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guide

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Enjoy the great indoors

Your guide to keeping healthy, warm and cosy through winter

PACKED FULL OF TIPS AND PRACTICAL ADVICE FOR WINTER 2016

Enjoy the great indoors

As the days get shorter and the mercury drops, you need to find a balance between having a cosy home and an energy bill that won't break the bank.

This guide is full of great tips for staying healthy and warm through the depths of winter. You'll find out how to keep heat in and dampness out, which fuels are the cheapest and cleanest, and how to get the most out of your appliances.

You'll have a house so warm, you won't want to leave until spring.

Contents

Getting sorted

To really make your home warmer, drier and healthier to live in, it is important to think about how insulation, heating, ventilation and tackling dampness work together as a system. By thinking of each element as one piece of the whole puzzle, it's easier to see how getting each part sorted contributes to a more comfortable and healthy living environment.

Heating

- Makes your home healthier and more comfortable to live in
- Reduces the growth of mould, mildew and dust mites

Insulation

- Makes your home easier and cheaper to heat
- Reduces the risk of mould and mildew growth
- Makes your home healthier and more comfortable to live in

Ventilation

- Maintains air quality
- Removes day-to-day moisture
- Makes your home healthier for you and your family

Tackling dampness

- Reduces the growth of mould, mildew and dust mites
- Makes your home healthier to live in
- Reduces maintenance

Heating makes your home healthier and more comfortable to live in.

Dampness

Moisture makes its way into your home in many ways: cooking, showering, water leaks from roofs and windows, and damp underfloor conditions. Even breathing contributes to moisture build-up.

FIRST: Reduce dampness and moisture at their source to improve interior air quality.

NEXT: Remove moisture from the air by heating and ventilating or with a dehumidifier.

Where it comes from

COOKING 3.0 litres/day	**DISHES** 1.0 litre/day	**BREATHING** 0.2 litres/hour (per person)
CLOTHES WASHING 0.5 litres/day	**CLOTHES DRYING** (UNVENTED) 5.0 litres/load	**SLEEPING** 0.02 litres/hour (per person)
SHOWERS AND BATHS 1.5 litres/day (per person)	**GAS HEATER** (UNFLUED) Up to 1.0 litre/hour	**PERSPIRATION** 0.03 litres/hour (per person)

8 TIPS FOR REDUCING DAMPNESS

1. Check for dampness under your house and fix any drainage, guttering, downpipe or plumbing problems.
2. Put a sealed moisture control sheet on the ground under your house.
3. Install a shower dome.
4. Use a kitchen rangehood or extractor fan that vents outside.
5. Use pot lids when cooking.
6. Dry clothes outside, and ensure your clothes dryer vents outside.
7. Open windows to get a breeze through and vent moisture-laden air.
8. Use a dehumidifier.

THE SYMPTOMS OF EXCESS MOISTURE AND DAMPNESS

- Musty smells in rooms that are closed for any period of time
- Damp or mouldy clothes or shoes in wardrobes
- Stains or watermarks on ceilings or walls
- Mouldy ceilings and walls, particularly in kitchens or bathrooms
- Problems with areas of rotting wood in the structure of your house
- Mould or mildew forming behind paintings, mirrors etc
- Damp or mould under your house

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ENERGYWISE.GOVT.NZ/AT-HOME/DAMPNESS

Ventilation

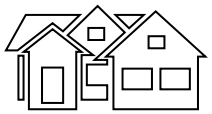
Air your house. The easiest way to combat dampness is by opening windows regularly to remove stale, moisture-laden air. Consider window vents or security stays so the house can ventilate while you're out.

An automatic ventilation system can be effective and convenient for continuously airing your house. There are two main types of ventilation systems:

- **Positive pressure:** Also called forced air ventilation systems, they work by blowing drier air into your house from the attic or from outside. These systems are more suitable in draughty old houses in warm climates with wooden window frames and doors. If you've got a modern house with sealed aluminium joinery they aren't the best option.
- **Balanced pressure:** Also known as heat-exchanger systems, they extract warm damp air from living spaces and pass it through a heat-exchanger to heat up dry air brought in from outside. These systems work best in modern, airtight homes with aluminium fittings.

WHICH SYSTEM IS BEST?

This depends on the design of your house, its floor area, the location, how much sun the house gets, the type of roof, and the climate.



MORE ONLINE TO COMPARE THE FEATURES OF 78 VENTILATION SYSTEMS, AND TO FIND THE BEST SYSTEM FOR YOUR HOME, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/VENTILATION-SYSTEMS/OVERVIEW**

tip

Get in the habit of airing your house every day or leaving windows slightly open. Doing this (once you've got dampness problems sorted at their source) is usually enough to keep your home fresh and healthy.

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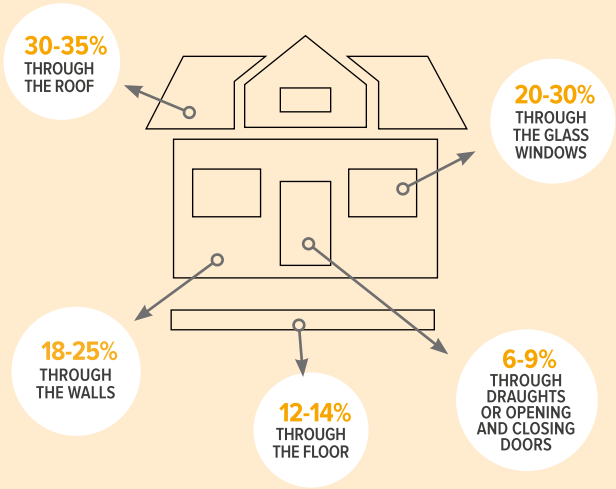
Insulation

Insulation makes your home more comfortable, as well as easier and cheaper to heat.

Warm indoor temperatures and adequate ventilation make for a drier and healthier home.

The first priority is insulating the ceiling/roof area as this is where most heat is lost. Installing wall insulation is the next most effective step. This is difficult to check without taking off wall lining or cladding, so take the opportunity to do so if you're renovating. Heat is also lost by air moving through open doors, windows, unsealed downlights and extractor fan systems. Exposed glass makes retaining heat more difficult, so make sure your curtains and blinds form a good seal around your windows.

Where the heat goes



R VALUES

Insulating materials with higher R-values reduce the rate of a building's heat loss in winter (or heat gain in summer). This reduces the amount of heating (or cooling) required for a comfortable indoor temperature. The R-value depends on the type of material and its density and thickness. So an aluminium single-glazed window has an R-value of 0.15 while a typical insulated wall's R-value is 1.99 – more than 10 times larger.

MORE ONLINE TO COMPARE THE PRICES OF MORE THAN 200 INSULATION SYSTEMS, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/INSULATION**

tip

EECA recommends you use a trained IAONZ (Insulation Association of NZ) professional to upgrade your insulation, and make sure the insulation meets the NZS4246 standard.

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VISIT **ENERGYWISE.GOVT.NZ/AT-HOME/INSULATION** TO FIND A LIST OF INSTALLATION INSTALLERS NEAR YOU.

Curtains and blinds

When warm air hits cold glass two things happen, and neither of them are good:

- The warm air is cooled and heat escapes outside.
- The newly cooled air forms condensation on the windowpane.

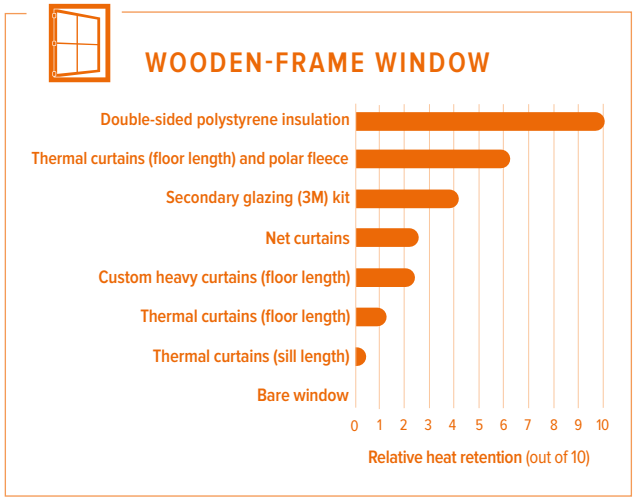
There are two ways to deal with this – keeping the warm air away from the window (curtains and blinds) and insulating the windowpane (double glazing or putting insulation film on existing windows).

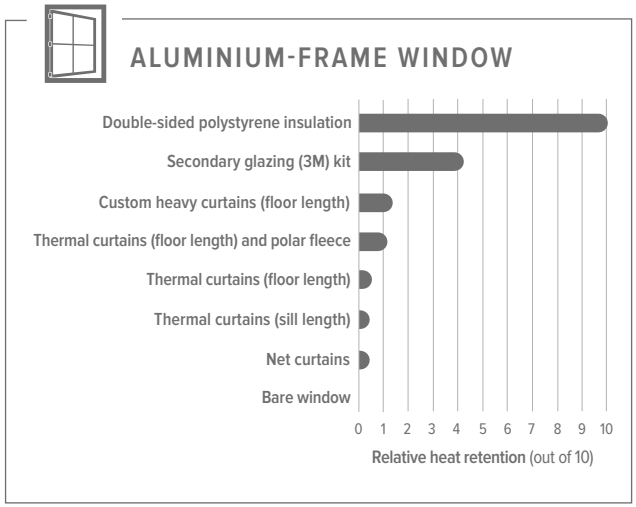
Curtains create a pocket of air between them and the window. We've found how curtains are installed is more important than their material or thickness. Ensure your curtains and blinds form a good seal against all sides of your window frame.

Old-fashioned net curtains are OK at keeping heat in, as they generally sit quite close to the window and disrupt the downward movement of cool air. Floor-length curtains are more effective than windowsill-length curtains, which aren't much better than no curtains at all.

Double glazing traps a layer of air (or an inert gas like argon) between two glass windowpanes. Most new houses have double glazing. It's possible to retrofit older houses, but very expensive.

DIY insulation film is a cheaper option for retrofitting older houses. You can easily install the film yourself. It can help prevent condensation and reduces heat loss.





WHAT ABOUT BLINDS?

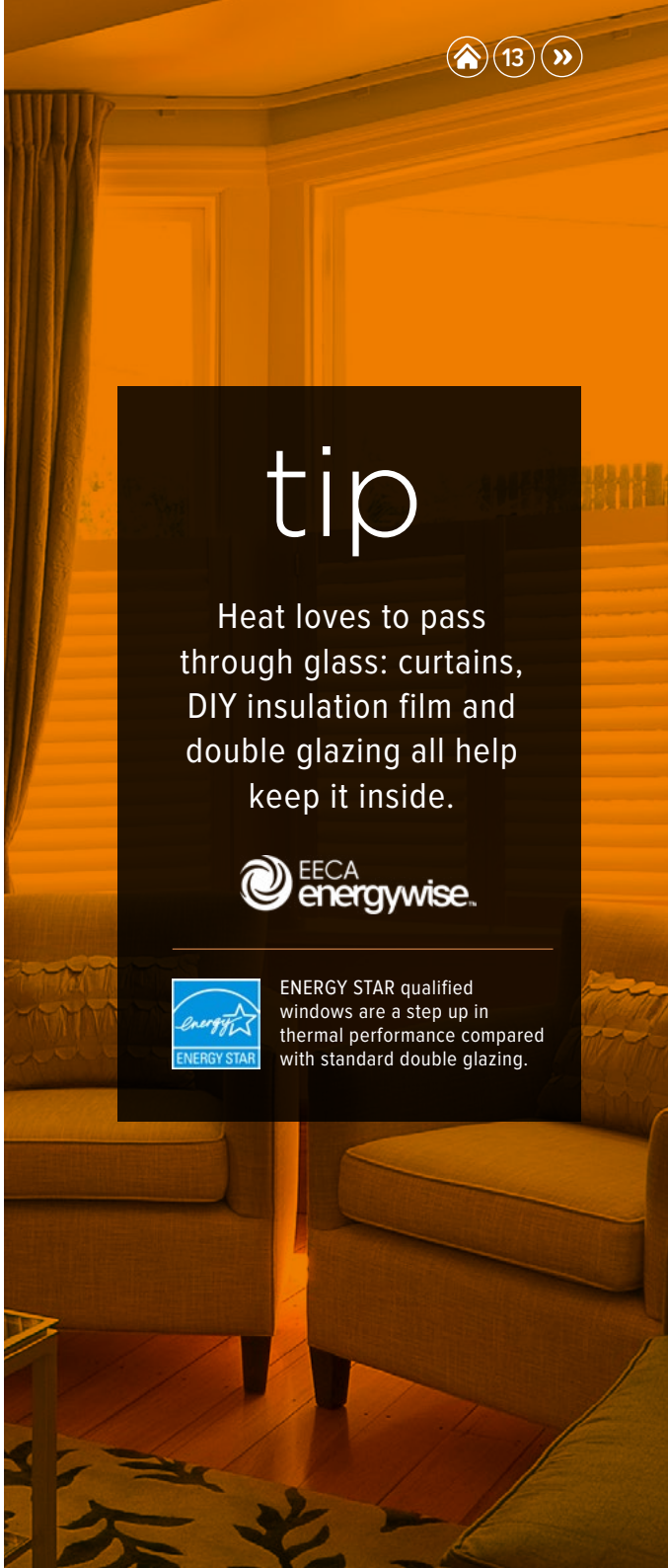
As for blinds, how they fit is crucial for retaining heat. Make sure the blind sits snugly against both sides and the top and bottom of the window frame.

tips

1. If you're renting, check with your landlord whether it's OK to install temporary double glazing.

2. If temporary window insulation makes a difference, aim for permanent double glazing as your budget allows.

MORE ONLINE FOR INFORMATION ON CURTAINS AND HOW TO KEEP IN THE HEAT, VISIT: **CONSUMER.ORG.NZ/ARTICLES/CURTAINS**



tip

Heat loves to pass through glass: curtains, DIY insulation film and double glazing all help keep it inside.

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ENERGY STAR

ENERGY STAR qualified windows are a step up in thermal performance compared with standard double glazing.

Dehumidifiers

Once you've done your best to remove the sources of moisture, a dehumidifier can have a big impact. They're great for renters because they can easily be moved from room to room, or house to house.

Most dehumidifiers work by cooling the air with a small refrigeration unit so it can condense out the moisture, then reheating the air and blowing it back into the room.

Desiccant dehumidifiers are recent arrivals on the market. They use a water-absorbing (desiccant) material such as silica gel to remove moisture from the air. They are more effective at removing water than standard dehumidifiers but use more power.

A great advantage of dehumidifiers is their ability to warm up a room. In fact, they are second only to heat pumps in terms of heating efficiency.

HOW DO THEY HEAT A ROOM?

When water is turned from liquid to steam, heat has to be added. This is called the "latent heat of evaporation". The reverse happens when water vapour is condensed to a liquid - that latent heat is released. When a dehumidifier condenses the water vapour in the air back to a liquid for draining off, the latent heat in the water vapour is released, helping to heat up your home.

tip Keep rooms ventilated and warm during winter — at least 7°C warmer than outside temperatures. Leave windows closed on damp days.

MORE ONLINE WE'VE TESTED 12 COMMONLY AVAILABLE DEHUMIDIFIERS. TO FIND OUT WHAT YOU NEED BEFORE BUYING, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/DEHUMIDIFIERS**

tip

Unless you've looked for the source of the dampness, trying to solve it with dehumidifiers and ventilation systems may just mask the problem rather than actually fix it.

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Appliance running costs

Everyone's familiar with the usual suspects for high energy bills like electric heaters, but what about the less obvious ones?

WASHING UP

We've found dishwashers can clean the same amount of dishes for half the cost of hand-washing.

APPLIANCES ON STANDBY

DVD recorders aren't meant to be turned off or else you'll lose your settings, but they only use a tiny amount of power on standby. Not so with set-top boxes like your Sky decoder. Sky says you shouldn't turn off your decoder as it needs regular updating, but it can cost up to $47 per year to run. It would be great if Sky released a decoder with a low-power standby mode.

CHARGERS

New generation chargers use so little power when not in use (less than a cent a week) it's barely worth the bother of unplugging them. But if you've got an older charger that gets warm after being plugged in for a while, you'll save money if you take it out.

ENERGY STAR
If you're looking for a super energy efficient appliance then look for the blue ENERGY STAR mark.

MORE ONLINE OUR TABLES SHOW THE TYPICAL RUNNING COSTS FOR A RANGE OF APPLIANCES, VISIT: **CONSUMER.ORG.NZ/ARTICLES/APPLIANCE-RUNNING-COSTS**

tip

Looking for a new heater or dryer this winter? The running costs for these and other household appliances can be found using the Energywise running costs calculator.

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ENERGYWISE.GOVT.NZ/TOOLS/RUNNING-COSTS-CALCULATOR

Lighting and bulbs

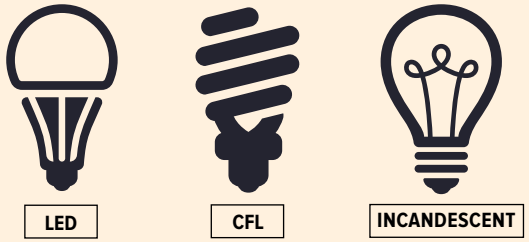
Lighting is a great way to create a cosy atmosphere on long winter nights, and energy efficient bulbs have advanced to where you can get any look you want while enjoying substantial savings.

FINDING THE RIGHT BULB FOR YOU

Gone are the days of simply picking up a 50 cent incandescent of the right wattage when your bulb blew. When buying a CFL or LED you have to check lumens, beam angle, and colour temperature. So what does it all mean?

- **Lumens** measure brightness. When replacing an old incandescent with a CFL or LED, check the equivalent incandescent wattage on the packaging – this shows how the brightness and wattage of the light bulbs measure up.
- **Beam angle** is how the light spreads out from the bulb. Narrow beam angles are good for spotlighting and downlights. For floodlights you want a larger beam angle (greater than 60 degrees).
- **Colour temperature** refers to the colour characteristics. It varies between warm, like the yellow hue of an incandescent bulb, or cool, like the bluish light of a fluorescent lamp.

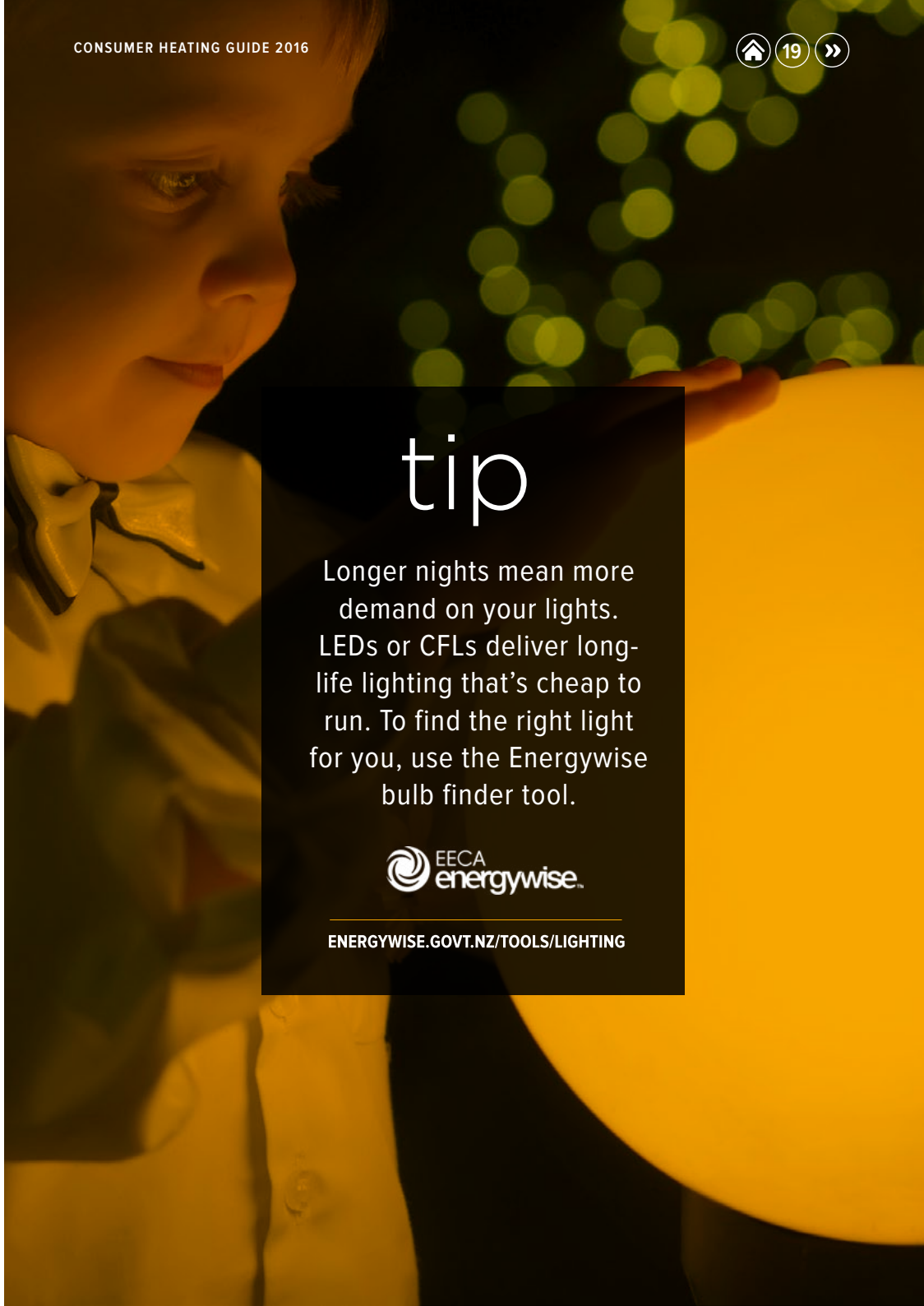
ENERGY SAVERS Incandescent bulbs are being phased out. Their replacements, compact florescent lamps (CFLs) and light emitting diodes (LEDs), are more efficient and long-lasting. LEDs last two to three times longer than CFLS and don't contain any mercury.



INDOORS AND OUTDOORS

Different rooms require different lighting moods. Use bulbs with a warm colour temperature and diffuse light for living rooms and bedrooms, while spotlights with a cooler light are great for reading and work areas. Look for PAR38 LEDs when replacing flood and security lights. They're as bright as their halogen equivalents and more energy efficient.

MORE ONLINE OUR EXPERTS HAVE CREATED A FREE LIGHTING GUIDE TO HELP YOU MAKE THE RIGHT CHOICE, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/LIGHT-BULBS/OVERVIEW**



tip

Longer nights mean more demand on your lights. LEDs or CFLs deliver long-life lighting that's cheap to run. To find the right light for you, use the Energywise bulb finder tool.

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ENERGYWISE.GOVT.NZ/TOOLS/LIGHTING

Central heating

Kiwi homes are too often made up of small islands of heat in a sea of cold air.

In an open-plan house, the heat from a woodburner, electric heater or heat pump spreads throughout the open area, warming up the kitchen, living and dining rooms all at once. However, in houses with separate rooms the heat source often overheats the room where it's installed, while the rest of the house remains cold.

One solution is to use a heat transfer kit with insulated ducting to help even out temperatures, but the house is unlikely to become uniformly warm.

WHOLE HOUSE (CENTRAL) HEATING

The principle behind central heating is separating the place where the heat is generated from where it's released. There are two common systems: ducted hot air and piped hot water (hydronic). Central heating systems are made up of three major components:

- A heat source located in a convenient place away from where the heat's required.
- A distribution system to transfer the heat.
- A way to release the heat where it's needed. They'll also have a control system to monitor the overall system.

Heating: The heat source is often referred to as a boiler and heats either air for ducted distribution or water for hydronic systems. Some models burn gas, diesel or wood, while others use a heat pump. We recommend you check with at least two heating companies to determine which boiler type is best for your area.

Distribution: The heated air or water needs to be sent to where the heat's required. This is done via insulated ducting for air systems or insulated pipes for hydronic. Usually the house is divided into different heating zones which are heated at times to various temperatures.

Releasing: Ducted air systems have outlet grills that deliver heat directly into rooms. Hydronic systems release their heat either through underfloor systems (where hot water is passed through pipes buried in a concrete floor slab) or radiators (where hot water is piped into wall-mounted radiators).

MORE ONLINE FOR INFORMATION ON EFFICIENT CENTRAL HEATING, INSULATION AND TIPS ON HOW TO HAVE A WARM HOME, VISIT: **CONSUMER.ORG.NZ/TOPICS/HOME-HEATING**

What fuel to choose?

When choosing the type of heater for a room it pays to consider how the room is used. In areas you heat often, such as the living room, heat pumps, flued natural gas heaters and woodburners are usually the cheapest forms of heating.

For rooms you only heat occasionally or to lower temperatures, such as bedrooms or a study, electric heaters are practical and can be cost effective. They're cheap to buy but are more expensive to run than heat pumps or woodburners.

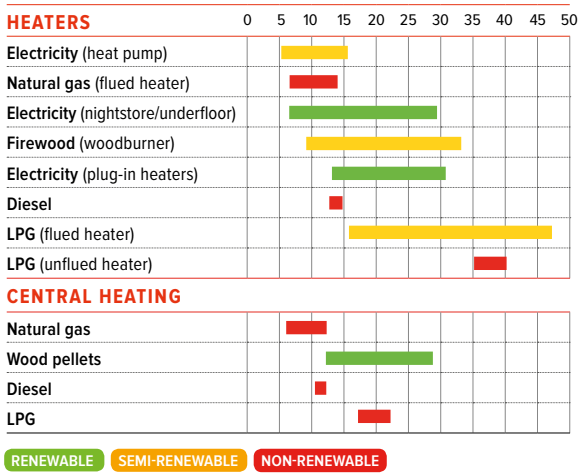
Unflued LPG heaters are the most expensive to run on average and can be dangerous. Because they do not have fixed, attached vents to the outside they release hazardous gases to the areas they heat. EECA recommends you avoid using unflued LPG heaters.

Natural gas from the mains is the cheapest fuel for central heating ahead of wood pellets and diesel. If there are already appliances in your home running on gas, then it can make sense to switch your heating over to gas as well.

MORE ONLINE USE THE **CONSUMER HEAT PUMP SIZING CALCULATOR** TO FIND THE RIGHT-SIZED HEAT PUMP FOR YOUR NEEDS, VISIT: **CONSUMER.ORG.NZ/ARTICLES/WHAT-SIZE-HEAT-PUMP**

Home heating costs 2016

(cents per kWh)



GUIDE TO THE FIGURES COSTS are for providing one kilowatt of heat for one hour. They do not include fixed charges. Firewood is pine and its costs are from our February 2015 survey. Electricity and natural gas costs are from powerswitch.org.nz. Other costs are from pricing data collected during March 2015. GST is included.

16°C

RECOMMENDED MINIMUM TEMPERATURE FOR YOUR BEDROOM

18°C

RECOMMENDED MINIMUM TEMPERATURE FOR YOUR LIVING ROOM

Fuels - clean and green?

Some heating fuels release less pollution into the atmosphere and are more sustainable than others. We rate the most common options:

FIREWOOD
RENEWABLE

Firewood is one of the few sustainable carbon-neutral heating options. But it needs to be burned hot and in a specially designed firebox to minimise pollution and generate maximum heat. You also need to make sure firewood is dry and the pieces aren't too big.

SOLAR
RENEWABLE

Solar is the cleanest fuel of all, but it's not usually cost-effective in New Zealand. Our highly renewable electricity system means the environmental benefits are minimal.

ELECTRICITY
SEMI-RENEWABLE

Electric Heating: In New Zealand more than 75 percent of electricity comes from renewable sources such as hydropower and geothermal energy.

NATURAL GAS
NON-RENEWABLE

Natural gas burns cleanly, but as a fossil fuel it's not renewable. Burning it releases a greenhouse gas (carbon dioxide) into the atmosphere.

LPG
NON-RENEWABLE

LPG's another clean-burning fossil fuel, but it also adds carbon dioxide to the environment.

DIESEL
NON-RENEWABLE

Diesel has improved as it's now low sulphur and relatively free of pollutants, but it's still a non-sustainable fossil fuel which adds to greenhouse gas emissions.

About 2% of homeowners in New Zealand have solar water heating systems

Heat pumps

Heat pumps are one of the cheapest heating options to run. They can be retrofitted into old houses but it's essential they're the right capacity.

An experienced installer will give you advice on the right size and where to place the indoor and outdoor units.

Heat pumps are essentially large space heaters that can provide cooling in the summer. Since they use a fan to distribute warmed air, the heating spreads more evenly than with other space heaters such as woodburners.

Smaller versions (up to 4kW) are designed for a single room, with larger units (up to 10kW) suitable for open plan areas. All heat pumps have an energy rating label to show their efficiency at heating and cooling. The most efficient models carry the blue ENERGY STAR mark.

Heat pumps dehumidify when they are in cooling and dehumidifying ("dry") mode, but not in heating mode.

RUNNING COSTS

If you install a heat pump and keep your home at the same temperature you do now, then you could save plenty in heating costs. But many people choose to keep their homes warmer than before once they get a heat pump so their heating bills don't drop by much.

MORE ONLINE FOR INFORMATION ON CHOOSING THE RIGHT HEAT PUMP FOR YOUR HOME, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/HEAT-PUMPS/OVERVIEW**

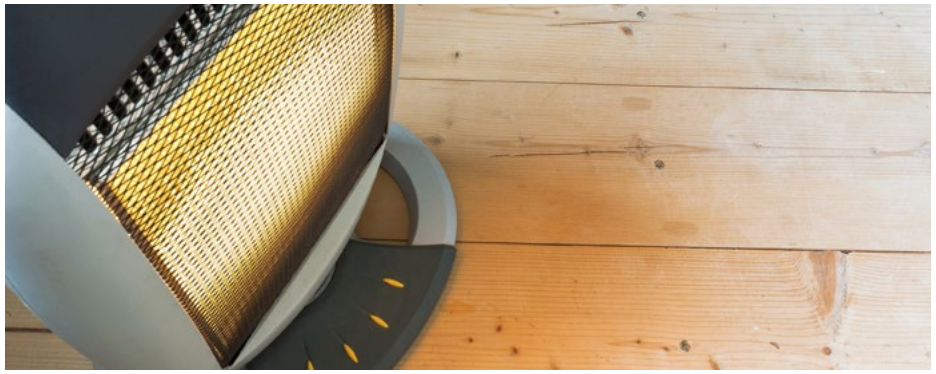
tip

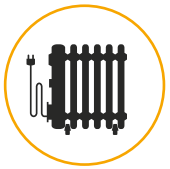
An ENERGY STAR qualified heat pump uses up to 30 percent less energy compared to a non-qualified model.

EECA energywise

SEE WHICH HEAT PUMPS HAVE THE ENERGY STAR MARK HERE: **ENERGYWISE.GOVT.NZ/TOOLS/ENERGY-STAR**

Electricity



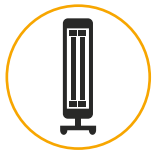


CONVECTION HEATERS

Convection heaters are designed to provide background warmth. The warm air they produce rises and circulates around the room by natural convection. Convection heaters with fans provide faster heating. The most popular type of convection heater is the upright oil-filled column heater.

PORTABLE FAN HEATERS

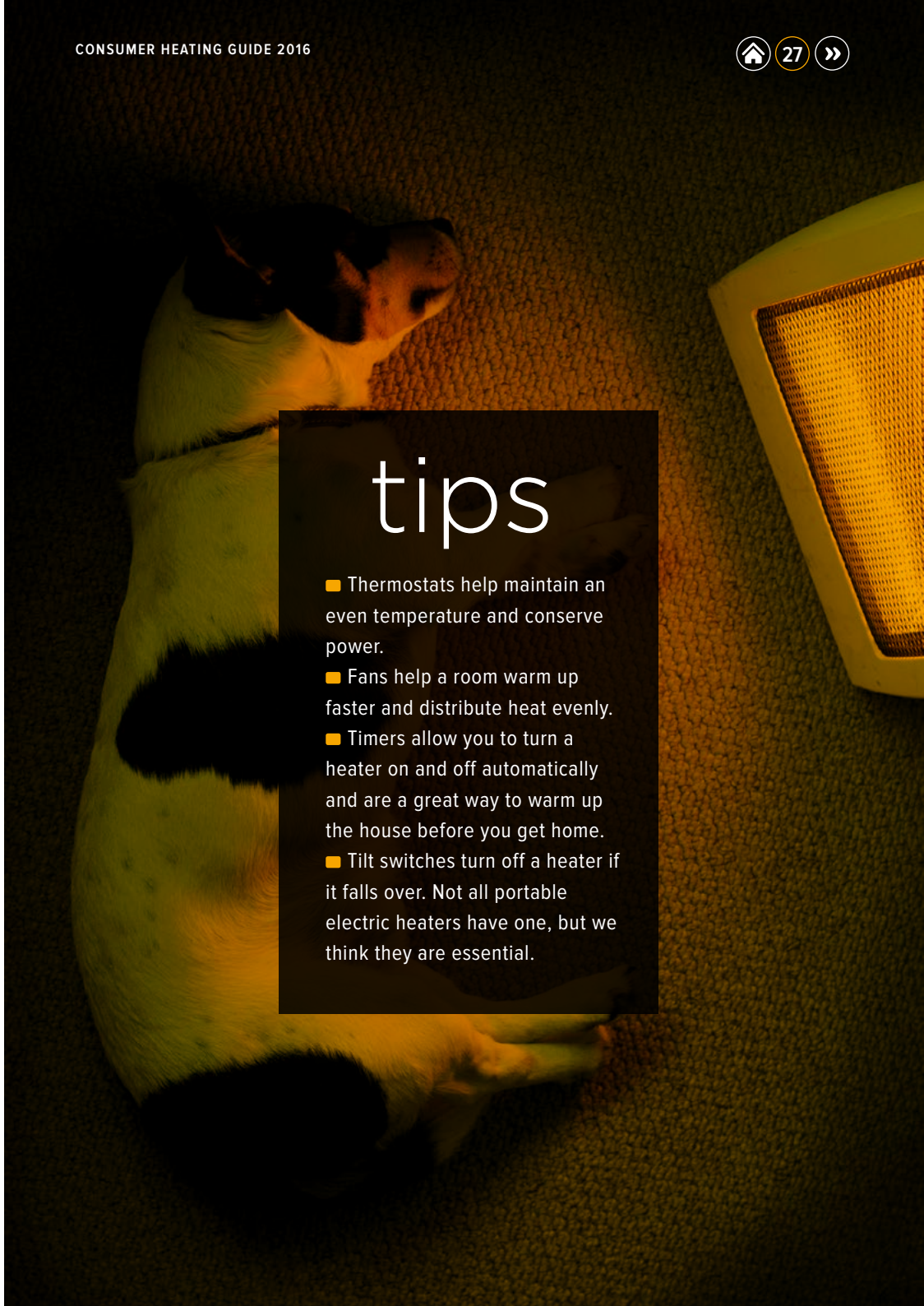
Portable fan heaters sit on the floor and blast hot air directly at you. They're great in small areas or when you need to quickly heat a room, but they can be noisy and cause draughts.



RADIANT HEATERS

Radiant heaters have glowing electric elements that provide quick directional heat to a small area of the room and also give some convection heating. They're more suited to older, draughtier homes or rooms with high ceilings. Their hot exposed element is a fire hazard and presents a danger to children.

MORE ONLINE FOR YOUR CHECKLIST ON WHAT TO CONSIDER WHEN BUYING A HEATER, VISIT: **CONSUMER.ORG.NZ/TOPICS/CHOOSING-A-HEATER**



tips

- Thermostats help maintain an even temperature and conserve power.
- Fans help a room warm up faster and distribute heat evenly.
- Timers allow you to turn a heater on and off automatically and are a great way to warm up the house before you get home.
- Tilt switches turn off a heater if it falls over. Not all portable electric heaters have one, but we think they are essential.

Gas - natural & LPG

Your gas options will depend on where you live. Piped natural gas is only available in some of the more populated areas of the North Island but LPG cylinders are available just about everywhere else.

Gas heaters range from small wall-mounted units and fireplace inserts, to full central-heating systems.

The price of piped natural gas is relatively low per kilowatt hour, but becomes more expensive when you add in the daily connection charge. LPG is usually a little pricier than natural gas, while unflued portable LPG heaters are the most expensive option.

Burning gas creates moisture and carbon dioxide. A flued heater removes these gases to the outside; an unflued heater releases them into the room being heated.

EMERGENCIES ONLY!

A portable unflued LPG heater is the most expensive form of heating. It's also a health and safety hazard as it produces carbon dioxide and fills the air with moisture. If the heater develops a fault it could release fatal levels of carbon monoxide. That's why we think an unflued heater should only be used in rooms with good ventilation and never in bedrooms.

But we think it's a good idea to keep one for emergency use when other energy sources like electricity or natural gas aren't available.

MORE ONLINE FIND OUT WHICH GAS HEATERS AND FIREPLACES ARE THE MOST ENERGY EFFICIENT, VISIT: **CONSUMER.ORG.NZ/ARTICLES/ENERGY-STARS-FOR-GAS-HEATERS**

tip

For a list of ENERGY STAR qualified heating options, visit the ENERGY STAR tool

ENERGY STAR

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ENERGYWISE.GOVT.NZ/TOOLS/ENERGY-STAR

Wood

Nothing's nicer than toasting yourself in front of a cosy fire. Using a woodburner to heat your home means you're not captive to energy companies – and you'll stay warm if the power goes off.

Burning wood is sustainable and environmentally friendly, but only if it's burned cleanly. You get more heat from a clean-burning (non-smoky) fire, and cleaner burning means fewer smoke particles lodging in our lungs.

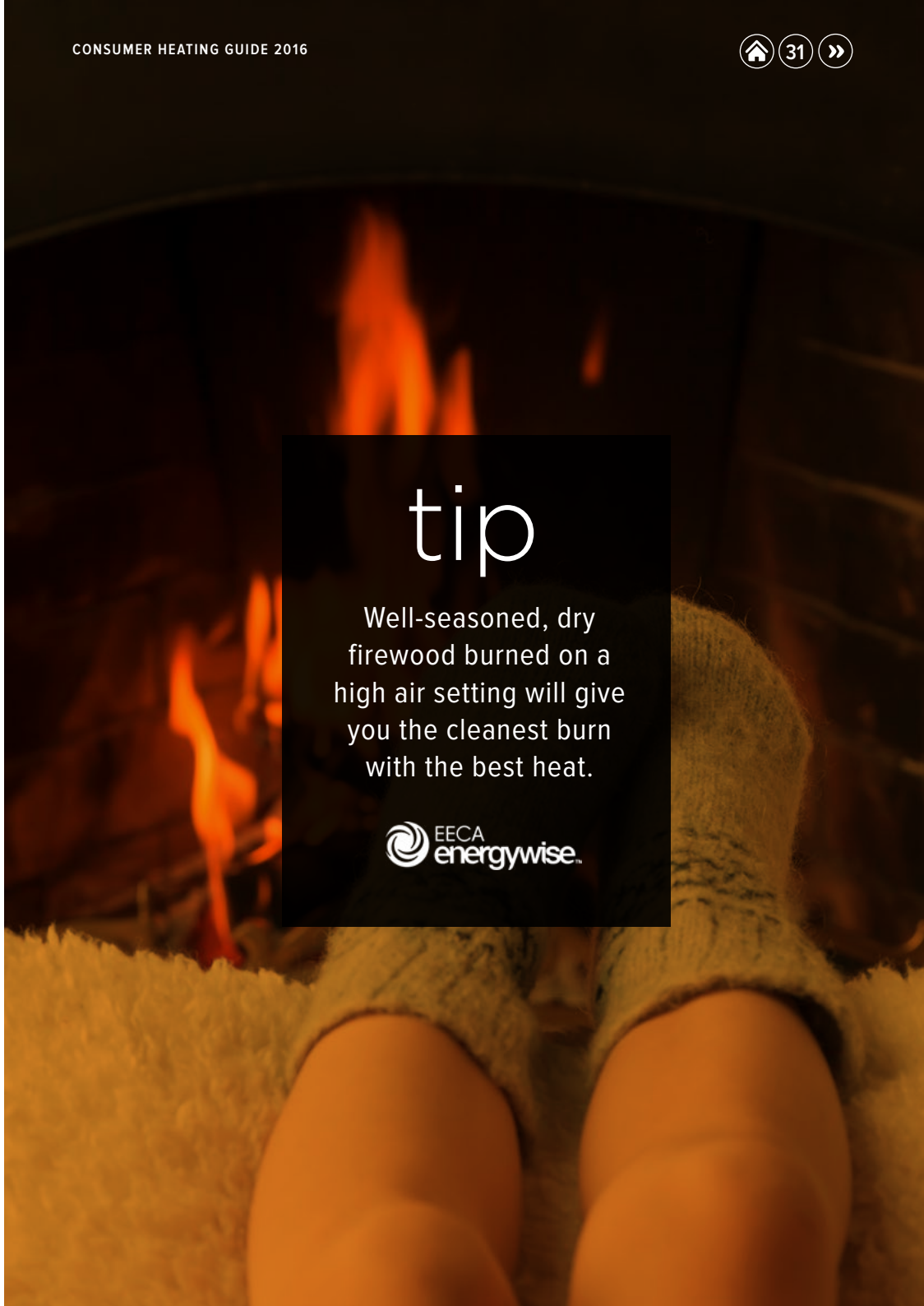
If you burn wood carelessly, or use wet logs, you can create a health hazard through the ultra-fine smoke particles that lodge in people's lungs. Modern woodburners are designed to burn more cleanly than older models but only if you tend the fire carefully and use dry wood of the right size.

If you need to spread the heat through the house, a ducted heat transfer kit can be a good idea.

tips

1. Keep the woodburner refuelled.
2. Use dry firewood of the right size (less than 110mm in diameter).
3. Keep your burn clean by adjusting the amount of wood that's burning rather than the air control.

MORE ONLINE COMPARE MORE THAN 100 MODELS AND USE OUR FREE ONLINE CALCULATOR: **CONSUMER.ORG.NZ/PRODUCTS/WOODBURNERS/OVERVIEW**



tip

Well-seasoned, dry firewood burned on a high air setting will give you the cleanest burn with the best heat.

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Pellets

There's plenty to like about pellet burners. They're convenient to use and an effective form of low-pollution carbon-neutral heating. But the high cost of the pellets in some areas has stopped people buying the burners.

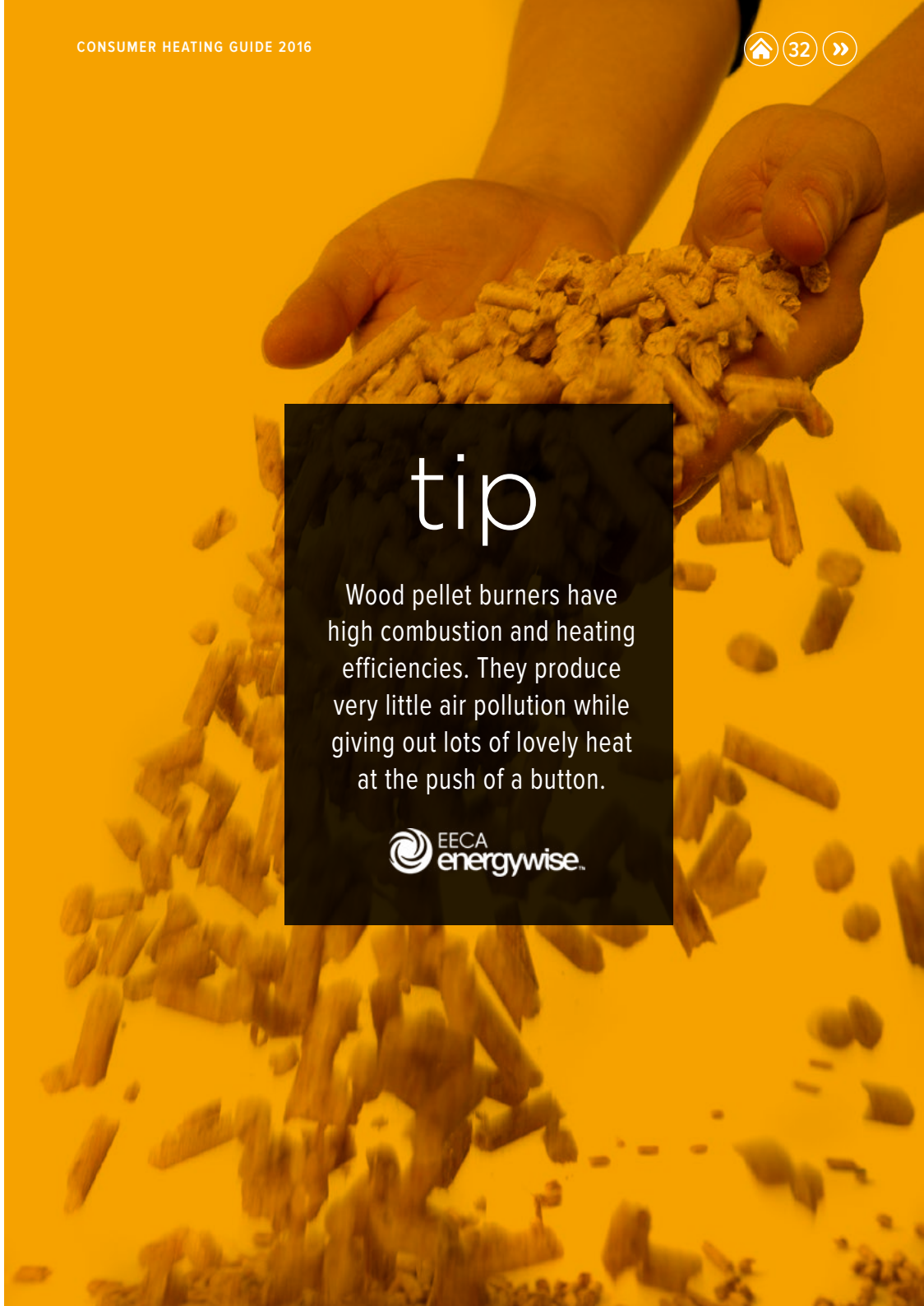
Adjusting the rate the pellets are burnt gives you control over the amount of heat produced. These models produce a similar amount of heat to a conventional woodburner. Basement furnace models produce much more.

Pellet burners burn only compressed wood pellets so you can't use any free firewood.

RUNNING COSTS

Shop around for the cheapest source of pellets – there are big variations in price. If there's a mill close to you, try them first. Buying pellets in bulk is cheaper – but it means you have to store them somewhere dry.

MORE ONLINE FOR MORE INFORMATION ON THE ADVANTAGES AND DISADVANTAGES OF PELLET BURNERS, VISIT: **CONSUMER.ORG.NZ/PRODUCTS/PELLET-BURNERS/OVERVIEW**



tip

Wood pellet burners have high combustion and heating efficiencies. They produce very little air pollution while giving out lots of lovely heat at the push of a button.

EECA energywise

Water heating

Water heating makes up about one-third of household energy bills so there's good reason to reduce costs. There are three ways to go about it:

REDUCE THE COST OF HEATING THE WATER

Depending on your house and its location, you can use either solar or heat-pump water heating.

- Solar water heating is expensive to install and the unit has to remain operational and trouble-free for many years before you recover costs. This doesn't always happen. We urge caution before installing a solar system.
- Heat-pump water heaters are less complex to install than solar and generally more reliable.

REDUCE THE AMOUNT OF HOT WATER YOU USE

If your shower at its normal setting can fill a 10L bucket in less than a minute, it's worth installing a low-flow shower head with a flow rate of 9L per minute or less. You can also encourage your household to take showers rather than baths.

REDUCE HEAT LOSS

Install an insulating cylinder wrap on your hot water cylinder, even if it's a modern one. Ensure your pipe lagging (insulation) is adequate, especially on the hot-water delivery pipe near the cylinder.

OUR ADVICE

Install cylinder wraps, pipe insulation and low-flow (less than 9L per minute) shower heads first. They are the cheapest options and still give consistent long-term benefits.

MORE ONLINE FOR MORE INFORMATION ON HOT WATER HEATING, INCLUDING A RUNNING COST COMPARISON, VISIT: **CONSUMER.ORG.NZ/REPORTS/WATER-HEATING-OPTIONS**

tip

Use the Energywise water heating tool to find out which hot water system is best for you.

EECA energywise

ENERGYWISE.GOVT.NZ/TOOLS/WATER-HEATING

Our top 10 heating tips

1

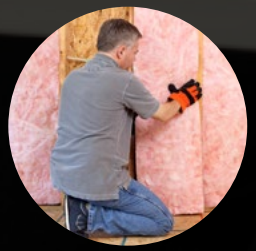
The key to reducing dampness is targeting the sources of moisture and ensuring your house has adequate heating, ventilation and insulation.

2

Insulate first - particularly the ceiling and underfloor.

3

Temporary double glazing is a cheap way of reducing heat loss through windows.



4

A dehumidifier reduces dampness, while also heating the room.

5

Heat pumps have the cheapest running costs. Woodburners and flued natural gas heaters are next best.

6

Oil-column and other convection heaters can create a "pool" of hot air above the heater, while the rest of the room is heated less. Use a small desk fan to mix the air and even out the temperature.

7

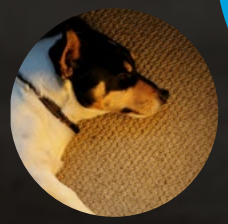
Set heater and other thermostats at the minimum temperature you find comfortable. Every extra degree is costing you money.

8

A ducted heat transfer kit helps prevent a woodburner overheating the lounge while the rest of the house remains cold.

9

Heat pumps are air warmers not foot toasters. For spot heating use a radiant electric or portable fan heater.



10

If your heat pump freezes up on cold mornings, use a cheap fan heater to help the heat pump raise the room temperature. It'll only cost about 30 cents to use for half an hour.

And lastly don't forget...

HEATING YOUR HOME IS MOST EFFICIENT WHEN YOU'RE USING THE RIGHT PRODUCTS FOR YOUR NEEDS.