

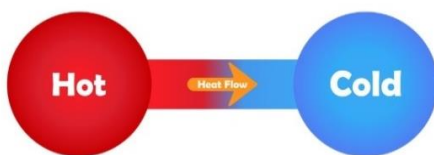
DRAUGHT PROOFING

INFORMATION SHEET 13

DRAUGHT PROOFING FOR EXISTING HOMES

Draughts are the uncontrolled movement of air which creates uncomfortable breezes where you don't want them. Draught proofing is finding and fixing the sources of draught to make your home easier to heat, more comfortable, and energy efficient.

Draughts are uncontrolled ventilation, and are also the cause of considerable heat loss. This can lead to discomfort, or cold, and to higher than necessary heating bills. To understand draughts it can be helpful to understand the fundamentals of heat and how it moves.



Second law of Thermodynamics

1. Hot air rises and cool air drops - Convection movement.
2. Heat moves from hot to cold - Thermodynamics law 2.
3. Heat goes where air flows!

BENEFITS

Draught-proofing is one of the cheapest and most effective ways to save energy and money in any type of building, it will help you to:

- Keep your home warm and energy efficient
- Save money on your fuel bills
- Lower your carbon footprint

BUSTING THE MYTHS

If you think these gaps are small and don't matter, think again! Even small gaps add up and in older NZ homes often equal a 1m² hole in the wall! Don't under-estimate *the power of accumulation*.

SOURCES OF DRAUGHTS

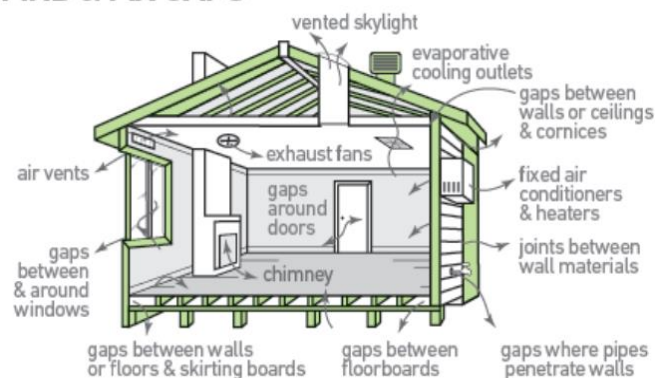
Draughts can be from almost anywhere! Anywhere that indoor air can escape to outside or vice versa. This is worsened by pressure differences between inside and outside. So a windy day is the best time to start looking.

Take a walk around your home and look for the obvious draughts first;

1. Obvious gaps and cracks,
2. Listen for rattles or whistling
3. Feel for moving air or cold spots within a room (using the back of your hand or the smoke of an incense stick)
4. Look for movement in curtains

See the diagram below for the main culprits for draughts;

FIND & FIX GAPS



WHERE DO I START

Below is what we believe to be a sensible process to follow when draught proofing an existing home; These are the most common areas to find draughts, with suggestions on how to fix them.

STEP 1 - CEILING

Before getting started it is important to understand that if your home has a tiled roof there is much more airflow through the ceiling cavity which can enter the living spaces.

Chimney and open flue

If your home has an open fireplace then you have a large hole leaking air straight out the chimney 24/7. These should be replaced with a modern heater and the chimney blocked off. Either capping the chimney, installing a damper or blocking it off from the inside using a Polyurethane Foam. The inflatable balloons are ineffective and don't last.

Old downlights and Passive Vents

Older downlights did not allow insulation to be installed over them because they run at high temperatures. Hot air rises and without insulation to slow the heat transfer these old style lights act like little thermal chimneys sucking hot air out of the living areas. Replacing your downlights with IC-4 rated LED downlights will use 90% less energy and allow you to remedy the insulation, ensure a continuous coverage with no gaps or compressions. Some older homes also have vents which allow air flow from living spaces into the ceiling cavity. These are ineffective and should be sealed closed.

Ceiling Man hole / Loft hatch

Hot air rises and gets lost in the cold space in your loft or attic, so it's worth blocking off draughts around your loft hatch. Use a foam strip insulation to get an air tight seal. Attaching insulation to the top side of the loft hatch is also important to have continuous ceiling insulation.

Extract fans

Extractor fans come in all shapes and sizes and similar to a chimney they are a hole to the outside. If your existing fan extracts directly into the roof space, you need to get it ducted to the outside, plus you can retrofit a draught stopping damper. When installing new extractor fans choose one with an integrated draught stopping damper.

STEP 2 - DOORS & WINDOWS

Exterior Doors

Over time timber doors shrink and warp, creating gaps at the top, bottom and sides, usually to different degrees. Using a V-seal draught excluder can close gaps that vary between 2mm-8mm wide. For the bottom of an exterior door use a brush weather seal externally.

-Follow the instructions carefully for best results

-Don't forget the internal door into the garage.

-If you have a cat door that's broken or no longer in use, it is well worth replacing it or sealing it shut.

Windows

Similar to timber doors, timber windows will experience movement overtime creating gaps. Again the V-seal will do the trick. For aluminum glazing the rubber seals can deteriorate overtime losing their ability to seal effectively. Contact the window manufacturer to arrange replacements.

Curtains

Windows will always be our weak link in the building envelope even in a new home. Curtains that have gaps at the top and sides create a reverse chimney, cooling effect as well as a nasty draught by the window. Please download our [Curtains](#) info sheet for more information.

STEP 3 - FLOOR

Floors

If your home has older floorboards your timber floorboards will have shrunk over time creating gaps between boards. In addition gaps can appear between flooring and skirting boards and even the wall. Install subfloor insulation with a wind-wash barrier attached.

Plumbing Penetrations

Open your kitchen cupboards underneath the sink and beneath your vanity basin and even the laundry. Typically there will be large holes to the outside to allow plumbing to pass through creating source of draught.

HOW TO SEAL THE GAPS

Depending on the size of the gaps and their location there will be different methods and sealants to use. As a general rule of thumb, using a flexible silicone based sealant is best for longevity of the seal.

1. Assess the gap, is it larger than 5mm wide at any point? If No you can skip step 2.
2. Select an appropriately sized closed cell foam backing rod and push into the gap, use a screw driver to push it in if required.
3. Clean the area with turps to remove any dirt and grime
4. Apply masking tape on both sides of the join.
5. Run a continuous bead of silicone along the gap
6. Lightly spray the joint with mineral turpentine.
7. Using a silicone applicator tool, smooth the joint removing any excess silicone.
8. Remove masking tape

See this [video](#) for details

