

## TECHNICAL SUPPLEMENT

### Protecting the walls and ceilings around your wood heater



The information in this supplement and James Hardie's technical literature is only intended for use in relation to the relevant James Hardie products.



## INTRODUCTION

Walls, ceilings and floors are subjected to increased heat when in close proximity to wood heaters, hence protecting these elements is important as it helps prevent risk of fire at the combustible lining, or the timber frame.

This technical supplement is a guide for designers, builders, engineers and installers for protecting walls and ceilings around wood heaters or fireplaces in accordance to AS/NZS 2918, Domestic Solid Fuel Burning Appliances.



## WALLS

### Combustible surrounding material

It is important to determine if there are combustible construction elements or materials surrounding the wood heater that may ignite, or lose structural integrity when heated. These materials can include timber framing, timber flooring, paper tape under plasterboard, aluminium, vinyl, curtains, etc.

### Standard clearances

The heater manufacturer will specify *Clearances* or *Clearances to combustibles* which are the distances required between the heater and any combustible material. Where there is no clearance specified, the AS/NZS 2918 states the following standard clearances:

TABLE 1: STANDARD CLEARANCES SET BY AS/NZS 2918

Ceiling	1500mm vertically above the appliance
Walls	1200mm
Floors	500mm

Note: Minimum access clearance from front of heater to any adjacent fixed surface or object shall not be less than 1000mm.

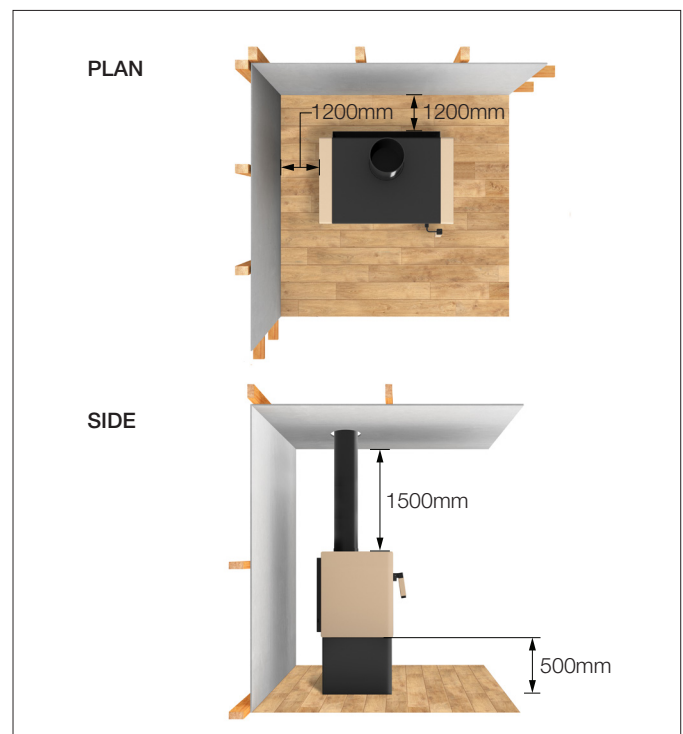


FIGURE 1: VISUAL PRESENTATION OF TABLE 1

Standard clearance requirements

For distances greater or smaller than the standard clearance, use table below

TABLE 2: CLEARANCE REQUIREMENTS	
Greater than standard clearances	Wall: Any James Hardie™ fibre cement internal lining installed over timber or steel framing.
Smaller than standard clearances	Refer to Table 3: Heat Shield Configurations

Heat Shield

If surrounding consists of combustible materials in close proximity to the wood heater, then a heat shield is required to protect them. Heat shields work by reducing heat via ventilated air cavities.

You can reduce clearances by a Reduction Factor, see Table 3 for the different heat shield configurations.

Reduced Clearance

=

Safety Clearance

X

Reduction Factor

**Example:** If the manufacturer specifies a 1000mm clearance to a combustible wall, we can use the Heat Shield 3 configuration to reduce this clearance. The new clearance between the appliance and the combustible wall would become 200mm (i.e; 1000mm x 0.2 = 200mm).

Note: For Reduction factors refer to Table 3

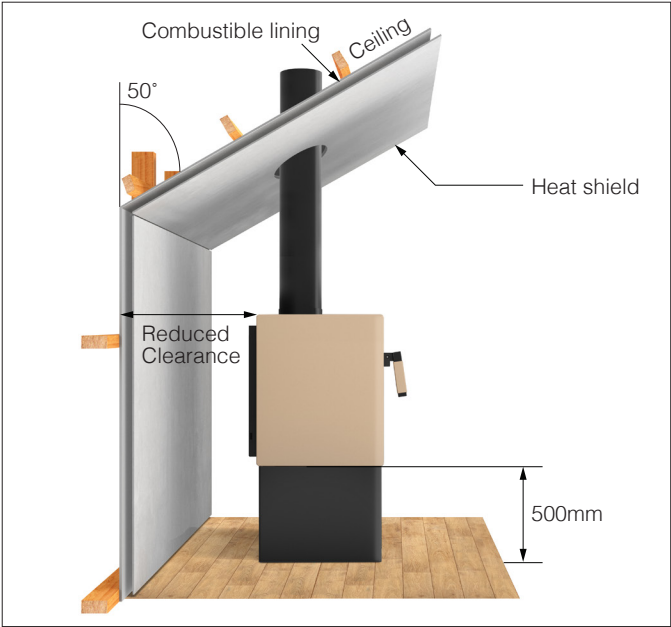


FIGURE 2: VISUAL PRESENTATION OF TABLE 2

If walls or ceilings are slanted at an angle greater than 45° from vertical, as shown in figure above, then read off row “Reduction Factor [for appliance heat shield which are more than 45° of the vertical]” from Table 3.

Note: Care should be taken to ensure any protective finish used on the shield are suitable for this application.

TABLE 3: HEAT SHIELD CONFIGURATIONS			
	HEAT SHIELD 1	HEAT SHIELD 2	HEAT SHIELD 3
Construction	<div>Ensure 25mm clearance from ceiling for ventilation</div> <div>Scyon Cavity Trim fixed to stud frame at 600 centres</div> <div>9mm Villaboard lining</div> <div>19mm air gap</div> <div>Combustible wall lining</div> <div>19mm</div> <div>Ensure 25mm clearance from floor for ventilation</div>	<div>Ensure 25mm clearance from ceiling for ventilation</div> <div>45 wide by 25 deep steel furring channel fixed to stud frame at 600 centres</div> <div>9mm Villaboard lining</div> <div>25mm air gap</div> <div>Combustible wall lining</div> <div>25mm</div> <div>Ensure 25mm clearance from floor for ventilation</div>	<div>Ensure 25mm clearance from ceiling for ventilation</div> <div>12mm Villaboard strips 45mm wide fixed back to stud frame at 600 centres</div> <div>9mm Villaboard lining</div> <div>12mm Air gap</div> <div>Combustible wall lining</div> <div>12mm 12mm</div> <div>Ensure 25mm clearance from floor for ventilation</div>
	<ul style="list-style-type: none"><li>9mm James Hardie(JH) Villaboard (installed as per manual)</li><li>19mm Scyon Cavity Trim.</li></ul>	<ul style="list-style-type: none"><li>9mm JH Villaboard (installed as per manual)</li><li>25mm Steel furring channels</li></ul>	<ul style="list-style-type: none"><li>9mm JH Villaboard (installed as per manual)</li><li>45mm wide 12mm JH Villaboard strip</li><li>9mm JH Villaboard (installed as per manual)</li><li>45mm wide 12mm JH Villaboard strip</li></ul>
Reduction Factor	For appliance heat shield which are <u>within</u> 45° of the vertical		
	0.4	0.3	0.2
	For appliance heat shield which are <u>more than</u> 45° of the vertical		
	0.8	0.6	N/A



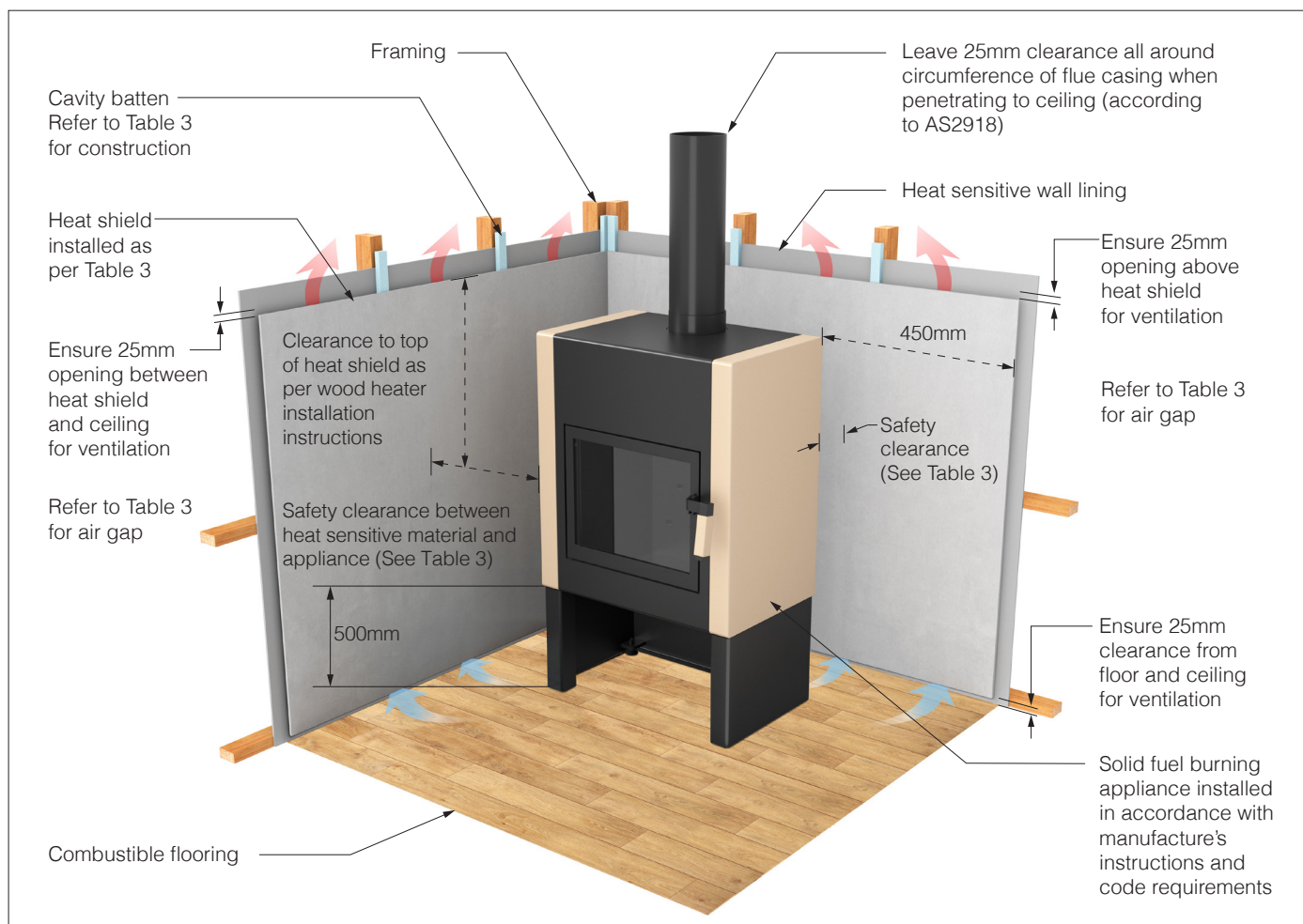


FIGURE 3: WOOD HEATER REPRESENTATION OF TABLE 3

## FLOORS

### Floor Protector Size

If the appliance is to be over a combustible floor, such as timber or vinyl or within 500mm of the appliance, the appliance shall be installed on a floor protector.

The floor protector must extend under the appliance to the perimeter of the floor protector. All joints shall be fixed to prevent accidental separation, and shall be sealed to prevent any spilt ash or embers contacting any heat sensitive material.

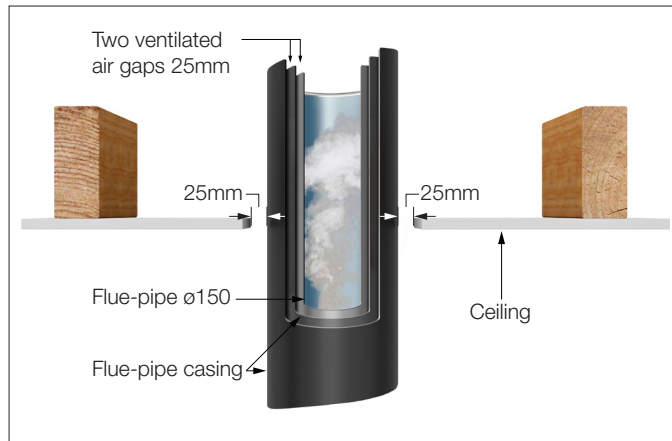
Please contact your wood heater manufacturer for more information regarding floor protectors.

## CEILINGS

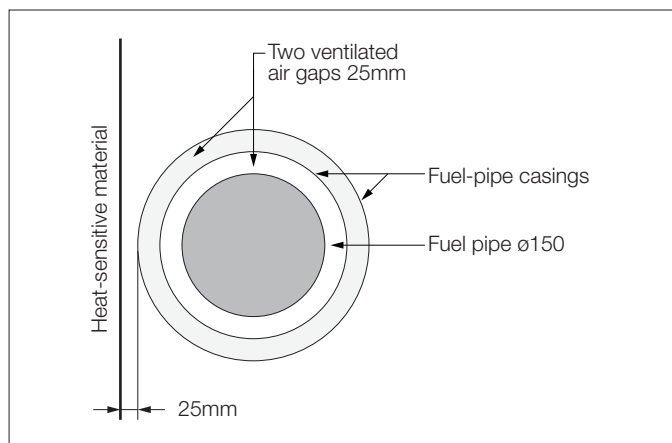
### Penetrations

When the flue penetrates the ceiling, a flue pipe having a ventilated double unperforated casing with minimum 25mm gaps between the flue pipe and inner casing and between the inner and outer casings should be installed.

A minimum clearance of ventilated 25mm air-gap (according to AS2918 4.6.3) is needed. Same applies (25mm) if ceiling is on an angle.

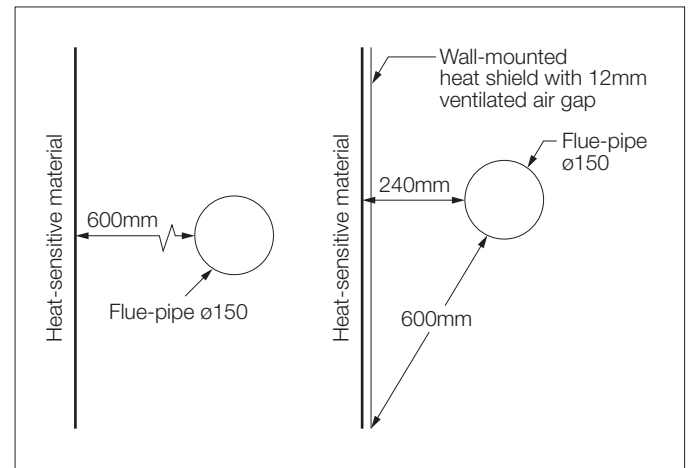


**FIGURE 5: STANDARD CLEARANCE TO FLUE PIPE AND CASINGS AS PER AS 2918.**



Note: Where the thickness of the pipe is less than 1.0mm the air gap may include the thickness of the material.

For heat shields attached to the wall/ceiling, the clearance factors given in Tables 3 shall apply.



**FIGURE 6: HEAT SHIELD SPACING FOR FLUE UP TO 150mm DIAMETER**

Safety clearance multiplied by the clearance factor for single ventilated heat shield gives reduced clearance, e.g. 600mm (Clause AS 2918 4.5.12, minimum clearance)  $\times$  0.4 = 240mm for an untested flue-system.

Note: The use of an unencased flue beyond the ceiling or wall is not permitted.