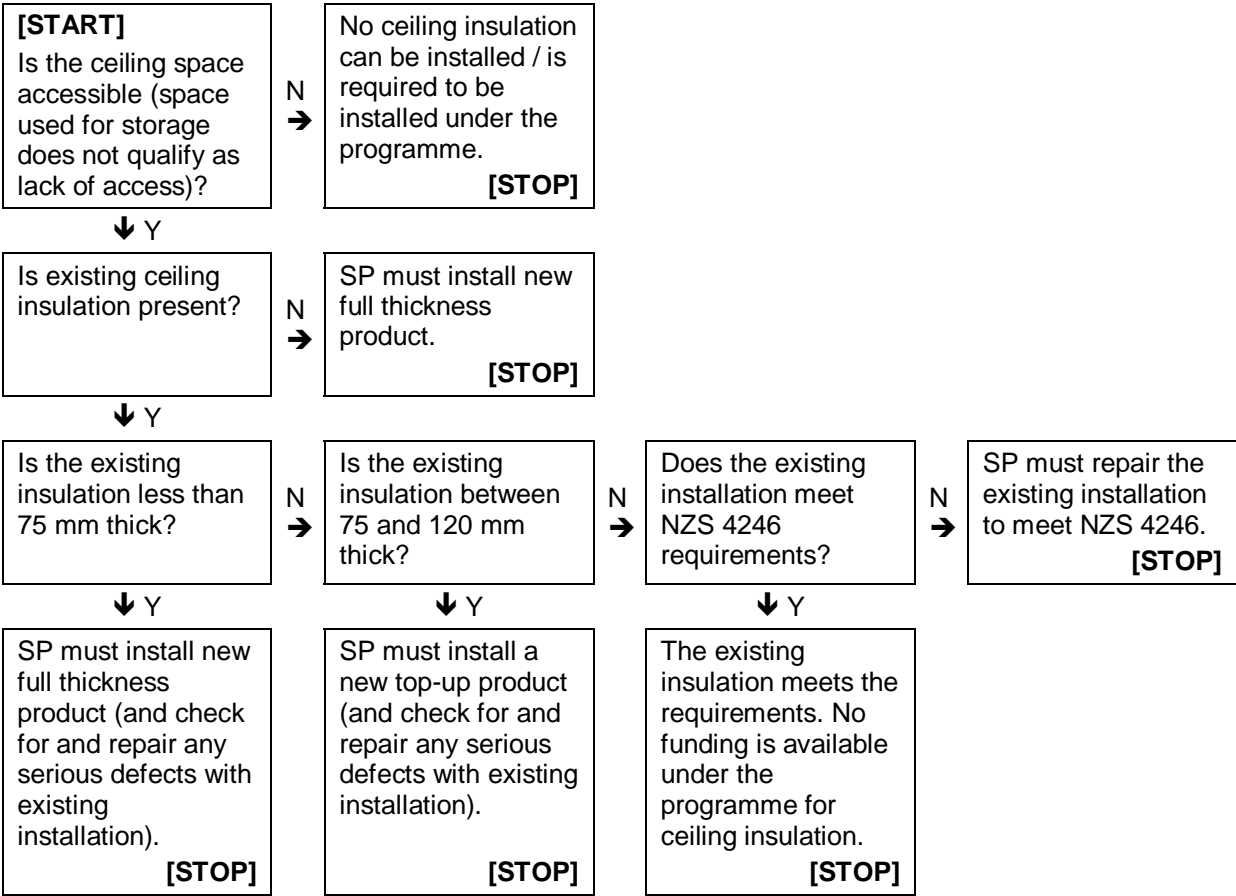
1. ceiling insulation;
2. underfloor insulation;
3. ground vapour barriers;
4. pipe lagging in ceiling spaces; and
5. clean heating devices.

The first four measures are mandatory measures under the programme, subject to certain conditions. The last measure (clean heating devices) is an optional measure but subject to the installation of the first four measures. The five attached flow charts are therefore dependent on each other and must be considered in the above order, i.e. starting with the ceiling insulation flow chart and finishing with the pipe lagging or clean heating devices flow chart.

Because the first four measures on the above list are mandatory, service providers should always work through the first four flow charts for each home they assess. If a potential customer seeks funding under the programme for a clean heating device, service providers should also work through the fifth flow chart to determine whether the requirements for funding for a clean heating device have been met.

The purpose of the flow charts is to complement the relevant sections in this manual. In the case of a conflict between a flow chart and the corresponding section in this manual, the content of the section will prevail.

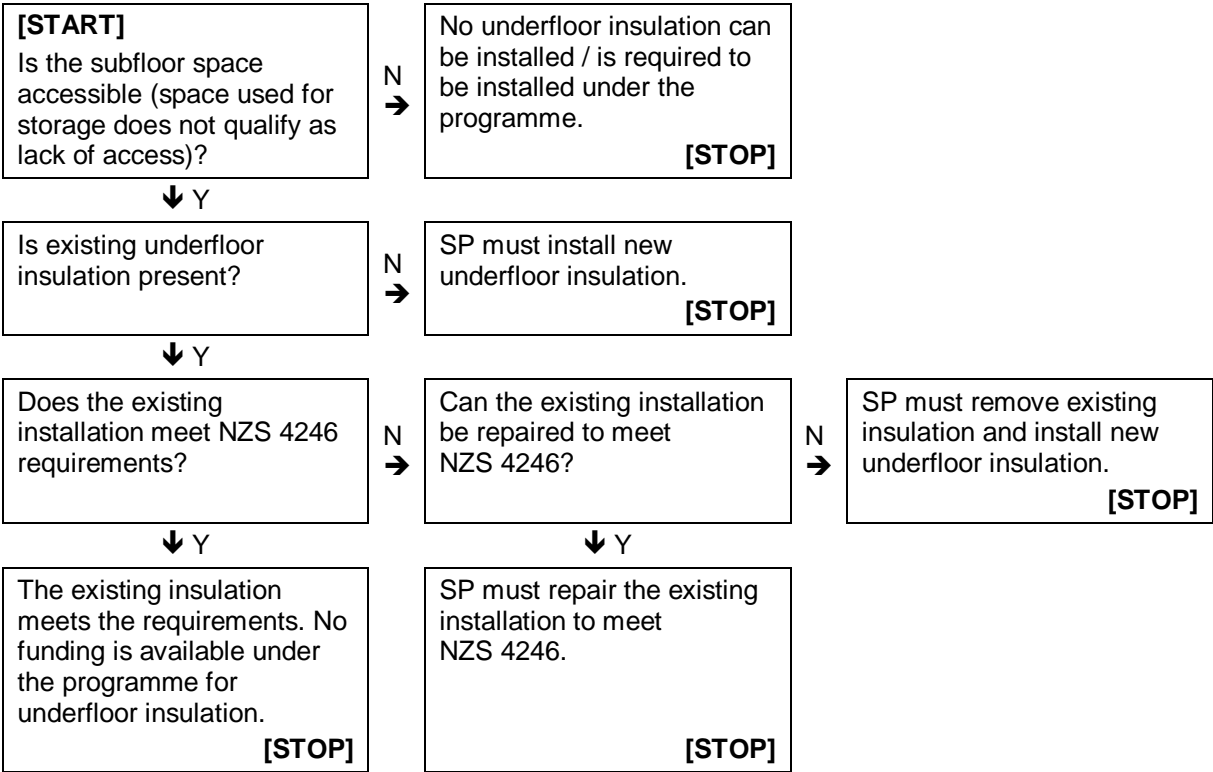
Flow chart 1: Requirements for ceiling insulation



Notes:

2. "SP" means "service provider"
3. Start with the box in the top left corner [START].
4. For a particular home and installation, answer the questions until you reach a box which says [STOP]. That box sets out the requirements applicable to the home / installation.
5. Make sure you meet the applicable requirements and move on to *Flow chart 2: Requirements for underfloor insulation.*

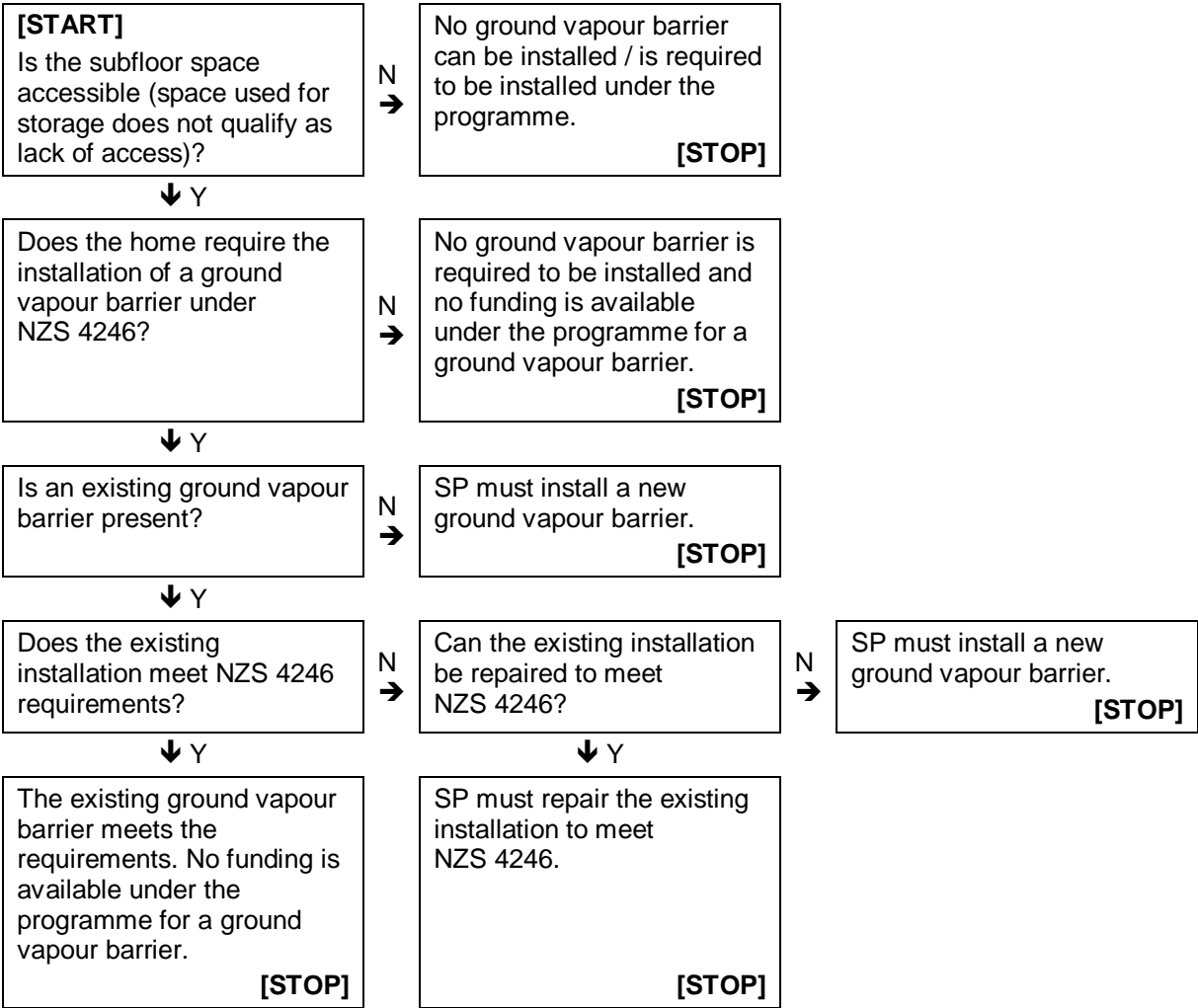
Flow chart 2: Requirements for underfloor insulation



Notes:

1. "SP" means "service provider"
2. Start with the box in the top left corner [START].
3. For a particular home and installation, answer the questions until you reach a box which says [STOP]. That box sets out the requirements applicable to the home / installation.
4. Make sure you meet the applicable requirements and move on to *Flow chart 3: Requirements for ground vapour barriers.*

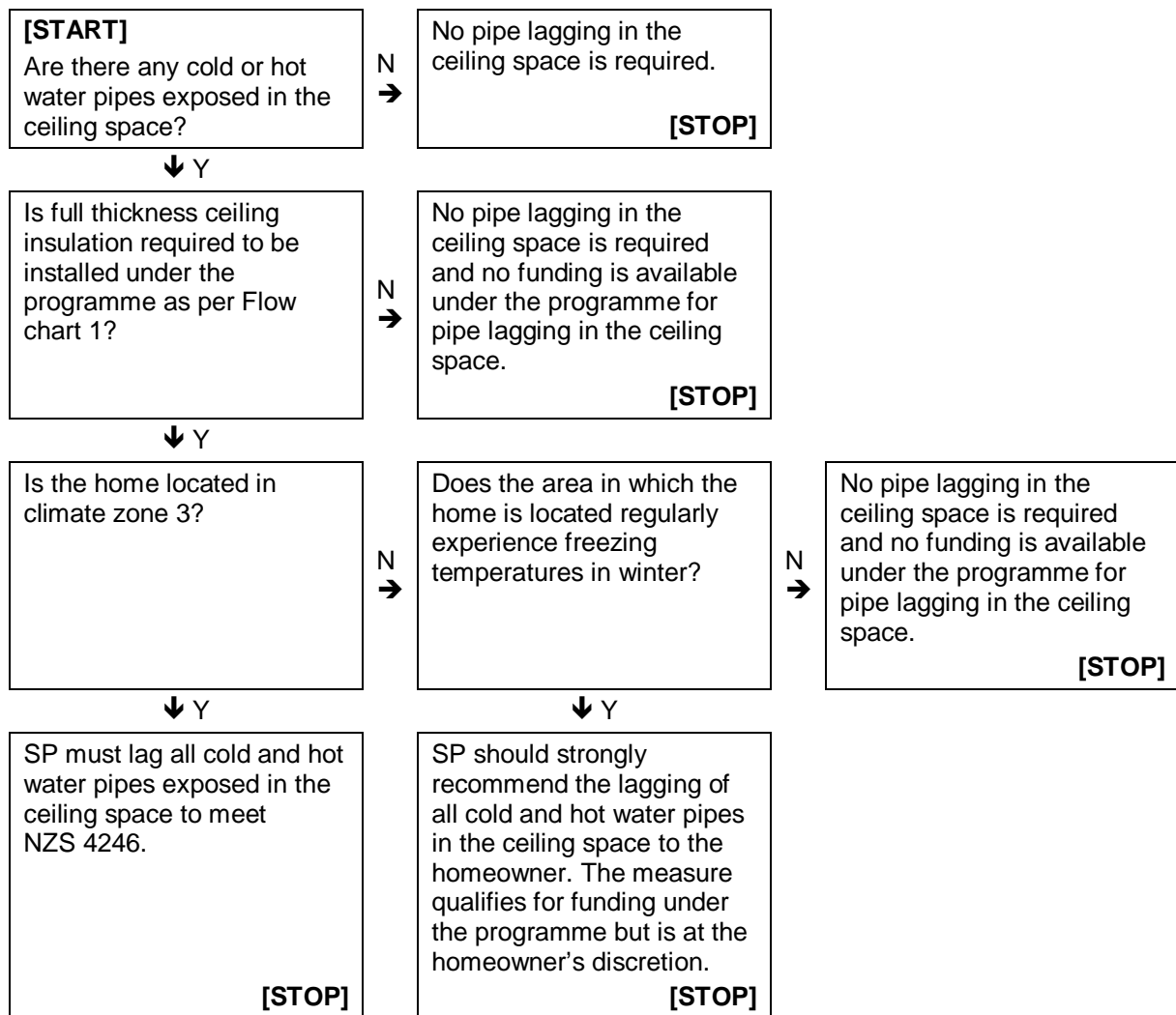
Flow chart 3: Requirements for ground vapour barriers



Notes:

1. "SP" means "service provider"
2. Start with the box in the top left corner [START].
3. For a particular home and installation, answer the questions until you reach a box which says [STOP]. That box sets out the requirements applicable to the home / installation.
4. Make sure you meet the applicable requirements and move on to *Flow chart 4: Requirements for pipe lagging in ceiling spaces.*

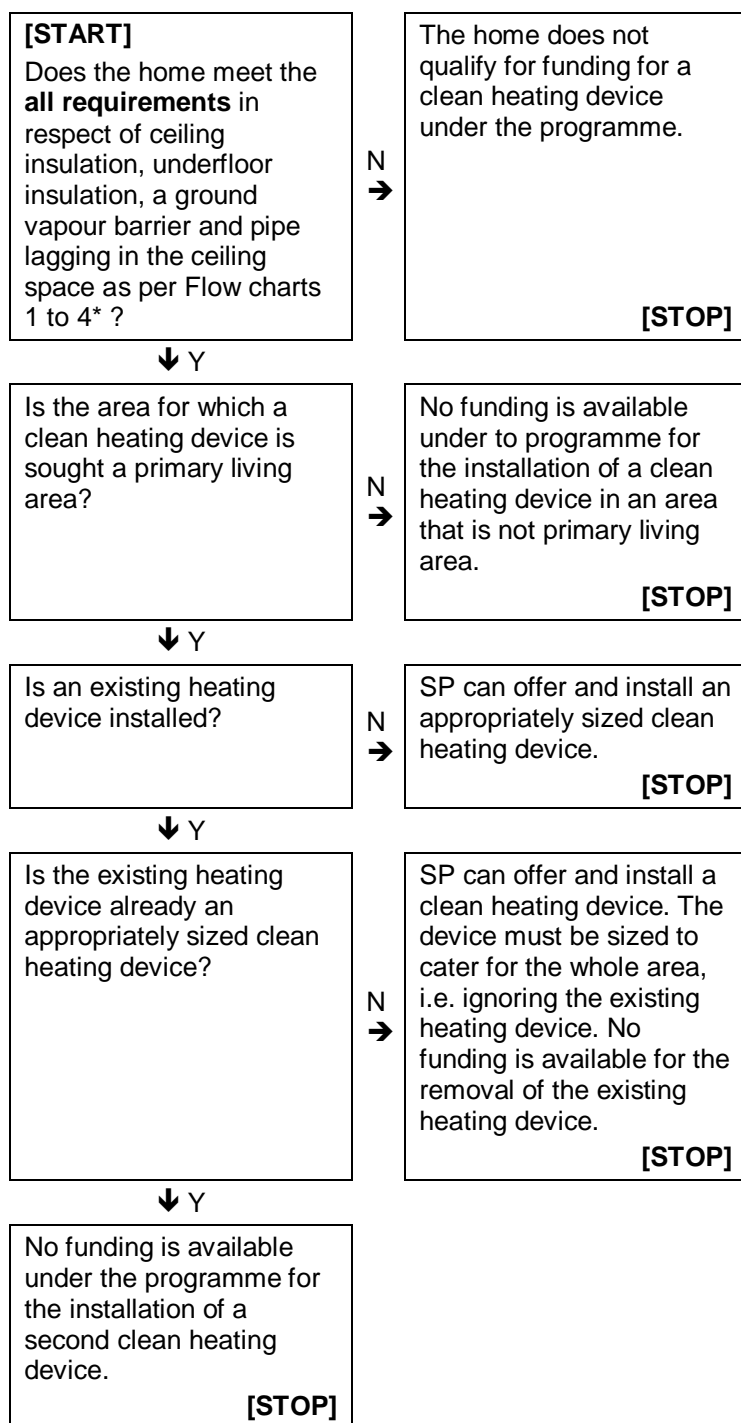
Flow chart 4: Requirements for pipe lagging in ceiling spaces



Notes:

1. "SP" means "service provider"
2. Start with the box in the top left corner [START].
3. For a particular home and installation, answer the questions until you reach a box which says [STOP]. That box sets out the requirements applicable to the home / installation.
4. Make sure you meet the applicable requirements and, if the homeowner seeks funding for a clean heating device, move on to *Flow chart 5: Requirements for clean heating devices*.

Flow chart 5: Requirements for clean heating devices



* Lack of access to install ceiling insulation, underfloor insulation, a ground vapour barrier or pipe lagging in the ceiling space does not preclude a homeowner from qualifying for funding for a clean heating device, unless the lack of access is the result of space used for storage.

Notes:

1. "SP" means "service provider"
2. Start with the box in the top left corner [START].
3. For a particular home and installation, answer the questions until you reach a box which says [STOP]. That box sets out the requirements applicable to the home / installation.