VICTORIAN BUILDING AUTHORITY

PLUMBING PRATICE NOTE

Mechanical Services MS 01| Solid fuel heaters

Audience

The audience/s for this Practice Note include/s:

- ☒ Architects/ Designers
- ☒ Builders
- ☐ Building Surveyors/ Inspectors
- ☐ Engineers
- ☐ Home Owners / Residential Tenants
- ☐ Owner Builders
- ☒ Plumbers
- ☐ Real estate management agents
- ☐ Trades and Maintenance (inc. Electricians)

Purpose

This Practice Note provides guidance on the regulation and general installation requirements of a Solid Fuel Heater (SFH).

The content and figures below provide guidance on:

- SFHs and mechanical services work
- Certification of SFHs
- Installation requirements for a SFH
- Operational recommendations

For guidance on the plumbing regulatory framework refer to Plumbing Practice Note RF-01 Regulatory Framework - Plumbing the under NCC

Abbreviations & Definitions

The abbreviations and definitions set out below are for guidance only. They are not intended to vary those set out in the Building Act 1993, Plumbing Regulations 2018 or the National Construction Code.

- **Act** – Building Act 1993
- **AS** – Australian Standard
- **AS/NZS** – Australian Standard/New Zealand Standard
- **BCA** – Building Code of Australia
- **EPA** – Environment Protection Authority
- **NCC** – National Construction Code
- **PCA** – Plumbing Code of Australia
- **Regulations** – Plumbing Regulations 2018
- **Section** – section of a referenced Australian Standard

VICTORIA State Government

- **SFH –** Solid Fuel Heater

SFHs and Mechanical services work

The installation requirements of a SFH is regulated plumbing work defined under Part 4 of the Plumbing Regulations 2018. It is classed as mechanical services work as it is associated with the heating or cooling of a building.

Only persons registered and/or licensed in mechanical services work can legally install a SFH.

The mechanical services work associated with a SFH is defined under the regulations to include:

- the construction, installation, replacement, repair, alteration, maintenance, testing or commissioning of a mechanical heating, cooling or ventilation system in a building, which is associated with the heating, cooling or ventilation of that of that building, and includes:

  i. any valve, regulator, register, pipe, duct, flue, tank, heating or cooling pipe or surface, boiler, burner, solid fuel heater, coil or other item that is used in the system
  ii. roof sheeting and roof flashing that is necessary for the purpose of any work described in this subregulation [21(1)]

- any design work that is incidental to, or associated with these works

In the case of a SFH, mechanical services work does not include disassembly or reassembly of a flue terminal for the purposes of cleaning a solid fuel heater.

Certification

A SFH needs to indicate that it has been manufactured, tested, marked, and labelled in accordance with AS/NZS 4012 and AS/NZS 4013.

AS/NZS 2918 Domestic Solid Fuel Burning Appliances - Installation states the appliance should be identifiable by a conformance plate with the marking tested to AS/NS 4013 and AS/NZS 4012 as specified in in AS/NZS 4012.

Installation requirements for a SFH

The installation must comply with the requirements of AS/NZS 2918 Domestic solid fuel burning appliances – Installation, and have regard to the heater manufacturers installation instructions, relating to SFH clearances, flue terminals, flue clearances from combustible surfaces and fresh air ventilation requirements.

Existing chimneys discharging combustion products shall be inspected for soundness and thoroughly cleaned of any flammable materials such as grass, small twigs and other debris that may be the result of birds nesting in the chimney cavity before a flue pipe is installed.

SFH flues must terminate external to the building in which the appliance is installed and outside any other enclosed space, created by building elements and other buildings. The termination of the flue system must not create a risk of fire to any adjacent combustible materials.

An air gap of not less than 10,000 mm², must be provided at the top of the chimney between the flue pipe and the chimney with means to prevent significant ingress of water and debris. There must be no ingress of flue gases through nearby windows or other openings, fresh air inlets, mechanical ventilation inlets, exhausts, or the like.

Plumbers should consider manufacturers' specifications which may provide clearances for fire safety reasons, such as embers from the flue.

Cracked and broken components on a SFH may render the installation unsafe.

Where a flue terminates in a region of high pressure relative to the combustion air inlet of the appliance, products of combustion may enter the building instead of being exhausted outside. This is known as a downdraught. The products of combustion may contain carbon monoxide, carbon dioxide, unburnt hydrocarbons, and water vapour.

A downdraught condition must always be corrected as these products of combustion may otherwise build up to concentrations which may be hazardous to health.

Typical methods for ensuring correct appliance and adequate flue operation:

Ensuring that the flue system is sized correctly for the appliance.

1. Ensuring that the flue system is sized correctly for the appliance.
2. Extending the flue into a region of undisturbed airflow, this is the most important and successful corrective measure.
3. Providing an outside source of combustion air to the appliance.
4. Ensuring the flue is not being overly cooled.
5. Removing any causes of negative pressure within the building (such as exhaust fans) and installing relief ventilation.
6. Fitting a suitable termination cowl.

Modifying or substituting any components on an SFH before, during or after installation can result in an unsafe appliance and one that does not conform to Australian standards.

For example, do not:

- modify an appliance to burn fuels that it was not designed to burn
- tamper with controls that regulate the air intake of an appliance
- modify an appliance by adding-on components such as catalytic combustor, water jackets or draught regulator.

Warnings are outlined in AS/NZS 2918:

- Warning: Any modification of the appliance that has not been approved in writing by the testing authority is considered to be in breach of the approval granted for conformance to AS/NZS 4013.
- Caution: Mixing of appliance or flue system components from different sources or modifying the dimensional specification of components may result in hazardous conditions. Where such action is considered, the manufacturer should be consulted in the first instance.

Recommendations for installation and operating instructions should be included with the appliance.

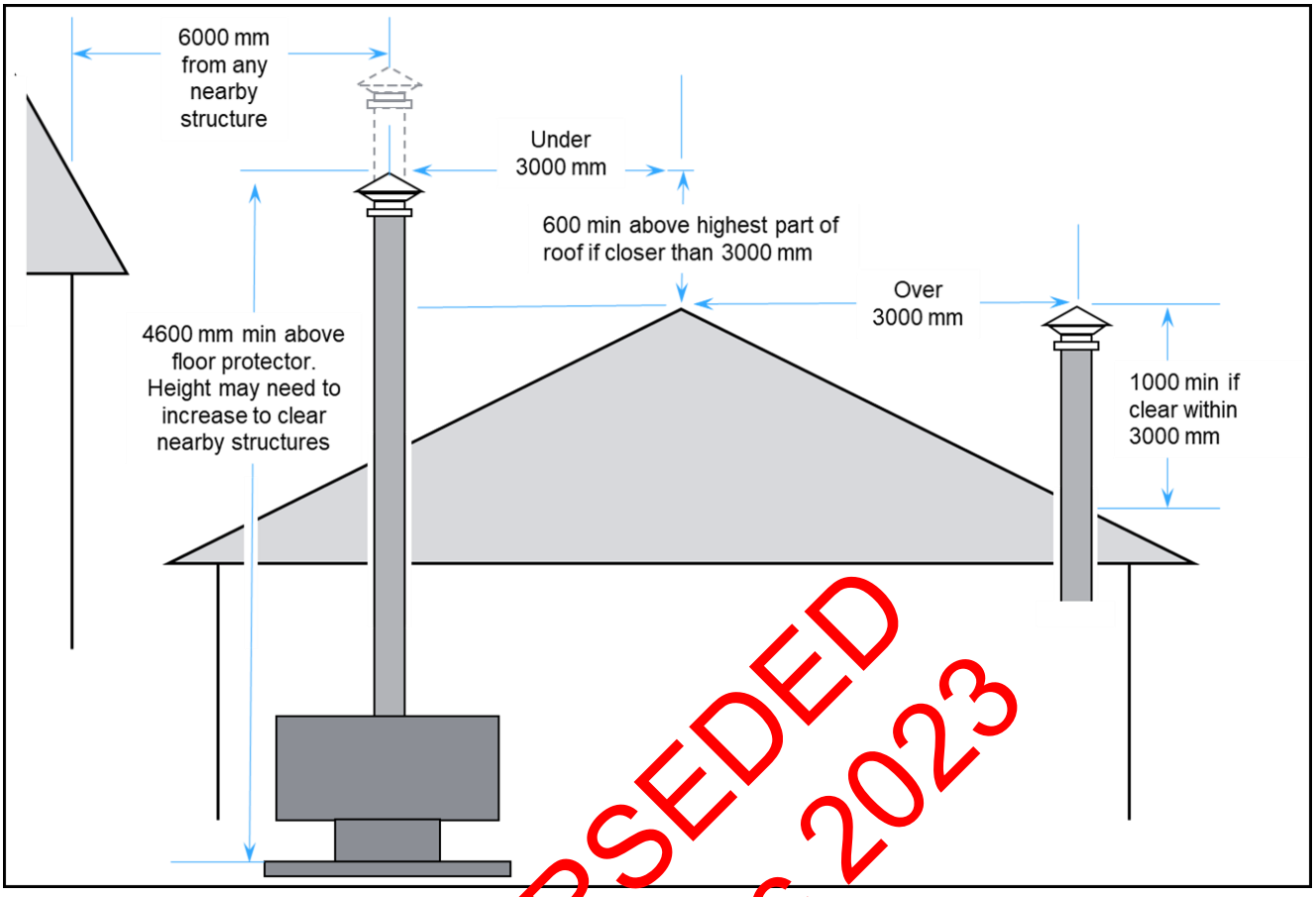

Figure 1 A guide to flue terminations only

Refer ***AS/NZS 2918*** for other requirements such as clearances, heat shielding, hearth requirements and flue cowls, etc.

Whilst it is not a mandatory requirement in Victoria it is important to check your solid fuel heater for any carbon monoxide spillage within the building

Operational recommendations

1. Follow the manufacturer's instructions for lighting, fuelling and operating the SFH. Users should also be advised of the importance of regular SFH servicing by appropriately registered/licensed plumbing practitioners.
2. SFH servicing shall ensure the integrity of the flue system including flues concealed in chimneys, flue and SFH clearances, and ventilation. Flue systems shall be cleaned of soot or creosote to assist in the prevention of flue fires.
3. Always use plenty of paper, good kindling and small logs to establish a hot fire quickly. Never use treated or painted woods in any SFH as painted wood can contain lead, treated woods, such as fence palings, can contain arsenic. When burnt, these substances may be released into the air or be present in the ash and pose a risk to health and/or to the environment.

4. Always leave the air control fully open for 10-20 minutes after starting or refuelling heater. Avoid blocking the front of the firebox with logs. Do not overfill heater. Do not try to burn logs that are too large to easily fit in the SFH.

Other Victorian Regulatory Authorities

EPA Victoria

The Environment Protection Authority manages sources of air pollution in Victoria under the Environment Protection Act 2017.

Environment Protection Regulations 2021

The objectives of these Regulations are to further the purposes of, and give effect to, the Environment Protection Act 2017 by imposing obligations in relation to environmental protection, pollution incidents, contaminated land, and waste, including in relation to on-site wastewater management systems. Division 2—Solid fuel heaters: A person must not manufacture or supply a solid fuel heater unless it complies with AS/NZS 4012 and AS/NZS 4013.

Local Government

The Public Health and Well Being Act 2008 Version No. 053

In accordance with the Act, a Council has a duty to remedy as far as is reasonably possible all nuisances to its existing municipal district. Complaints related to wood smoke are generally referred to an Environmental Health Officer of the relevant local council.

Related Documentation

- Building Act 1993
- Plumbing Regulations 2018
- National Construction Code 2019 Volume Three - Plumbing Code of Australia
- AS/NZS 2918 Domestic solid fuel burning appliances-Installation.
- AS/NZS 4013 Domestic solid fuel burning appliances- Method for determination of flue gas emission.
- AS/NZS 4012 Domestic solid fuel burning appliances - Method for determination of power output and efficiency
- Victorian Government Gazette: Waste Management policy (Solid Fuel Heating):
- S174-04 (gazette.vic.gov.au)
- Australian Home Heating Association: Australian Home Heating Association
- WorkSafe Victoria: WorkSafe Victoria - Home - WorkSafe

List of Amendments

- Update format to VBA approved style guide
- Updated figure added
- Information updated to reflect current standard.

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