

## Condensation and dampness in your home

*What causes dampness and condensation in your house?*

- Water coming in from the outside through leakage, seepage
- Rising damp – dampness from the ground rising up into the building fabric
- High levels of moisture/water vapour being produced inside the house
- Lack of adequate heating and/or ventilation.

*Why is it important to keep a house dry as well as warm?*

Moulds and other fungi can grow in damp homes, particularly in areas where there is restricted ventilation, such as inside cupboards and wardrobes. These microscopic organisms release tiny lightweight spores which can be inhaled. If you smell a musty odour or see mould, you have a problem.

Moulds can produce adverse health affects, such as respiratory problems, nasal and sinus congestion, plus skin rashes and irritation. A damp mouldy house is bad for people's health so it is important to keep your house dry to prevent mould growth.

*Humidity*

Air contains moisture – this is called humidity. The higher the temperature of the air the more water it is able to hold. Air at 20°C can hold a lot more moisture than air at 10°C. The term 'relative humidity' describes how much moisture air contains at a given temperature. 100% relative humidity means the air is holding as much moisture as it can at that temperature.

The more humid the air is in your house, the more energy it takes to warm your house because it is also warming the water in the air. This means it will be more expensive to heat!

A good range of indoor humidity for comfort and health is between 30-60% during cooler months of the year. Mould is likely to occur if the relative humidity indoors is 70% or more for long periods of time. Keeping humidity levels under 50% also helps to minimise or control dust mites. But it is also possible to live in a house that is too dry! Humidity levels below about 30% lead to dry skin and nasal passages, increasing the potential for respiratory illnesses. However this tends to be less of a problem in New Zealand's climate.

It can be fun to buy a low cost humidity meter from a hardware store and track how humid the air in your house is. You might be surprised at how quickly it can change, from morning to night, from room to room, and as the weather changes.

*Humidity and condensation*

When the humidity is high inside a house and it is cold outside the water vapour condenses on cold surfaces. The following areas might have problems with condensation and dampness:

- Cold surfaces such as mirrors, single glazed windows, and metal window frames ('crying' windows)
- Kitchens and bathrooms
- Solid, uninsulated walls of unheated rooms
- Cold corners in unheated rooms, particularly where outside walls meet
- Wardrobes, cupboards.

Humid air and condensation can also be generated by things people do in their homes on a daily basis.

<i>Source of humidity/moisture</i>	<i>Litres of water vapour</i>
Cooking	Up to 3 litres per day
Clothes washing	0.5 litres per wash
Showers and baths	1.5 litres per person
Washing dishes	Up to 1 litres per day
Un-vented clothes drying	5.0 litres per load
Unflued gas heater	0.5-1.0 litre per hour of use
Breathing, active adult	0.2 litres an hour per person
Breathing, adult asleep	0.02 litres an hour per person
Pot plants	A high number of pot plants or if you frequently water them will increase humidity in your house

\*\* Source: Consumer Magazine

## How to keep your house dry and avoid condensation

There are lots of things YOU can do to minimise dampness and condensation in your house.

### *Four key actions:*

- Reduce the amount of moisture produced in the home
- Provide ventilation, particularly in moisture-prone areas
- Increase heating to raise the temperature of the air and the cold surfaces
- Insulate the building to warm up cold surfaces and keep the heat in

### *Low cost options*

- On dry days open some windows to allow humid air to ventilate out of the house. It is better to open a few windows a little throughout the whole house. This helps the air to move through the house. One window open wide in one room may not be as effective. Try to do this as often as possible (2-3 times a week), but keep windows closed on wet days as damp air may increase indoor humidity.
- Keep lids on your pots and pans when you cook – simmer rather than boil hard.
- Keep the doors to the bathroom and kitchen closed when you are bathing or cooking.
- Use thermal or lined curtains, keeping them open in the day and closed before dusk. This will capture the free heat from the sun and help to lift indoor temperatures.
- Always wipe excess moisture from windows – if you don't the moisture will collect on the frame which may start to rot. It may also re-evaporate during the day, raising humidity levels and making condensation worse when the room cools down.
- Limit the number of pot plants in your house.
- Install temporary plastic window insulation kits on your windows for the cooler months of the year.
- Keep furniture away from outside walls to allow air circulation. Cool areas behind furniture will be high humidity areas conducive to mould growth.

### *Heating*

- On cold days try to keep indoor temperatures at least 18°C.
- Try not to use a portable gas heater. They create high levels of humidity and are expensive to run. They also release harmful gases into the air.
- Where possible install efficient heating, suitable for each of the rooms being heated
- Install a heater in your bathroom.
- Dehumidifiers extract moisture from the air and can help reduce humidity. However they do not tend to solve underlying problems of moisture getting into your house, excess moisture production in the home, and lack of ventilation and heating.

### *Drying clothes*

- Wherever possible, dry your clothes outside.
- If you use a clothes dryer, make sure that it is vented outside.
- If you must dry your clothes on a clothes rack inside, do this in a well ventilated room with doors closed to the rest of the house.

### *Maintain your house well – no or low cost options*

- Scrub all mouldy surfaces clean with a non-ammonia soap or detergent, and dry thoroughly. Mouldy curtains should also be cleaned.
- Keep gutters and down pipes clear so that storm water drains away.\*
- Trees or shrubs which shade your house will reduce the amount of free heat you receive from the sun! Cut vegetation back from north facing windows.\*
- If your house is on suspended timber foundations, keep the air vents free of vegetation to make sure the air flows easily under the house.\*

### *Maintain your house well – other tasks*

- Fit extractor fans in the bathroom and a range hood over the stove top in the kitchen.
- Repair all leaking plumbing\*
- Check for and repair all leaks in the roof and house cladding.\*
- Make sure that your insulation is up to Building Code standard wherever possible.\*
- If the ground is damp underneath your house, install polythene underneath your house to prevent moist air circulating through the floor-boards.\*
- Community Energy Action can help with insulation and polythene – call 374 5698 to find out how.

\*If you live in rented accommodation, it is your landlord's responsibility to maintain the house well so that it does not leak or create preventable dampness or condensation. Talk to your landlord or property manager if you think any of these maintenance tasks are required.

If you live in a cold home built before 1978, talk to HEET about the various types of financial assistance available for insulation.

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## Powerful People Use Energy Wisely

You don't need expensive technology to make a difference to your power bill. There are lots of small things YOU can do to reduce your electricity consumption. These easy actions will save money, and allow you to afford energy when you really need it – to keep warm and comfortable on cold winter days.

The best thing about these tips is that most of these actions are **FREE** – they just require a little of your time, or a change in habits. Any tips that require a small purchase are shown as [Lo Cost]

### Keep the heat in your house

#### *Heating*

- Heat only the rooms you are using by keeping doors closed.
- Turn off heaters when they are not in use. This includes oil column heaters and heat pumps.
- Use timers to turn electric heaters on and off (e.g. just before you get up in the mornings) [Lo Cost].
- Use thermostats with heaters to keep your room at an even temperature and avoid using electricity unnecessarily [Lo Cost to purchase thermostat if heater doesn't have one].
- Install external and internal draught stops for doors, and V-Seal draught stops for windows and doors.

#### *Windows*

- Draw curtains before dark to conserve any heat gain from the sun and to reduce household heat escaping. Open them in the morning once the outdoor temperature has risen and/or the sun is starting to shine through the windows in order to capture as much free heat as possible.
- If your house doesn't have curtains and you have a Community Services Card, contact HEET
- Install plastic window insulation: plastic windows can be installed to reduce heat loss and draughts. [Lo Cost]

### Hot Water

- Wash clothes using cold water and a full load, rather than multiple half-loads.
- Take short showers instead of long showers.
- Shower one after the other while the water is still hot in the pipes.
- Minimise use of heated towel rails. For example, a 60Watt rail running 24hrs a day, 365 days a year uses 526kWh, or at 18c/kWh is \$95. Running a towel rail on for only 50% of time would reduce cost by almost \$50/yr). Keep in mind that heated towel rails can help reduce moisture and mould in bathrooms, so running one does has some advantages.
- Repair dripping hot water taps in your kitchen, laundry and bathroom [Lo Cost].

### Lighting

- Turn off lights when you don't need them on.
- Use light bulbs which have appropriate brightness depending on what you need to light up.
- Maximise natural light by opening your curtains and keeping windows clean.
- Replace incandescent light bulbs with energy efficient compact fluorescent lights (CFL). These use about 75% less energy than an incandescent bulb for the same light output (e.g. a 22Watt CFL can replace a 100Watt incandescent light bulb). If the light is on for 4 hours per day the saving will be 114kWh per year, or at 18c/kWh = \$20.50. [Lo Cost]

## **Kitchen**

- Boil only as much water in the kettle as you need.
- Use cold water only to fill your kettle
- Don't run the hot tap continually when washing dishes.
- Wash as many dishes as possible at once using the minimum amount of hot water.
- Rinse dishes with cold water before you put them in the dishwasher.
- Start the dishwasher when it is full, not half empty.
- If your dishwasher heats up its own hot water, use this setting – it is more efficient.

## ***Fridges or Freezers***

- Don't leave the door open for any longer than necessary. Otherwise your fridge will use more electricity to keep cool.
- Older fridges will have coils fixed to the back of the fridge. Keep these coils behind fridge/freezer clean, using a very soft brush. Take care not to damage the coils.
- A fridge or freezer needs a gap of at least three centimetres between it and the wall to allow air to circulate and to work efficiently
- Turn off the butter conditioner if it isn't used.
- Set the fridge/freezer to the right temperature. If vegetable leaves freeze in your fridge, it's too cold. If your ice cream is rock hard in the freezer it is also too cold.
- Turn the second fridge in the garage off, or run it on the weekends only!
- Defrost the freezer regularly.
- Cool hot food before storing in the fridge (this is good for food safety as well).
- Check for leaky seals by running a piece of paper between the seal and the door surface. If you can move the paper, replace the seals (check the Yellow Pages under "Fridges and Freezers - Servicing" for businesses that will do this for you).[Lo Cost]

## ***Cooking***

- When cooking food use only the amount of water needed. Simmer rather than boil.
- If you intend to use frozen food try to think ahead and thaw frozen food in the fridge, without using the microwave or other form of heating
- Cook several dishes in the oven at the same time.
- Use your microwave oven as much as possible instead of a conventional oven. It's much quicker and uses less energy.
- Keep oven door seals clean.

## **Drying your clothes**

- Hang clothes on the line outside to dry rather than using a clothes dryer.

## **Appliance stand-by losses**

- Turn off appliances at the wall when they are not in use. This includes TVs, videos, stereos, microwave ovens, computers, printers *and* your cell phone charger. Around \$100 per year of electricity can be consumed by appliances on stand-by in an average home!

## **Problems with moisture and condensation**

- A damp house is more expensive to heat and can cause mould and mildew. Air your house regularly by opening windows during the day if it is not too cold.
- Open windows where water vapour is created (e.g. bathroom and kitchen) and close doors to prevent water vapour escaping into other parts of the house. Use extractor fans if available.
- See CEA's leaflet on how to manage dampness and condensation in your house for more information.

For more tips and advice on how to use energy wisely, visit CEA's website. [www.cea.co.nz](http://www.cea.co.nz)

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