

# BUILDER'S MATE

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## INSTALLING SOLAR PANELS

Since the government introduced subsidies through the Warm Up New Zealand: Heat Smart programme in 2009, solar water heating systems are increasing in popularity for new builds and retrofits.

To get the most benefit, correct positioning and good installation of roof-mounted solar collector panels are essential.

### Check the roof is suitable

- The roof area must be big enough for the required installation.
- The roof structure must be able to cope with the weight and wind loading of the panels – check with

the engineer if in doubt or if the roof needs to be strengthened.

- There needs to be a convenient route for the pipework between the collector and the hot water cylinder.

>



**Win!**

A Baileys BXS13 Extendable Step Ladder

Worth **\$289!**

## INDUSTRY NEWS

### REBRI refreshed

The construction and demolition (C&D) industry is one of the largest waste producing industries in New Zealand. C&D waste may represent up to 50% of all waste generated in New Zealand, 20% of all waste going to landfill and 80% of all waste going to cleanfill. REBRI (which stands for Resource Efficiency in the Building and Related Industries) is an online guide packed with tips for builders on resource efficiency – using materials, energy, time and money more effectively. Check out the new updated REBRI website – now hosted by BRANZ – at [www.rebri.org.nz](http://www.rebri.org.nz).

### Apprentice of the Year

Hawke's Bay carpentry apprentice Nathan Biggs is the 2009 Registered Master Builders Apprentice of the Year, in association with Carters. His award was presented in Wellington late last year, after the finalists attended a morning tea at Parliament, hosted by Minister for Building and Construction Hon Maurice Williamson, and also visited the BRANZ site at Judgeford, north of Wellington.

## HAMMER 'N' NAILS

I KNOW CONSERVING ENERGY IS ALL THE RAGE, HAMMER. BUT IT WON'T GET THE JOB FINISHED.



- There needs to be access for maintaining the roof and the collector panels.
- Installing the panel must not affect the durability or performance of the roof cladding.

### Position the panels for maximum solar gain

- Face the collector panels true north, although between NNE and NNW is acceptable (see Figure 1). (In Wellington, true north is approximately 20° west of magnetic north.)
- Install the panels at the same angle as the latitude of the location. (If the existing roof angle is within 10° of this, you can install the panels at the roof angle.) For example, Wellington is at latitude 41°S, so ideally the collector angle should be mounted at 41° to the horizontal (see Figure 2).
- There should be no shading on the panels (e.g. from trees, other buildings) or as little as possible, especially during winter months.

The panels should also be positioned so that they are not obstructing drainage paths, are not likely to collect roof debris and are away from gable edges (see Figure 3).

### Options for fixing solar collector panels

- Parallel and directly onto the roof, with an air gap between the panel and the roof cladding.
- Elevated on a frame and parallel to the roof (but note that with both these options that if the roof angle is significantly different to the latitude, the efficiency of the unit will be reduced).
- On frames fixed onto a low slope roof at an angle to maximise solar gain.
- As insets into the roof if the weathertightness of the roof can be maintained.

Panels must be strapped, bolted and secured against the seismic and wind loadings of the region and installed according to the manufacturer's instructions to maintain the weathertightness and integrity of the roof. Collector panel materials and fixings must be compatible with adjacent roofing materials.

For more information, see *Build* 115, pages 31–33.

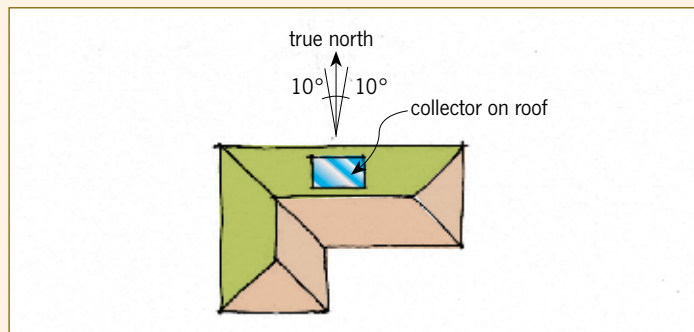


Figure 1: True north orientation.

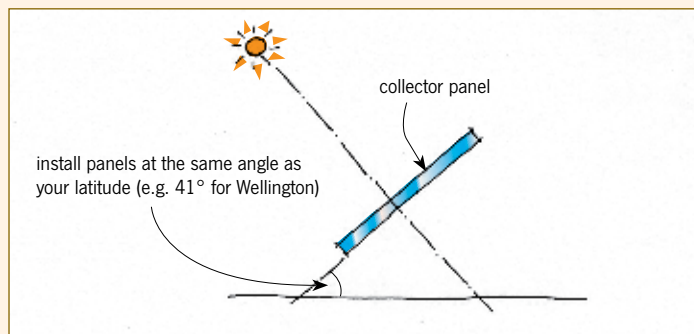


Figure 2: Collector panel installation angle.

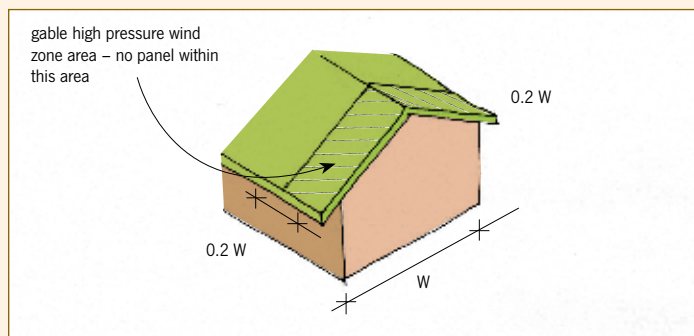


Figure 3: Gable high pressure wind zone area.

# Dribblings from the Old Geezer



It is so easy to dismiss the opinions and experience of the young – after all, us old duffers didn't get to where we are today without picking up all the knowledge we have needed along the way. I often think about how blinkered we can become if we're not prepared to listen and to judge others' opinions on the merit of what is being said and not just who is saying it. For Christmas last year, one of the offspring and his partner gave me a chainsaw. Being new, it needed minor assembling and fettling before launching into the mass destruction of all things arboreal. Just at the right moment, a young one from the fringes arrived, as happens at Christmas. "I'll help you with that, if you like," he opined. This enabled me to resume the holiday somnolence and leave the young to it. When finished, I was told, "All you need now is a pair of protective chaps!" "Ah yes, well, I suppose so," I replied. I'd known the reckless youth since he was 1, and now I was meekly deferring to him on safety matters in a world that is supposedly mine. I reflect on this every time I get the chainsaw out and put the chaps on. I have worked where it is company policy for the mandatory use of chainsaw chaps – but would I have relaxed the standards for my own use at home? We often do – the same as we often don't listen to the young. 'Young', 'wise' and 'sensible' aren't words we use together. Odd, because they can all apply.

**Des Molloy**



## ADVISORY HELPLINES

For the building and construction industry

➤➤ **0800 80 80 85**

For the home owner and public enquiries

➤➤ **0900 5 90 90**

Calls cost \$1.99 per minute plus GST

**www.branz.co.nz**

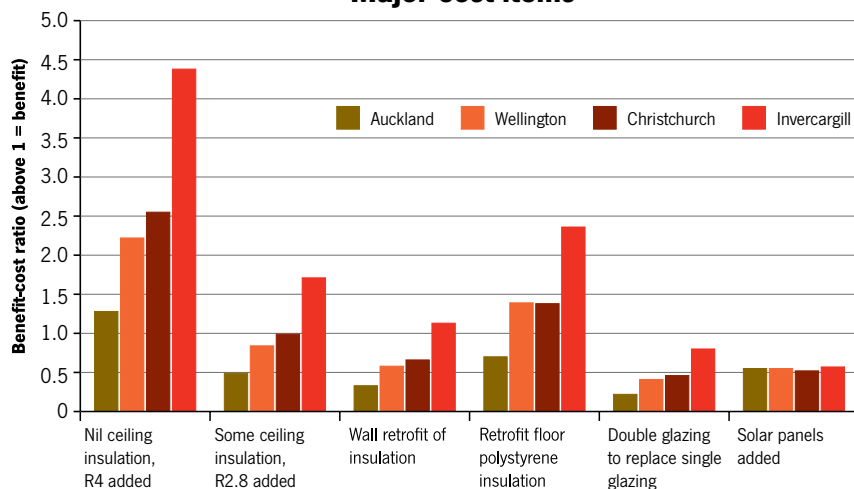
# Are housing retrofits worth it?

The cheapest and easiest energy-efficiency retrofits are also those with the biggest payoff, according to recent research by BRANZ. The savings from the most expensive retrofits – replacing single glazed windows with double glazing – aren't enough to offset the costs within 10 years.

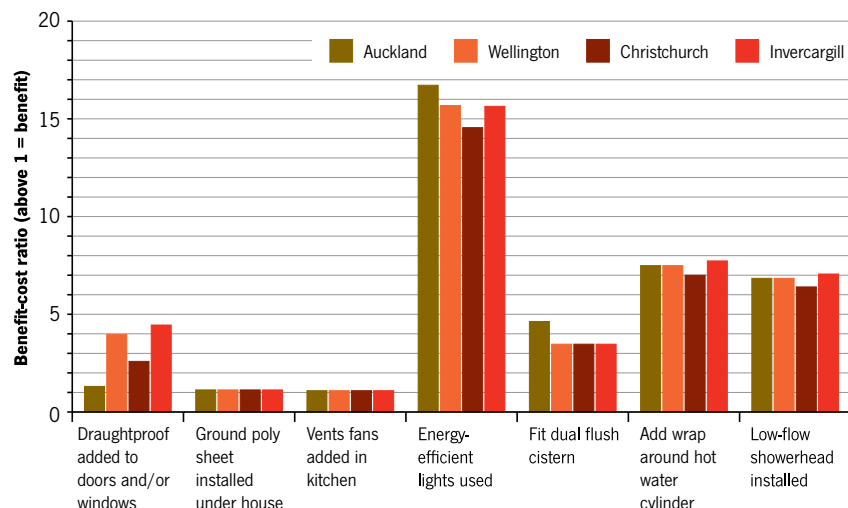
The graphs below show the benefit-cost ratio for a 10-year payback period in the four main centres. A benefit-cost ratio above 1 shows a benefit (i.e. the savings from retrofitting the item were more than the initial cost); below 1 shows a cost. The main finding was that many common retrofit measures are cost-effective in most parts of the country, although some measures are uneconomic in Auckland.

Want to know more? These findings are part of a major resource on retrofit and renovation currently in development at BRANZ, due for web and print publication in 2010.

**Major cost items**



**Other retrofit measures**



# build



Do you get your **free** *Build* magazine?

All building contractors who are in the business of building and have paid a Building Research Levy in the current year can receive BRANZ's *Build* magazine for free. This Levy is paid as part of the building consent fee on all construction projects over \$20,000. If you are missing out on your free copy of *Build*, call 0800 80 80 85 (press 2) or email [verachan@branz.co.nz](mailto:verachan@branz.co.nz).

## AT A GLANCE

# Laying timber strip flooring

In a number of older buildings, the existing wall cladding has been fixed to the wall framing without the use of a wall underlay. Where cladding is being replaced, new underlay can be installed, but where the internal linings have been removed and the cladding is in good condition there are two options:

- Cut and fold wall underlay into each of the framing cavities and staple the sides to the framing – foil insulation must not be used to do this.
- Install rigid sheets of polystyrene (or other rigid insulation material) firmly fitted (so they stay in place) to each framing cavity leaving a 10 mm gap between the insulation and the back of the cladding.



# COMPETITION Win!



## A Baileys BXS13 Extendable Step Ladder Worth \$289!

**The most versatile ladder you can own – converts to four different ladders. Slip-resistant feet and an extra-wide flared base for increased stability. Riveted steps for long lasting durability**

The prize is provided courtesy of The Tool Shed.

All you need to do to win is tell us the name of the mystery tool (above right).

Send us your answer plus your name, address and telephone number on the back of an envelope. Post it (you don't need a stamp) to: Builder's Mate 40, Mystery Tool Competition, FREEPOST BRANZ, Private Bag 50 908, Porirua City 5240. One entry per entrant please.

Don't forget to tell us where you picked up your copy of *Builder's Mate*! The winner will be the first correct entry drawn at 9 am on Friday 26 February 2010. Details will be posted on the BRANZ Ltd website ([www.branz.co.nz/builders\\_mate](http://www.branz.co.nz/builders_mate)) and in the next edition of *Builder's Mate* due out on 1 April 2010.



Here's a close up of part of a tool.  
What is it?



### Terms and conditions:

Entry is open to all New Zealand residents except employees and immediate families of BRANZ and The Tool Shed shops. The competition will close on Friday 26 February 2010. The prize is not transferable for cash. The judge's decision is final. No correspondence will be entered into.



### BUILDER'S MATE WINNER

The winner of the BM 39 competition was Gail Nicholson from Lower Hutt. The mystery tool was G clamps, and the prize was a DeWALT D28065-XE 125 mm Angle Grinder.

# BLOKES on the job

## SCOTT MCLAGGAN

Building in Hamilton



### Favourite tool

Nail gun.

### Favourite tip

Measure twice, cut once (usually).

## SIMON FARR

Working on a major renovation in Westmere



### Favourite tool

Screw gun – but remember, they don't work well when in reverse.

### Favourite tip

Abusing Villaboard won't make it fit if you don't cut it right.

## LUKE MAICH

Working on a large renovation in Ngaio



### Favourite tool

Ramset D20 – handled correctly.

### Favourite tip

Listen to the boss.

# Passive Fire Protection Seminar

**Examining the building element  
features of passive fire design**

15–25 March 2010  
8 venues around New Zealand

Only **\$85 per person**

For more information and to register, go to [www.branz.co.nz](http://www.branz.co.nz)

[www.branz.co.nz](http://www.branz.co.nz)  
**04 237 1170**

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Standards referred to can be purchased from Standards New Zealand.  
Tel: 04 498 5991 or [www.standards.co.nz](http://www.standards.co.nz).

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Know someone on the job? Send us details of his or her favourite tip and tool and you could win \$50 worth of BRANZ books.