The Low Down on Spray Foam

What you need to know for a warmer, more comfortable home.

research compiled and presented by

nzfoam
warmer forever.™

Contents

Want more details and data? **Contact us** *at any time*

Polyurethane Spray Foam Insulation:

The Best Insulation Product on the Market.

What is the single most effective way to improve your home's performance and save money on energy costs? Seal gaps to prevent heat loss from air movement.

This is why closed cell polyurethane spray foam has the highest RV rating of any insulation product available globally. It fills cracks and seals drafts. It does not settle or sag and can be applied to awkward areas.

Closed cell foam has been used as insulation in industrial applications since the 1970s and is growing in popularity as a residential product - as more discerning home-owners choose comfortable, high-performing homes. Closed cell foam is the insulation of choice in extreme environments and even used to insulate spacecraft*.

As anyone who lives in a well-insulated house will tell you, the comfort is priceless.

- **Best thermal performance (R-value 4.76 at 100mm)**
- **Great for heating and cooling**
- **Better air quality**
- **Quieter home**
- **Increases the building's structural strength**
- **Will not sag or slump**
- **Choose your insulation thickness**
- **No harm to electrical wiring, plumbing or other building components**
- **Odourless product**
- **Save on heating costs**
- **Performs for the life of the building**
- **20% recycled materials**
- **Lower environmental impact**

*Sources:
http://dura-foam.com/resources/foam-roofing/nasa-shuttle-fuel-tank/

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Kiwis are suffering in cold, damp homes.

The Building Research Association (BRANZ) has found that the average winter living room temperature in Kiwi homes is below the World Health Organisation's recommendation of 18˚C.

The average is just below at 17.8˚C but some homes get as cold as 10˚C at night. BRANZ also found that almost a third of rental houses feel damp - along with 11% of those occupied by their owners.

Cold homes contribute to increases in deaths and disease. A recent World Health Organisation report found that cold indoor temperatures have been associated with increased blood pressure, asthma symptoms and poor mental health. It is estimated that in New Zealand 1600 more people die in winter, with respiratory and cardiovascular disease high in these statistics. Elderly people, children and those with long-term illnesses are particularly vulnerable. New Zealand has one of the highest rates of asthma in the world.

Spray foam insulation gives families the best thermal performance possible by filling and sealing cracks and drafts to block the transfer of air.

"Kiwi homes are below the World Health Organisation's recommendation and New Zealand has the third highest rate of asthma in the world!"

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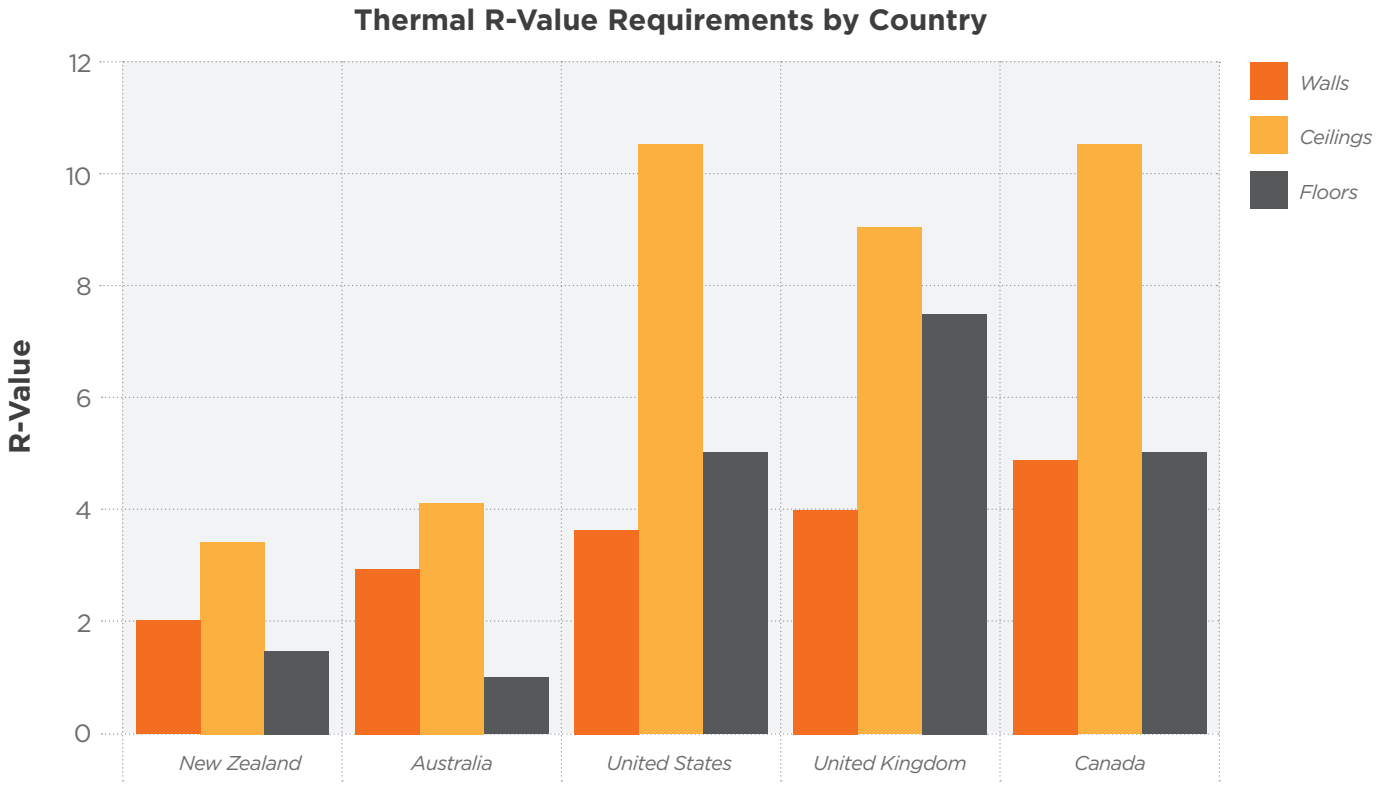
Better Building: What standard will you build to?

"If I follow the building code, I'll be fine, right?"

Not if you're aiming for a warm and comfortable home. The New Zealand Building Code lags dramatically behind international standards.* An OECD Environmental Performance Review of New Zealand in 2017 showed our standards were less stringent than many other OECD member countries and recommended modernising the code "to avoid retrofitting new houses". Our R-value requirements† are half of that of Australia and a third of the UK and Ireland.



Sources:
*International Energy Agency, Energy Policies of IEA Countries, 2017 Review
†NZ's Building Performance, 2017, Berndatte Muir, Ara Institute of Canterbury, and Rory Greenan, School of Engineering, Trinity College, Dublin
R-Value graph sources: https://www.building.govt.nz, http://www.yourhome.gov.au, https://www.energy.gov, https://www.lowes.com/

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Better Building: What standard will you build to?

Homestar ratings explained.

Homestar is a tool that rates the environmental impact of new homes in New Zealand. The tool is run by the New Zealand Green Building Council, who estimate that a house built to the NZ Building Code would only score 3 or 4 stars out of 10.

Homestar gives ratings between 6 and 10. A 6 Homestar rating means your home is warmer, drier, healthier and costs less to run than a typical new house building to the code. A 10 Homestar rating means you've built a world-leading home.

There are proven benefits to building homes with higher energy and efficiency ratings. These benefits show up first on your power bill. It costs less to keep your home warm, comfortable and healthy.

The NZ Green Building Coucil has estimated the payback time of going for a Greenstar rating around the country. In Auckland, the cost of achieving Homestar 6 in energy and water savings is paid back in just two years. In Christchurch, it takes five years to pay it back. In Auckland a 6 Homestar home is estimated to be 38% more energy efficient than a home built to the building code.*

Spray foam insulation is a great way to boost the Homestar rating of your home. An investment here will pay you back with comfort, health and energy savings. As the Homestar rating gains popularity around the country, a higher rating will also likely mean a higher resale value.

homestar™
Know your home

Sources:
* https://www.oneroof.co.nz/news/revealed-the-payback-time-on-a-homestar-rated-home-36163

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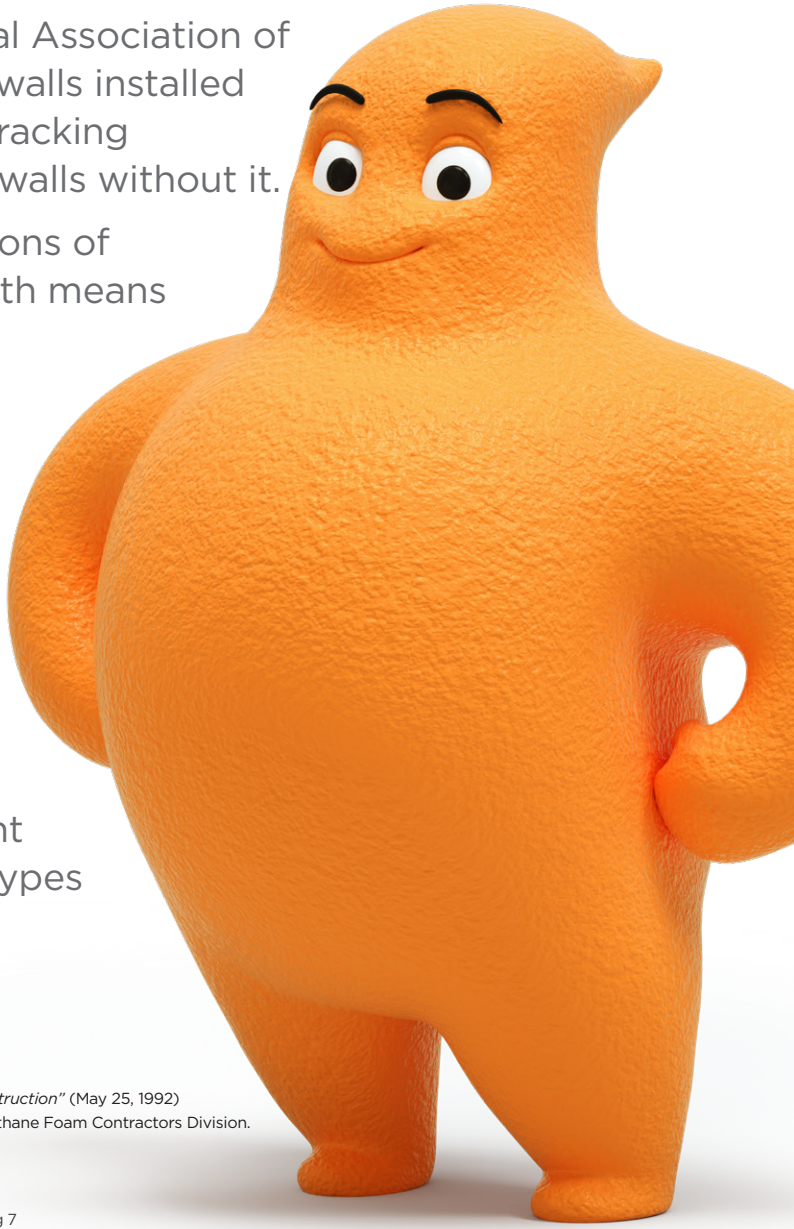
Better Building: What standard will you build to?

Spray foam: added strength.

As a rigid barrier, we believe spray foam actually adds strength to the building envelope and provides stability to the structure.

Research conducted by the National Association of Home Builders (NAHB) has shown walls installed with closed-cell spray foam have a racking strength up to 300% greater* than walls without it.

Especially in earthquake prone regions of New Zealand, this additional strength means additional peace of mind.



Spray foam: disaster resistance.

In extreme environments like flood prone areas, closed cell foam is the only type of insulation classified as "acceptable flood-resistant material" by the US Federal Emergency Management Agency. Batt or blanket insulation types and all other insulation types are classified as "unacceptable".

Sources:
* *"Testing and Adoption of Spray Polyurethane Foam for Wood Frame Building Construction"* (May 25, 1992) prepared by NAHB Research Center for The Society of the Plastics Industry/Polyurethane Foam Contractors Division.

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Fibreglass vs. Spray Foam.

There's more to this comparison than just reading the R-values on the packet!

When a US Department of Energy-funded laboratory looked into the difference between R-values on the label versus in the walls, they found that even "perfectly installed" fibreglass insulation had R-values 11% lower than on the label. "Commonly installed" fibreglass batts dropped to 20% lower than labelled.

With spray foam insulation, the R-value you choose to install will be the R-value your house enjoys - for the life of the building.

While fibreglass's performance reduces over time, spray foam doesn't change.

Spray foam: protect from windwashing

Windwashing is when wind pressure on exposed edges or corners allows air into the home's insulation, stripping of heat. You can think of it like wind coming through a wooly jumper. Fiberglass and rockwool insulation are the most vulnerable.

Windtightness is considered the missing link in thermal performance and one that is often overlooked by building designers. This is like choosing a wind-proof jacket over a wooly jumper to trap the warm air in.

Because closed-cell foam fills all gaps - you're choosing the wind-proof jacket when you choose spray foam.

"Some fibreglass insulation had 20% lower R-values when installed than were shown on the label!"

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Spray Foam: Lower Environmental Impact.

Because spray foam lasts longer and makes for more energy efficient homes, it's overall environmental impact is lower.

The Spray Polyurethane Foam Alliance in the US completed a lifecycle analysis to to look at the environmental impact of the manufacturing as well as the energy use phase of the products in homes.

The study showed foam paid back the energy of production in one to two years and paid back the greenhouse gas emissions in 9 months to eight years. This resulted in a reduction of greenhouses gases over the product's 60 year lifespan.

Durability is a key component in spray foam's impact. The cellular structure of polyurethane foam means its performance remain unchanged with the passage of time.

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Case Study: Investing in Comfort and Health.

When building a new home in Fendalton, Garry and Monique were determined to find the best insulation option - one that would suit the New Zealand climate and wouldn't deteriorate over time.

Since moving into their spray foam insulated home, they have noticed an even temperature throughout the house, regardless of whether it's hot or cold outside.

"For me, it did multiple things," says Monique. "We knew the product would last for a very long period of time. We also knew that foam would actually earthquake strengthen our home. So there are a whole range of benefits we wouldn't have got from using a standard solution."

After spending money installing a heated floor slab, Monique had concerns about turning it on. "We had some friends who had conventional insulation in their new build and couldn't afford to run their underfloor heating. I think they got a bill of $1600 for the month.

"What we found was that whilst we needed to put the floor on at the beginning while the slab was drying out, we haven't needed to have the floor on for months and months because of the insulation we've got here."

Monique says the choice has been cost effective. "We've seen the reduced cost in our electricity bill."

Moisture hasn't been a problem. And the couple's children, who experienced asthma prior to moving in, haven't had any problems in this house.

Garry says they always mention the foam insulation to guests when showing them around the house.

"It's not often people point out their insulation. That shows how proud we are to have this product."

Case Study:
Saving for the Future.

In this award-winning Christchurch home, parents put their monthly energy savings into an account for their toddler's future.

The NZ Foam system was installed in the walls, ceiling and floor to keep heat loss to an average of 3.6 degrees overnight. In summer uncomfortable extremes in heat are also kept at bay. The R-value has been measured at 5.1 in the ceiling and 3.6 in the walls.

With solar panels on the roof, a heat recovery system and Tropicair dual burner, this house is in use 24/7 but has monthly power bills of around $145 in the depths of winter and as low as $25 in summer.

Built by Fusion Homes, this house was recognised with the Lifestyle Sustainability Award in the 2017 Canterbury Master Build Awards.

"This family's power bills were as low as $25 in summer!"

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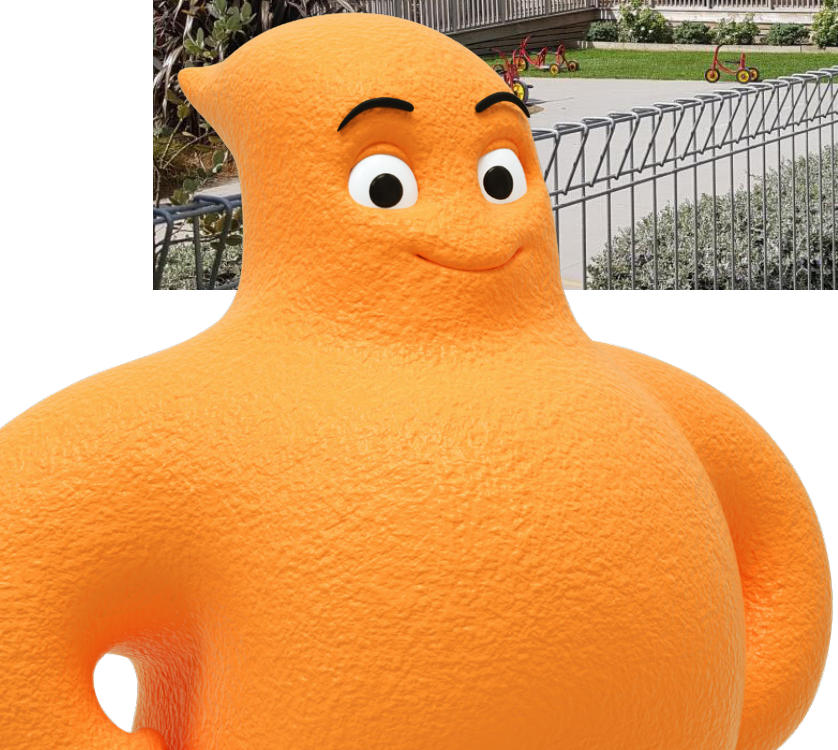
Case Study: Pre-school kids healthy and warm!

Three years after the Bishopdale Community Pre-school was re-built with NZ Foam insulation, staff are reporting a decline in asthma.

"There's no dampness, condensation or moisture and I never feel a draft," says centre manager Sara Straver. In the previous building, 10 children required inhalers. Now, there are none. With no off-gassing and an ideal humidity of 47%, visitors and staff are noticeably more comfortable in the new space.

Although the new centre is four times the size of the previous building, the average monthly power bill is now lower!



"In the previous building, 10 children required inhalers. Now there are none!"

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About Us: NZFoam Warmer Forever™!

Seven years ago, builder Chris Haughey decided he'd had enough of bad insulation. He put a challenge to his team - go find the best insulation available.

The answer was clear - spray foam achieved the highest R-value, protected from windwashing would be the way to make sure the homes he built would be warm and healthy places for his clients.

Chris started NZ Foam to offer these performance benefits to all New Zealanders, regardless of the builder they chose, and today the company is growing at a rate of 25% per year, as more and more New Zealanders decide they won't settle for the low standards of the building code when it comes to insulating their new homes.

"When I go back to visit clients, I often get a hug and a thank you," Chris says. "They tell me their kids don't get asthma anymore. They're so happy they invested in the best insulation."

"We want to change the way the country lives," says Chris. "Because everyone deserves a healthy, comfortable home.

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