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The high life

The Maori did it; early settlers did it. You could say putting grass on our roofs was one of the first things that united our embryonic nation. Now it's back, new and improved. **Andy Kenworthy** looks at why our roofs are growing green



Sod was the roofing material of choice for the frugal family home for centuries. But there's a more modern way to go green up top, and it's slowly been growing in popularity since the 1960s. Starting in Germany, where one flat roof in every ten is now planted with grass and other greenery, roofs are coming alive right across Europe and the US.

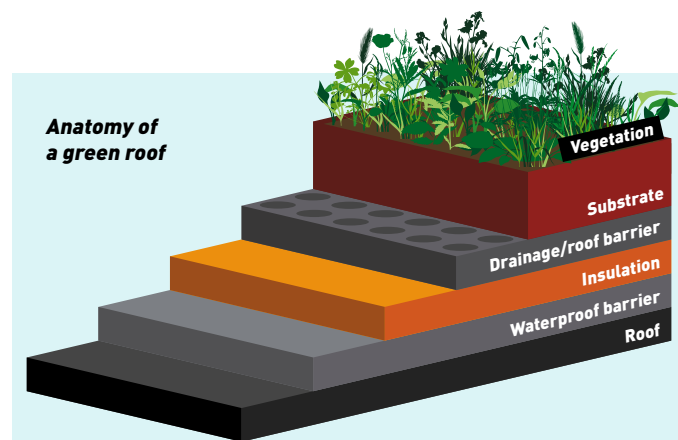
The benefits are huge. Adding a green layer to your roof can make it last two or three times longer, provide 30 percent more insulation and help deaden sound from the outside—making that silent, snug loft library a real possibility. The roof's storm water run-off can be reduced by up to 85 percent, and it's cleaner because it's filtered by the plants. Your air gets filtered too: the plants remove carbon dioxide and other pollutants from the atmosphere, while

releasing oxygen and water vapour, which improve air quality.

As a kid I was always climbing onto the roof to get a different perspective on things. With a well-supported green roof you can doze on your own pasture in the sky, or pick strawberries with the kids as you look down on your neighbours. Birds and insects love it up there, out of reach of ground-based predators. A few green roofs in one area can form their own mini-habitat, providing a living link between local green spaces.

Green roofs could also help our cities stay cool as the world warms up. Unlike conventional roofs, they do not reflect heat, reducing the 'urban heat island' effect caused by densely packed concrete and steel.

Green roofs come in three types: extensive, intensive and semi-intensive. Extensive roofs



are the easiest and cheapest to install, using small plants that can cling onto a properly prepared roof with a pitch of up to 30 degrees. They generally cost between \$150 and \$280 per square metre; you can even buy DIY kits to give your garage, sleep-out or shed a green roof (see www.greenroofs.co.nz).

Intensive roofs are rooftop gardens that can be created on any relatively flat roof, provided it has safe, easy access.

Crucially, they need to be able to take the weight of larger, more deeply rooted plants and trees. Their cost depends on how much of a jungle you want up there.

Semi-intensive roofs, as the name suggests, lie somewhere between the two. They vary in complexity, and offer the tantalising prospect of all the flat, boring, commercial roofs in city centres being converted into rooftop gardens.



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Green walls are another great way to breathe life into your home. They improve air quality, can produce food, and look stunning. With the appropriate building consent, you could camouflage your whole home under a carpet of green all year round

For a long time, the plant of choice for extensive green roofs was sedum. It's a low-profile succulent that grows well in shallow ground, is extremely drought-resistant and reseeds itself if areas die back. But Landcare Research and Waitakere City Council have recently done some great research using native plants for green roofs, and the list of suitable natives is growing. A few urban pioneers in the US have even set up mini-roof farms producing food.

Intensive and semi-intensive systems can be planted with anything, provided it won't damage your roof and suits the conditions. While extensive roofs need checking only periodically to clear any serious weed growth, plants on intensive and semi-intensive roofs need the same attention they would on the ground.

After working for the UK Environment Agency,

Zoë Zimmerman set up an information website for New Zealand (www.livingroofs.org.nz) to help spread the word on green roofs. "We are starting to see our rooftops as an under-utilised asset which can be used to help us adapt to climate change," she says. "We are also realising our roofs can provide an oasis for wildlife, act as a teaching resource for biodiversity and a space for inner city food crops, alleviate flash flooding, and provide fabulous public amenity space."

Green walls are another great way to breathe life into your home. They improve air quality, can produce food, and look stunning. With the appropriate building consent, you could even camouflage your whole home under a carpet of green all year round. Or how about a herb garden on your kitchen wall and a living tapestry up the staircase?
Andy Kenworthy





HOW TO GREEN ROOF YOUR MAILBOX

Before you commit to green-roofing your home, shed or sleep-out, try it out first on the smallest structure on your property: the mailbox. Paul Thompson shows us how

YOU WILL NEED

- Mailbox with roof pitch of no more than 30 degrees
- 25mm wide timber strips, to fit the perimeter of your mailbox
- Nails (if mailbox is wood)
- Round-headed gutter bolt and nut (if mailbox is metal)
- Drill
- Growing medium [source readymade from www.greenroofs.co.nz]
- Black plastic
- Sedums

1 Use timber strips to build a perimeter around the roof of your mailbox. This will hold your growing medium in place.

2 Fix with nails (for wooden mailbox) or round-headed gutter bolt with the nut on the inside (for metal mailbox; add sealant around the holes on the inside of the box to prevent water coming in).

3 Drill several drainage holes along the sides using 6mm drill bit. Avoid drilling holes at the front and back as these might cause water to run into the mailbox.

4 Line the roof and perimeter edging with black plastic. This will prevent excess moisture from dampening your post.

5 Fill the lined rooftop with growing medium comprised of compost, sand and pumice (for extra drainage) and gently press down to compact. Poke a nail through the drainage holes to pierce the black plastic to ensure adequate drainage and hey presto! Your green roof is now ready for planting.

6 Sedum 'plugs' (small plantlets) are used to get started; as they grow you can add cuttings from other succulents. Herbs can also be grown, but a thicker substrate of growing medium is required.

7 Water your plugs, pop them into the growing medium at even 50mm intervals, then gently press the surrounding medium down to an even level. The closer you plant your plugs, the quicker you will achieve coverage and beat the weeds.

8 The mailbox is now ready for repositioning in its usual, useful spot—ready to surprise the postie in the morning! A few months down the line, the sedums and other succulents will be well established. Keep an eye out for weeds whenever you check the post, and give your roof the odd sprinkling of water in prolonged dry spells.