



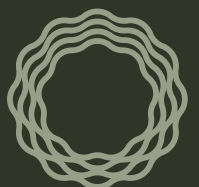
TERRA LANA WOOL INSULATION INSTALLATION GUIDES

- SKILLION CEILING
- TRUSS CEILING
- SERVICE CAVITY
- WALL
- UNDERFLOOR
- DROP IN FLOOR

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TERRA LANA WOOL INSULATION GENERAL INSTALLATION INSTRUCTIONS

SAFETY FIRST

- Terra Lana Wool Insulation is non-irritant, non-toxic and is completely safe to handle, however a dust mask and safety glasses are recommended during installation.
- Ensure a clear work environment, eliminating potential hazards such as sharp objects and obstructions.
- Identify all potential electrical hazards.

TOOLS AND EQUIPMENT

- A Bahco (or similar) Insulation Saw and sharpener (available from Terra Lana or local building merchants).
- A custom cutting jig can be made on site, using ply with a slot and 140 x 45 timber on a hinge to compress the insulation. An insulation saw & sharpener are required – contact Terra Lana for more details.
- **Terra Lana Insulation Clamp** (for hire)—Requires air compressor and Bahco (or similar) Insulation Saw & sharpener.
- For ongoing installation of insulation, a battery operated **Festool ISC 240** Insulation Saw, guide rail & angle stop can be purchased from Festool stockists – [see instructional video here](#). A sharpener will also be required.
- Hammer Tacker or Electric Stapler.

RETURNING OFFCUTS TO TERRA LANA

All Terra Lana insulation offcuts can be returned to the factory for recycling – See [guide](#) and [video instructions](#).

INSTALLING THE INSULATION

- Prior to installing, please check you have the correct product, including the correct width.
- Do not compress the product, unless this is a design specification, as this will reduce the thermal performance. Ensure there are no gaps between segments.
- Terra Lana can be torn across the width by hand, however an insulation saw may be required on thicker, denser products. Tearing half the thickness first, followed by the full thickness, can also make the process easier.
- Terra Lana insulation must be installed within three months of the manufacturing date on the packaging to ensure full loft recovery. The products can take up to a further three months to reach nominal thickness after installation.
- Specific clearances are required around flues, chimneys, Non CA rated recessed lighting and exhaust fans—refer to NZS4246 for further information.
- IC and IC-F rated downlights can be covered by Terra Lana insulation in accordance with NZS60598.2.2:2016 clause 2.4.103.1 & 2.4.103.2
- Terra Lana insulation must be installed in accordance with NZS 4246:2016 Energy Efficiency – installing insulation in Residential Buildings.

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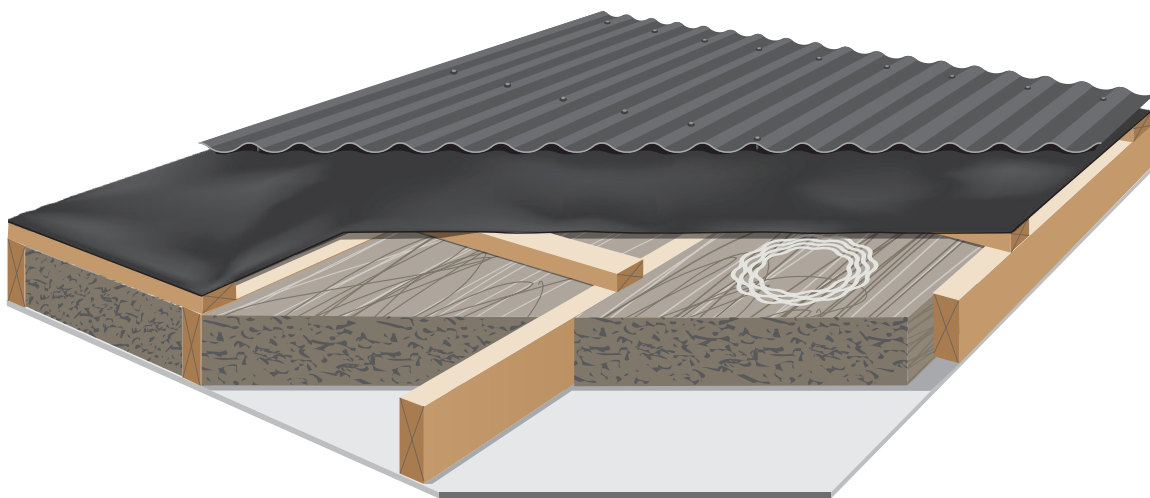


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TERRA LANA WOOL SKILLION CEILING INSULATION

INSTALLING THE INSULATION

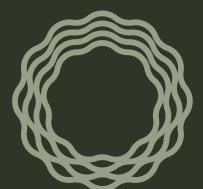
- Always ensure Terra Lana Ceiling insulation is cut 10-20mm wider than the Trusses or Rafters to ensure a friction fit with no gaps.
- When the product is required to be installed in two layers, ensure all end-joints are overlapped.
- Ensure Terra Lana is well supported by ceiling battens or rondo battens prior to ceiling lining being installed.
- Allow a 25mm gap between Terra Lana and the roof underlay.
- Cover all the ceiling, reaching to at least the middle of the exterior wall top plate.
- Off-cuts can be returned to the Terra Lana factory. Please contact Terra Lana to arrange.
- Skillion roof insulation is installed from the underside, after ceiling battens, electrical, plumbing and ducting has been installed.
- Where no battens are installed prior to the installation, either strap the underside of the rafters or staple the insulation directly to the inside of the rafters for support (both maybe required for products wider than 600mm).



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TERRA LANA WOOL INSULATION TRUSS & DOUBLE LAYER TRUSS SYSTEM

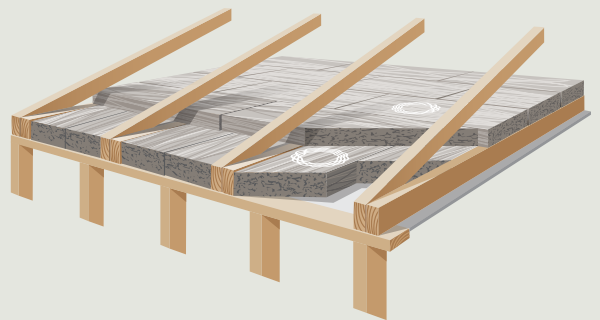
INSTALLING THE INSULATION

- Always ensure Terra Lana Ceiling insulation is cut 10-20mm wider than the Trusses or Rafters to ensure a friction fit with no gaps.
- When the product is required to be installed in two layers, ensure all end-joins are overlapped.
- Ensure Terra Lana is well supported by ceiling battens or rondo battens prior to ceiling lining being installed.
- Allow a 25mm gap between Terra Lana and the roof underlay.
- Cover all the ceiling, reaching to at least the middle of the exterior wall top plate.
- Off-cuts can be returned to the Terra Lana factory. Please contact Terra Lana to arrange.
- Cover all the ceiling, reaching to at least the middle of the exterior wall top plate.
- Specific clearances are required around flues, chimneys, Non CA rated recessed lighting and exhaust fans—refer to NZS4246 for further information.



DOUBLE LAYER TRUSS SYSTEM

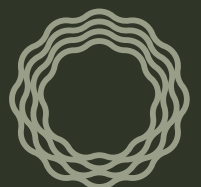
- Two perpendicular layers achieve higher thermal performance when compared to a single layer of the same nominal R-Value.
- Fit the first layer between the bottom chords and the second layer perpendicular over the top, tearing in from the sides around truss webbing.
- If you must lay parallel to bottom layer, offset to cover joins.



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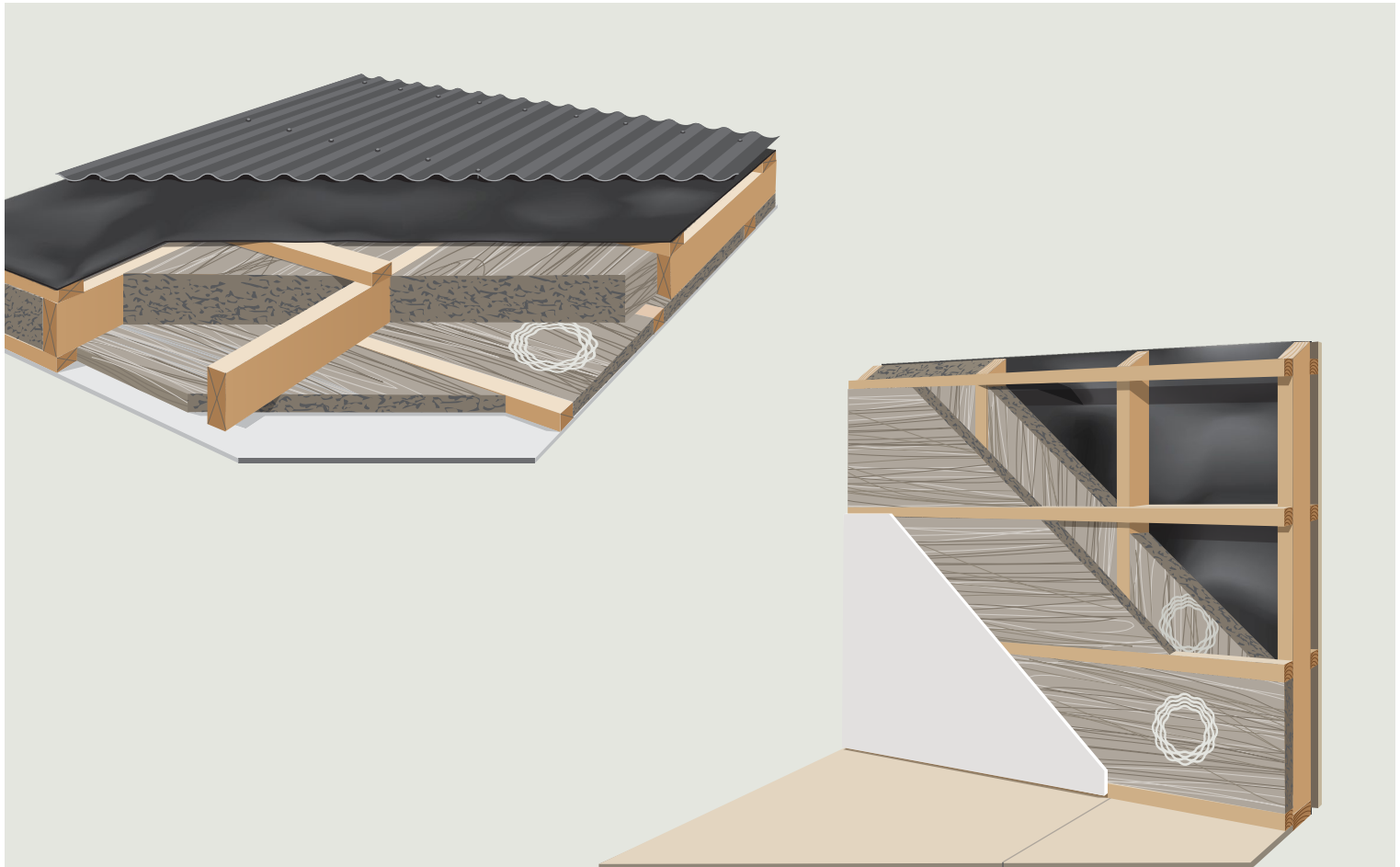
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TERRA LANA WOOL SERVICE CAVITY INSULATION

INSTALLING THE INSULATION

Terra Lana wool Service Cavity insulation is installed between service cavity or rondo battens, after electrical, plumbing and ducting has been installed. Terra Lana can be gently compressed or cut to accommodate services hardware.

- See **general instructions** for handling Terra Lana wool insulation (at the front of this document).
- Terra Lana service cavity insulation must be cut **10-20mm** wider than the gap between the timber ceiling battens and is stapled directly into the ceiling battens to hold in place, prior to the ceiling lining being installed.
- If installed between rondo battens, staple it to the underside of the bottom rafters.
- If an air-tightness layer is being installed on either the external walls or ceilings, ensure when stapling into service cavity battens that no staples penetrate the air-tightness layer.



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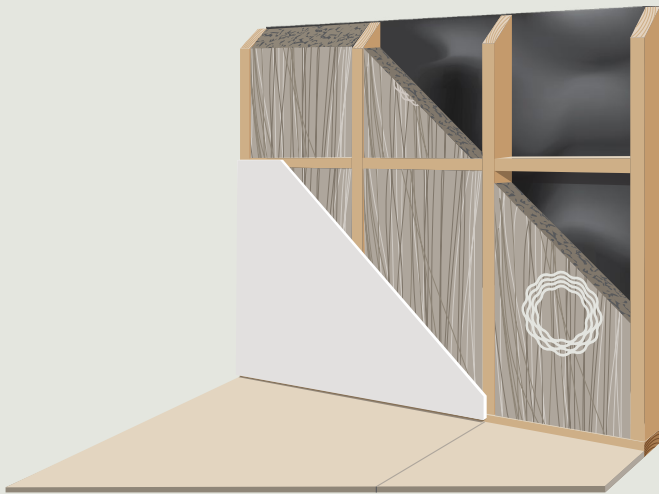
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TERRA LANA WOOL WALL INSULATION

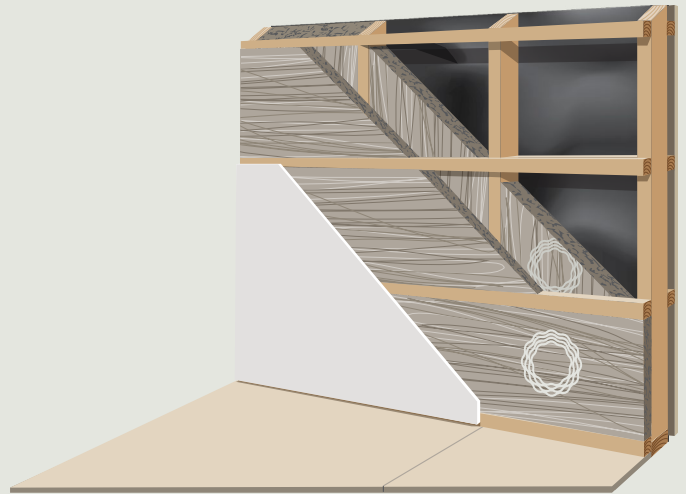
INSTALLING THE INSULATION

Terra Lana wool wall insulation is installed from inside, after external wall lining, after electrical, plumbing and ducting has been installed. Terra Lana can be gently compressed or cut to accommodate services hardware.

- See **general instructions** for handling Terra Lana wool insulation (at the front of this document).
- Insulation should be cut 5-10mm wider than the gap between the studs to ensure a tight friction fit.
- Insulate the complete wall area, ensuring a friction fit finish with no gaps. Do not compress the product, unless this is a design specification, as this will reduce the thermal performance.
- If the walls have no dwangs/nogs, stapling the product to the top plate is recommended to give additional support. For areas with no lining on one side of the studs, such as void walls, stapling the product is recommended.
- When installing around plumbing pipes and electrical wires, make every effort to avoid gaps and holes in the continuous thermal envelope.



EXTERIOR WALL



WALL WITH SERVICE CAVITY

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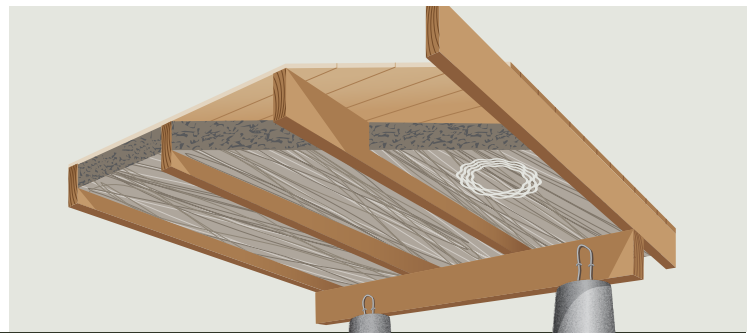
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TERRA LANA WOOL INSULATION RETROFIT UNDERFLOOR

INSTALLING THE INSULATION

Terra Lana Underfloor insulation is designed to be installed between joists from below, after flooring is installed.

- See **general instructions** for handling Terra Lana wool insulation (at the front of this document).
- Protective clothing is not needed for handling the product, however a subfloor site could have the need for the following; dust mask, safety glasses, headlamp, gloves and overalls.
- Terra Lana underfloor product is designed for all underfloor ground conditions and is suitable for open perimeter floor spaces. However the insulation will not prevent ground vapour rising and potentially causing damage to your home. If the ground is wet, we recommend installing a vapour barrier.
- The insulation must be installed with a suitable fire rated liner such as gypsum board if used in habitable spaces.
- Distribute the bags of Terra Lana product to the areas to be insulated. The underfloor bales are designed to be easily maneuverer under a home. Leave them bagged until you are ready to install each section.
- Split the bags, or pull the Terra Lana from the bag. Run the Terra Lana in a continuous length between the floor joists and over the main bearers.
- Terra Lana retro-fit insulation is designed to be installed from underneath the floor. Push the Terra Lana lightly against the bottom of the floorboards and pull the edge of the insulation down the joist on both sides. Staple on an angle through the edge of the insulation into the joists to secure in place. The idea is to allow the insulation enough space to loft to its designed thickness but still have the insulation in contact with the underside of the floor. At the end of the joists the stapling height should be closer to 50mm below the top of the joist to ensure no air can circulate above the insulation.
- Staples should be placed every 10cm or less, while keeping the Terra Lana firm and tensioned. Do not staple directly to the underside of the floor as this will compress the insulation and reduce its thermal properties.
- Two lengths of insulation can be butt-jointed mid-section by pressing the ends together firmly before stapling the new length.
- The insulation can be torn by hand across the width of the roll to trim the length to fit firmly against the bottom plate and joist noggings. It is good practice to also staple the ends of the rolls to the bottom plate and joist noggings.
- Where the floor joist spacings vary, measure the gap by holding Terra Lana up to the joist and simply rip across the segment to size, push into place and staple.
- Clearances: Leave a 100mm gap between insulation and waste pipes that penetrate through the floor, and a 200mm gap between insulation and underfloor lighting and heat sources.
- On completion, remove all plastic bags and leftover material from the underfloor space.
- Staple a Product Information and Identification Certificate adjacent to the underfloor access for future reference.



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TERRA LANA WOOL DROP IN FLOOR INSULATION

GENERAL

This product is specifically designed for suspended timber framed floors, where insulation is installed from above the floor joists prior to sheet flooring being installed. The system comprises of a proprietary fastening system which is installed first and semi-rigid insulation which is suspended in the proprietary fastening system. Terra Lana has developed specific tools and cutting equipment that does not necessarily need to be used but does make the installation easier and faster. The method of installation and the tools for installation are protected by New Zealand Patent No. 774996. Drop In Floor Insulation can be safely installed without gloves or protective clothing and insulation can be safely exposed continuously to temperatures up to 90°C.

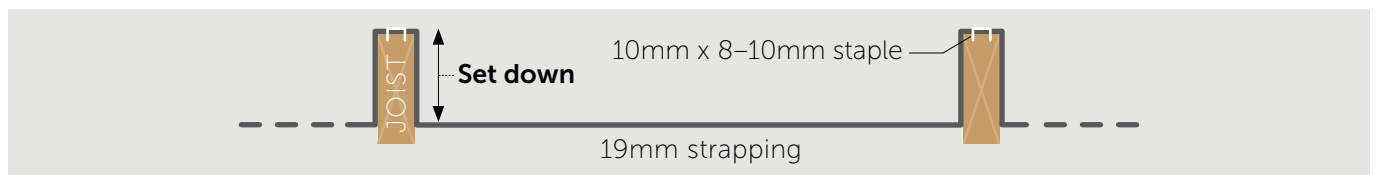
EQUIPMENT

- Terra Lana Insulation Clamp (for hire in Chch only), air compressor and Bahco (or similar) Saw and sharpener.
- Terra Lana proprietary DIF staplegun (for hire from Terra Lana).

INSTALLING THE FASTENING SYSTEM

Terra Lana Drop In Floor insulation is designed to be installed between joists from above, before flooring is installed. This is achieved by Terra Lana's proprietary fastening system.

- Fix 19mm builder's strapping between floor joists with a specific set down to ensure the insulation remains in contact with the sheet flooring, while not being overly compressed.



- It is important the correct configuration as per below table is achieved for each of the products.

PRODUCT	JOIST SPACING (mm)	INSULATION WIDTH (mm)	MIN. JOIST DEPTH (mm)	SET DOWN (mm)	SECTION STRAP LENGTH (mm)
110mm	400	365	140	100	600
	450	415	140	100	650
	600	565	140	100	800
140mm	400	365	170	130	660
	450	415	170	130	710
	600	565	170	130	860

- We recommend using the proprietary stapling tool supplied by Terra Lana to quickly set the strapping to the correct depth as the strapping is stapled into the top of the floor joist. Specific video instructions are supplied with this tool in order to quickly and easily meet the requirements of this procedure.
- Working from one side of the house to the other, staple the strapping into the top of the floor joist while maintaining the correct set down for each joist spacing (refer to table above). Use galvanized staples with a 10mm crown and an 8 or 10mm leg. Ensure the staple is centered in the middle of the strapping and in the middle of the top of the joist as per the following illustration.

Continued overleaf

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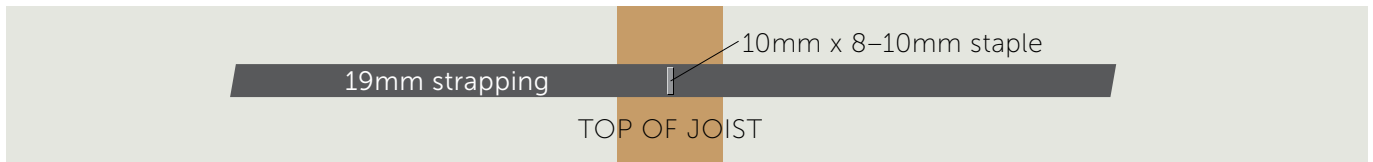


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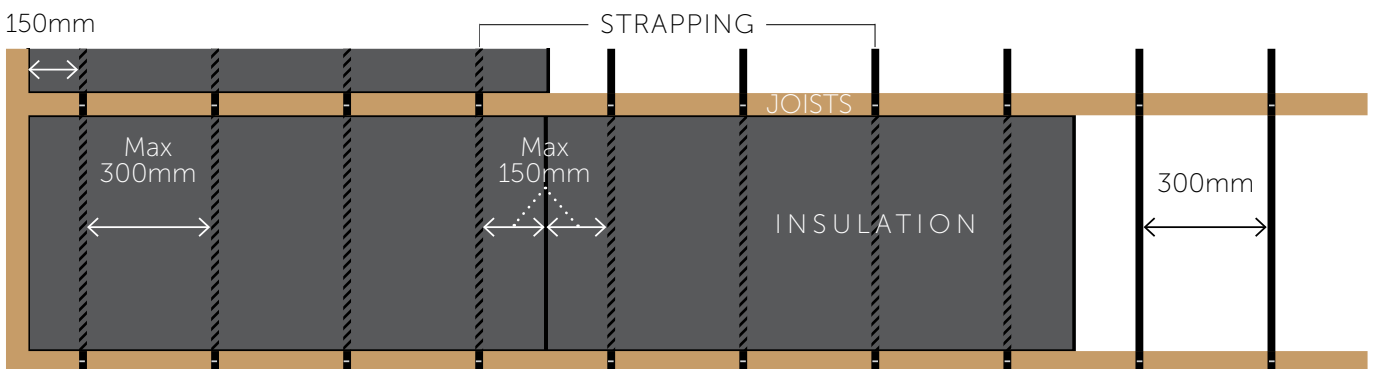
DROP IN FLOOR INSULATION (continued)



- The first line of strapping must be 150mm from the header joist, boundary joist, solid foundation, or solid blocking (between the ends of the joists). Strapping must be spaced a maximum of every 300mm thereafter.
- Strap the entire floor frame before installing insulation.

INSTALLING THE INSULATION

- See **general instructions** for handling Terra Lana wool insulation (at the front of this document).
- Choose the correct width insulation for the common joist spacings as per the Installation Specifications table (previous page). Where the joists spacings are less than the common spacings, the insulation segments must be cut **10mm** wider than the gap between joists.
- Install the insulation with the more rigid side facing down. The more rigid underside of the insulation is designed to spread the strapping between the floor joists without significant compression of the insulation. Furthermore, the more rigid side of the insulation mitigates the effect of wind wash.
- Push insulation slabs down evenly on both sides until cradled within the strapping. If necessary, spread the insulation upwards so that the bulk of the insulation fills the void between the strapping and the top of the joists.
- Note: the insulation can take up to three months to fully recover its thickness after compression packaging.
- Work your way along the length of the slab pushing the insulation in and then spreading it up.
- Allow a **5mm** overlap where the insulation abuts another slab or blocking. The insulation is designed to allow a small amount of compression across the length and width so that once installed it presses firmly with no gaps and minimal creasing against floor joists and adjacent slabs. The join between two insulation slabs can be up to **300mm** from the strapping, however for best results the gap should be **50mm – 250mm** from strapping.
- Where partial depth blocking has been used i.e. 90 x 45mm timber placed on its side, run plastic strapping **150mm** each side of the blocking. Cut the insulation so that it butt joins under the partial depth blocking.
- For gaps of less than **150mm** between joists, the product will self-support without plastic strapping.
- Where segments are cut less than **500mm** in length, a minimum of two straps is required to suspend segments.



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