



Proposed Emission Design Standard for Wood and Coal Burning Appliances in Houses

INTRODUCTION

The Ministry for the Environment is proposing to develop a national environmental standard relating to emissions from new coal and wood burning appliances installed into homes within urban areas. The national standard will not affect:

- existing appliances or existing open fires, and
- appliances installed into rural areas.

This proposed standard aims to:

- improve the consistency and certainty of restrictions on the type of coal and wood heating appliances allowed into homes within urban areas
- improve air quality gradually over time by ensuring the replacement of older burners or open fires with lower emitting burners.

PROPOSAL

The Ministry is proposing a national environmental standard for the 'design' of home coal and wood burning appliances, based on particle emission rates.

This 'design standard' means that any appliances installed into houses within urban areas must be identical (in terms of the features that are likely to affect its emissions) to a unit that is tested in accordance with AS/NZS 4013:1999 entitled *Domestic solid fuel burning appliances - Method for determination of flue gas emission* and meets an average emissions limit of 1.5g of particle per kilogram of fuel burned – averaged over high, low and medium burn rates. The emission limit requirement in the proposed standard supersedes the emission limit of 4g/kg specified in the joint Australian New Zealand standard itself.

The standard will apply to any new appliance with a maximum heat output of 40kW installed into homes within urban areas in New Zealand. The Ministry is currently examining how best to define urban areas, such as specifying the number of households per square kilometre (e.g. an urban area includes those areas with greater than 80 households per kilometre).

The standard would prevent the installation of second hand appliances that do not meet the emission standard.

Councils would still be able to impose a stricter emission limit requirement where major improvements in air quality are required. They will also be able to implement rules relating to other fuel burning appliances, such as banning the use and installation of open fires or older woodburners.

THE ISSUES

Open fires, and small wood and coal-burning appliances used for home heating contribute the largest proportion of harmful particles (PM₁₀) found in New Zealand's air. They also release other hazardous contaminants, such as poly aromatic hydrocarbons, benzene and volatile organic compounds.

The most polluting appliances are usually open fires and older enclosed appliances. However, there are a number of ways to reduce emissions from home heating fires, including improving the appliance and improving the way it is used. How an appliance is used can significantly influence emissions from it. Burning wet wood releases more smoke and other contaminants because the wood can't burn properly. Damping down fires so they can be relit in the morning restricts airflow to the fire causing it to smoulder and create more smoke.

During winter, when people need heat and there's little wind, pollution from home fires can be trapped close to the ground and build up to levels that harm our lungs and general health, especially the health of those with respiratory diseases such as asthma.

Particle pollution from home heating fires is estimated to cause between 350-800 premature deaths each year in New Zealand. It is also thought to cause hundreds of hospital admissions for respiratory ailments, and health complaints that affect a person's ability to work and play. Emissions from home fires affect our ability to see through the air causing the 'smog haze' sometimes seen over Christchurch and Nelson.



While it is very important for people to stay warm in winter, it should not be at the expense of their health. Cleaner forms of home heating are available, including more efficient and low emitting burners, heat pumps, and flued gas heaters. Methods to collect emissions from home heating appliances are also under development.

To reduce emissions from home heating fires in areas with elevated pollution, councils and others are developing rules about the types of burner and fuels that can be used. Education campaigns about how to use burners appropriately have also been run in some towns. Throughout New Zealand, however, councils have developed a variety of requirements for home fires that may cause confusion and uncertainty for the appliance manufacturing industry, communities and retailers.

CURRENT SITUATION

Some regional air quality plans currently require new domestic coal and wood-burning appliances to meet different emission limits. The requirements vary from the joint AS/NZ standard requirement of 4g/kg of fuel burnt to 1g/kg of fuel burnt (averaged over low, medium and high burn rates). Where a person wishes to install an appliance that does not meet the permitted activity rule in a plan, the installation may be prohibited or a resource consent is required. Several councils apply rules differentially throughout the region, with stricter requirements applying to certain urban areas with high PM₁₀ concentrations, sometimes referred to as Clean Air Zones.

Increasingly tighter emission limit criteria have encouraged manufacturers to improve burner designs and reduce emissions. There are now a range of different burners available that have the potential to meet the 1.5g/kg requirement.

The Home Heating Association actively promotes education on environmental good practice for installers, retailers and purchases of home heating appliances.

IMPLEMENTATION

Units that are identical to the one tested that met the standard of 1.5g/kg of fuel burnt can specify this on the appliance's label. This labelling, which is part of the AS/NZ Standard will enable retailers, purchasers and council enforcement officers to check that units are being sold with due consideration to where they may be installed. Public information about the standard and its requirements will also be made available at these outlets and over the internet.

Regional councils and local authorities can enforce the standard by checking that appliances meet the standard when owners apply for building permits to install the appliance.

Manufacturers will need to have each new design tested in accordance with the standard, and to make the test report available to any council involved in checking whether the labelled appliance being sold is identical to that tested. Minor modifications that are unlikely to influence the appliance's emissions will be acceptable. However, more significant modifications, such as the removal of the low burn airflow stop to enable an overnight burn, would mean that the unit no longer complied with the standard and it is unlikely that a building permit would be granted for its installation. Retailers will still be able to sell non-complying units for installation outside urban areas, so retailers and councils will need to provide advice on specific requirements in different areas.

Public education on how to use appliances once they are installed is also very useful for ensuring emissions are reduced and the unit is operated appropriately. Further work on education campaigns will be considered once the standard has been implemented.

Issues relating to installation such as safety and other environmental impacts (e.g. ensuring adequate stack height to avoid plume downwash) can be specified in regional plans, district and city plans, or through building consent requirements.

WANT TO KNOW MORE?

Contact the **Ministry for the Environment** by phoning (04) 917 7400, emailing standards@mfe.govt.nz, or see our website: www.mfe.govt.nz